DESERT VALLEY COMPANY
MONOFILL EXPANSION PROJECT, CELL 4

FINAL
ENVIRONMENTAL IMPACT REPORT
VOL. 2: TECHNICAL APPENDICES

SCH NO. 2019120605

GPA#18-0004/ ZC#18-0005/ IS#18
CUP AMENDMENT #18-0020
WATER WELL CUP #21-0001

October 2021

Prepared for:
County of Imperial, Planning & Development Services Dept.

Prepared by:
BRG Consulting, Inc.

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FINAL

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VOL. 2: TECHNICAL APPENDICES

DESERT VALLEY COMPANY
MONOFILL EXPANSION PROJECT, CELL 4

SCH No. 2019120605

GPA#18-0004/ ZC#18-0005/IS#18-0020
CUP Amendment #18-0025
Water Well CUP #21-0001

Prepared for:
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES
801 MAIN STREET
EL CENTRO, CALIFORNIA 92243

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October 2021

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A-1 Notice of Preparation / Public Comments Received

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Imperial County
Planning & Development Services Department
NOTICE OF PREPARATION OF DRAFT EIR FOR THE DESERT VALLEY COMPANY MONOFILL EXPANSION PROJECT
NOTICE OF PUBLIC SCOPING MEETING

The Imperial County Planning & Development Services Department intends to prepare an Environmental Impact Report (EIR) for the proposed Desert Valley Company Monofill Expansion Project (Project), as described below. A public scoping meeting for the proposed EIR will be held by the Imperial County Planning & Development Services Department at 6:00 PM on January 9, 2020. The scoping meeting will be held at the Board of Supervisors Chambers, 2nd Floor, County Administration Center located at 940 Main Street, El Centro, CA 92243. Comments regarding the scope of the EIR will be accepted at this meeting. Additionally, comments may be sent to the Planning & Development Services Department, 801 Main Street, El Centro, California 92243, attention Jim Minnick, Director.

SUBJECT: Desert Valley Company Monofill Expansion Project

BOARD OF SUPERVISORS CONSIDERATION: Fall 2020.

PROJECT LOCATION: CalEnergy Operating Corporation (CalEnergy) is proposing to expand the existing Desert Valley Company Monofill (DVCM) with the addition of a new waste storage cell (referred to as Cell 4) adjacent to and immediately west of the existing monofill. The DVCM is located at 3301 West Highway 86, Brawley, California, 92227. The Project site is located on private lands north of Superstition Hills and south of State Route 86, approximately 12 miles west of the City of Westmoreland and 4 miles south of the Salton Sea in the County of Imperial, California. The Project site is located in Section 33, Range 11 East, Township 12 South within the U.S. Geological Survey (USGS) Kane Spring, California 7.5-minute topographic quadrangle (Assessor's Parcel No. [APN] 019-100-004-001).

PROJECT DESCRIPTION: The Desert Valley Company Monofill is an active Class II Solid Waste Management Facility used for the disposal of certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California. The existing DVCM is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020 (CUP Amendment 18-0025), a General Plan Amendment (GPA 18-0004_and a Zone Change (ZC 18-0005) to facilitate expansion of the existing DVCM for development of a new waste storage cell (referred to herein as Cell 4) and associated facilities.

The proposed Project would expand the existing DVCM by approximately 80 acres and would provide an additional 1.3 million cubic yards of disposal capacity. The design of Cell 4 would be consistent with the DVCM's existing permits and all aspects of the proposed Project, such as operations, maintenance, monitoring, recordkeeping, and financial assurances, would be consistent with those of the existing monofill.

DESIGNATED AREA PLAN: The Project area is designated as "Recreation and Open Space" by the Imperial County General Plan. The Project parcel is zoned S-2.

BOARD OF SUPERVISORS DISTRICT: District 3, Supervisor, Michael W. Kelley.

ANTICIPATED SIGNIFICANT EFFECTS: The EIR will analyze potential impacts associated with the following: Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hazards/Hazardous Materials, Hydrology/Water Quality, Transportation/Traffic, Tribal Cultural Resources and Utilities and Service Systems.

COMMENTS REQUESTED: The Imperial County Planning & Development Services Department would like to know your ideas about the effects this project might have on the environment and your suggestions as to alternatives, mitigation or ways the project may be revised to reduce or avoid any significant environmental impacts. Your comments will guide the scope and content of environmental issues to be examined in the EIR. Your comments may be submitted in writing to: Jim Minnick, Director, Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243. Available project information may be reviewed at this location. Due to the limits mandated by State law, your response must be sent at the earliest possible date but no later than 35 days after receipt of this notice.

NOTICE OF PREPARATION REVIEW PERIOD: December 27, 2019 through January 31, 2020.

Imperial County
Planning & Development Services Department
NOTICE OF PREPARATION OF DRAFT EIR FOR THE DESERT VALLEY COMPANY MONOFILL EXPANSION PROJECT
NOTICE OF PUBLIC SCOPING MEETING

The Imperial County Planning & Development Services Department intends to prepare an Environmental Impact Report (EIR) for the proposed Desert Valley Company Monofill Expansion Project (Project), as described below. A public scoping meeting for the proposed EIR will be held by the Imperial County Planning & Development Services Department at 6:00 PM on January 9, 2020. The scoping meeting will be held at the Board of Supervisors Chambers, 2nd Floor, County Administration Center located at 940 Main Street, El Centro, CA 92243. Comments regarding the scope of the EIR will be accepted at this meeting. Additionally, comments may be sent to the Planning & Development Services Department, 801 Main Street, El Centro, California 92243, attention Jim Minnick, Director.

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The proposed Project would expand the existing DVCM by approximately 80 acres and would provide an additional 1.3 million cubic yards of disposal capacity. The design of Cell 4 would be consistent with the DVCM's existing permits and all aspects of the proposed Project, such as operations, maintenance, monitoring, recordkeeping, and financial assurances, would be consistent with those of the existing monofill.

DESIGNATED AREA PLAN: The Project area is designated as "Recreation and Open Space" by the Imperial County General Plan. The Project parcel is zoned S-2.

BOARD OF SUPERVISORS DISTRICT: District 3, Supervisor, Michael W. Kelley.

ANTICIPATED SIGNIFICANT EFFECTS: The EIR will analyze potential impacts associated with the following: Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hazards/Hazardous Materials, Hydrology/Water Quality, Transportation/Traffic, Tribal Cultural Resources and Utilities and Service Systems.

COMMENTS REQUESTED: The Imperial County Planning & Development Services Department would like to know your ideas about the effects this project might have on the environment and your suggestions as to alternatives, mitigation or ways the project may be revised to reduce or avoid any significant environmental impacts. Your comments will guide the scope and content of environmental issues to be examined in the EIR. Your comments may be submitted in writing to: Jim Minnick, Director, Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243. Available project information may be reviewed at this location. Due to the limits mandated by State law, your response must be sent at the earliest possible date but no later than 35 days after receipt of this notice.

NOTICE OF PREPARATION REVIEW PERIOD: December 27, 2019 through January 31, 2020.

11328517

January 27, 2020

Ms. Patricia Valenzuela
PatriciaValenzuela@co.imperial.ca.us
Imperial County
Planning and Development Services Department
801 Main Street
El Centro, CA 92243

Subject: **SCH No. 2019120605** – Notice of Preparation for the Desert Valley Company Monofill Expansion Project, SWIS No. 13-AA-0022 – Imperial County

Dear Ms. Valenzuela:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments on the proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

PROJECT DESCRIPTION

The County of Imperial, acting as Lead Agency, has prepared and circulated a Notice of Preparation (NOP) and Initial Study & Environmental Analysis (IS) for the Desert Valley Company Monofill Expansion Project Draft Environmental Impact Report (DEIR) in order to comply with CEQA and to provide information to, and solicit consultation with, Responsible Agencies in the approval of the proposed project.

The Desert Valley Company Monofill (DVCM) is located at 3301 West Highway 86, Brawley, California. The site consists of Assessor Parcel Number 019-100-004-001 and designated as Recreation and Open Space by the General Plan and zoned Open Space Preservation (S-2). The site is located north of Superstition Hills and south of State Route 86. The site is surrounded by the existing monofill to the east and open desert on the north, south, and west.

The proposed project is to expand the existing DVCM by approximately 80 acres for development of a new waste storage cell (Cell 4) and provide an additional 1.3 million cubic yards of disposal capacity. The design of Cell 4 would be consistent with the DVCM's existing permits and all aspects of the proposed project, such as operations, maintenance, monitoring, record keeping, and financial assurances would be consistent with those of the existing monofill. Cell 4 has a project lifespan of 28.6 years.

COMMENTS

DVCM currently operates under a Solid Waste Facilities Permit (SWFP) issued by the Imperial County Environmental Health Services as the Local Enforcement Agency (LEA) for Imperial County on September 14, 2010. The facility is permitted as a Class II disposal facility that receives non-hazardous geothermal drilling muds and cuttings, geothermal filter cake, soils contaminated with geothermal materials, and incidental plastic sheeting (truck bed liners)/materials. As described in the IS, the aforementioned materials contain a number of substances, including arsenic, salts, metals, organic hydrocarbons, and naturally occurring radioactive materials (NORM).

Page 8 – The IS notes the project would occupy a surface area of approximately 50 acres, however, Cell 4A is identified as 24 acres and Cell 4B as 21 acres. The DEIR project description should be clear on what the proposed total disposal footprint expansion will be within the 80 acres. Page 18 indicates an increase in permitted disposal area from 28.9 acres to 74.3 acres (an increase of 45.4 acres). The DEIR should be consistent with the proposed acreage through the document.

Page 9 – Other Public Agencies Whose Approval is Required – In addition to the agencies listed, the California Department of Public Health (CDPH) should also be listed since the materials received include materials that are consider NORM and possibly TENORM (Technologically Enhanced NORM), which may require an exemption or license from CDPH.

Although the existing disposal facility operates under a SWFP issued by the solid waste local enforcement agency (LEA), it should be noted that CalRecycle and LEA only have authority over “solid waste” as defined in Division 30 of the Public Resources Code Section 40191. “Solid waste,” as defined, specifically excludes radioactive wastes that are regulated under the Radiation Control Law (Health and Safety Code Sections 114960 et seq.). NORM and TENORM are not subject to the regulatory authority of CalRecycle and LEAs and are instead regulated by CDPH.

Page 18 – The discussion for Item c) identifies an increase in the permitted disposal are from 28.9 acres to 74.3 acres and elevation of 20 feet and 30 feet above existing grades. Please note the current SWFP includes a maximum elevation of -59 feet mean sea level and a depth of 39 feet below ground surface. Any changes from the elevations in the SWFP should also be included in the project description and analyzed in the DEIR.

Page 19 – The discussion for Item d) identifies the existing hours are 6:00 am to 6:00 pm Monday through Sunday. Does this include ancillary and maintenance activities, including nighttime construction? For SWFP purposes, all operational activity hours (e.g., receipt of waste and ancillary/maintenance activities) should be identified and analyzed in the DEIR.

Page 27 – Hazards and Hazardous Materials – With the types of materials received, this section of the DEIR should also include a discussion and analysis of the potential impacts for the receipt and handling of NORM/TENORM, including radiation monitoring

and maximum radiation levels in the NORM/TENORM that is received for disposal at the facility.

Page 28- 29 – Item b) is listed as a Potential Significant Impact in the checklist on Page 28 and discussion on Page 29, however, the text in the discussion for Item b) notes that the environmental parameter is not proposed for further environmental analysis in the DEIR. Any potentially significant impacts should be analyzed in the DEIR.

CalRecycle staff noticed that several of the items checked in the checklist were not consistent with the discussion (e.g., Less Than Significant Impact checked in the checklist, but the discussion stated No Impact).

Solid Waste Regulatory Oversight

The Imperial County Environmental Health Services is the LEA for Imperial County and responsible for providing regulatory oversight of solid waste handling and disposal activities. Please contact the LEA, Jorge Perez, at 442.265.1888 to discuss potential solid waste permitting requirements for the proposed project.

CONCLUSION

CalRecycle staff thanks the Lead Agency for the opportunity to review and comment on the NOP and IS and hopes that this comment letter will be useful to the Lead Agency preparing the DEIR and in carrying out their responsibilities in the CEQA process.

CalRecycle staff requests copies of any subsequent environmental documents, copies of public notices and any Notices of Determination for this proposed project.

If the environmental document is adopted during a public hearing, CalRecycle staff requests 10 days advance notice of this hearing. If the document is adopted without a public hearing, CalRecycle staff requests 10 days advance notification of the date of the adoption and proposed project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at 916.341.6413 or by e-mail at jeff.hackett@calrecycle.ca.gov.

Sincerely,

Jeff Hackett, Manager
Permits & Assistance South Section
Waste Permitting, Compliance & Mitigation Division

cc: Benjamin Escotto, CalRecycle
Jorge Perez, Imperial County Environmental Health Services, LEA
Gonzalo Perez, California Department of Public Health

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

January 29, 2020
Sent via email

Ms. Patricia Valenzuela
Imperial County
801 Main Street
El Centro, CA 92243
icpdscommentletters@co.imperial.ca.us

Subject: Notice of Preparation of a Draft Environmental Impact Report
Desert Valley Company Monofill Expansion Project
State Clearinghouse No. 2019120605

Dear Ms. Valenzuela:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) from the County of Imperial (County) for the Desert Valley Company Monofill Expansion Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CDFW is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the Project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The proposed Project includes a general plan amendment, zone change, amendment to a Conditional Use Permit (CUP) and expansion of the Desert Valley Company Monofill (DVCM), an existing Class II Solid Waste Management Facility, through development of a new waste storage cell (Cell 4) on Assessor Parcel Number (APN) 019-100-004, located south of State Route 86 (Highway 86) about 12 miles west of the City of Westmoreland, within unincorporated Imperial County, California. Specific details of the proposed Project include:

1. General Plan Amendment to change the existing land use designation from "Recreational/Open Space" to "Special Purpose Facility" on approximately 458.5 acres of the parcel.

2. Zone Change from S-2 (Open Space/Preservation) to M-2 (Medium Industrial).

3. Amendment to the CUP to allow construction and operation of the expanded monofill.

4. Expansion of the existing facility, by approximately 80-acres, by CalEnergy Operating Corporation (CalEnergy) through the construction of the Cell 4 and associated facilities that include:

    - Construction of a new 1.2-acre leachate pond for Cell 4;
    - Addition and extension of stormwater diversion dikes to divert surface runoff around the Project site;
    - Minor extensions/additions to internal roads to provide access to Cell 4;
    - Installation of a new water well for use during construction; and
    - Construction of additional air quality particulate sampling stations, and additional groundwater monitoring wells.

Cell 4 would be built in two phases, Phase 1 and 2, that would construct Cell 4A and Cell 4B respectively. Cells 4A and 4B would have a combined capacity of 1.3 million tons. Cell 4A would have a surface area of 24 acres and Cell 4B would have a surface area of 21 acres. The waste stream at the expanded facility would continue to consist of geothermal filter cake (solid materials filtered out of geothermally heated waters), drilling mud materials and cuttings, soils containing geothermal materials, and incidental plastic sheeting used as truck liners by waste transport trucks. These materials contain a number of substances including arsenic, salts, metals, organic hydrocarbons, and Naturally Occurring Radioactive Materials. No municipal solid waste is accepted at the DVCM and it is not open for public and/or commercial use at any time. The waste stream is generated by the CalEnergy geothermal power generation operations.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

CDFW recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources and Hydrology

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats.

The CDFW recommends that the DEIR specifically include:

1. An assessment of the various habitat types located within the project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the project. CDFW's California Natural Diversity Database (CNDDB) in Sacramento should be contacted at (916) 322-2493 or CNDDB@wildlife.ca.gov to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas

identified under Chapter 12 of the Fish and Game Code, in the vicinity of the proposed Project.

Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the project site.

3. A complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

   Burrowing Owl (*Athene cunicularia*)

   The Project site has the potential to provide suitable foraging and/or nesting habitat for burrowing owl. Take of individual burrowing owls and their nests is defined by Fish and Game Code section 86, and prohibited by sections 3503, 3503.5 and 3513. Take is defined in Fish and Game Code section 86 as "hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill."

   CDFW recommends that the County follow the recommendations and guidelines provided in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The Staff Report on Burrowing Owl Mitigation, specifies three steps for project impact evaluations:

   a. A habitat assessment;
   b. Surveys; and
   c. An impact assessment

   As stated in the Staff Report on Burrowing Owl Mitigation, the three progressive steps are effective in evaluating whether a project will result in impacts to burrowing

owls, and the information gained from the steps will inform any subsequent avoidance, minimization, and mitigation measures. Habitat assessments are conducted to evaluate the likelihood that a site supports burrowing owl. Burrowing owl surveys provide information needed to determine the potential effects of proposed projects and activities on burrowing owls, and to avoid take in accordance with Fish and Game Code sections 86, 3503, and 3503.5. Impact assessments evaluate the extent to which burrowing owls and their habitat may be impacted, directly or indirectly, on and within a reasonable distance of a proposed CEQA project activity or non-CEQA project.

Flat-tailed Horned Lizard (*Phrynosoma platyrhinos*)

CDFW recommends that the County review the *Flat-tailed Horned Lizard Rangewide Management Strategy* (Strategy). This Strategy was developed by multiple agencies, including CDFW and the Bureau of Land Management, as guidance for the conservation and management of sufficient habitat to maintain viable populations of flat-tailed horned lizards. CDFW recommends that the DEIR be developed in accord with all relevant sections of the Strategy.

4. A thorough, recent, floristic-based assessment of special status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see https://www.wildlife.ca.gov/Conservation/Plants).

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

6. A full accounting of all open space and mitigation/conservation lands within and adjacent to the Project.

7. An assessment of the potential impacts of the Project to groundwater-dependent ecosystems within the Ocotillo-Clark Valley Groundwater Basin. CDFW is particularly concerned that the Project may result in potential impacts to San Felipe Creek, a groundwater-dependent ecosystem that is located four miles from the Project site. San Felipe Creek is identified by the United States Fish and Wildlife Service as Designated Critical Habitat for the state- and federally-endangered desert pupfish (*Cyprinodon macularius*), and the site contains one of the few remaining populations of desert pupfish in a totally natural environment. Many of the populations are present in waters that have varying degrees of anthropogenic influences (e.g. agricultural drains) and/or that are being impacted by increasing salinity (e.g. Salton Sea). This groundwater-dependent ecosystem has experienced serious declines in groundwater availability during the past two years that has resulted in a reduction in desert pupfish habitat quantity and quality with direct impacts, including mortality, to desert pupfish, and the necessity to perform multiple

fish rescue operations. The cause of the decline has not been established.

Because of limited distribution of desert pupfish, declines in groundwater availability, and documented corresponding decreases in surface hydrology, CDFW is extremely concerned with potential impacts of increased groundwater extraction within this area, and the potentially significant effects that groundwater extraction may have on this species. The groundwater hydrology of this groundwater basin is not well understood. Therefore, CDFW recommends that the DEIR thoroughly analyze proposed impacts of installation of the proposed groundwater well within the Ocotillo-Clark Valley Groundwater Basin.

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources as a result of the Project. To ensure that Project impacts to biological resources are fully analyzed, the following information should be included in the DEIR:

1. A discussion of potential impacts from lighting, noise, human activity (e.g., recreation), defensible space, and wildlife-human interactions created by zoning of development projects or other project activities adjacent to natural areas, exotic and/or invasive species, and drainage. The latter subject should address Project-related changes on drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

2. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Natural Community Conservation Plan, or other conserved lands).

3. An evaluation of impacts to adjacent open space lands from both the construction of the Project and any long-term operational and maintenance needs.

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. Please include all potential direct and indirect Project related impacts to riparian areas, wetlands, vernal pools, alluvial fan habitats, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and other sensitive habitats, open lands, open space, and adjacent natural habitats in the cumulative effects analysis. CDFW specifically recommends that the Project analyze cumulative effects to the Ocotillo-Clark Valley Groundwater Basin, and in particular potential cumulative impacts to San Felipe Creek. The underlying groundwater hydrology and

dynamics of the Ocotillo-Clark Valley Groundwater Basin are poorly understood, and no hydrologic model exists for this groundwater basin. Therefore, the installation of additional groundwater wells within the basin may have a cumulative effect on groundwater availability in the San Felipe Creek Groundwater Dependent Ecosystem which will directly affect a population of state and federally endangered desert pupfish. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Alternatives Analysis

CDFW recommends the DEIR describe and analyze a range of reasonable alternatives to the Project that are potentially feasible, would "feasibly attain most of the basic objectives of the Project," and would avoid or substantially lessen any of the Project's significant effects (CEQA Guidelines § 15126.6[a]). The alternatives analysis should also evaluate a "no project" alternative (CEQA Guidelines § 15126.6[e]).

Mitigation Measures for Project Impacts to Biological Resources

The DEIR should identify mitigation measures and alternatives that are appropriate and adequate to avoid or minimize potential impacts, to the extent feasible. The County should assess all direct, indirect, and cumulative impacts that are expected to occur as a result of the implementation of the Project and its long-term operation and maintenance. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Fully protected species may not be taken or possessed at any time. Project activities described in the DEIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the DEIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the Lead Agency include in the analysis how appropriate avoidance, minimization, and mitigation measures will reduce indirect impacts to fully protected species.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts.

3. *California Species of Special Concern* (CSSC): CSSC status applies to animals generally not listed under the federal Endangered Species Act or the CESA, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. CSSCs should be considered during the environmental review process. CSSC that have the potential or have been documented to occur within or adjacent to the project area, including, but not limited to: flat-tailed horned lizard, burrowing owl, Le Conte's thrasher, and Palm Springs pocket mouse.

4. *Mitigation*: CDFW considers adverse project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement, and preservation should be evaluated and discussed in detail. Where habitat preservation is not available onsite, offsite land acquisition, management, and preservation should be evaluated and discussed in detail.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

   If sensitive species and/or their habitat may be impacted from the Project, CDFW recommends the inclusion of specific mitigation in the DEIR. CEQA Guidelines section 15126.4, subdivision (a)(1)(8) states that formulation of feasible mitigation measures should not be deferred until some future date. The Court of Appeal in *San Joaquin Raptor Rescue Center* v. *County* of *Merced* (2007) 149 Cal.App.4th 645 struck down mitigation measures which required formulating management plans developed in consultation with State and Federal wildlife agencies after Project approval. Courts have also repeatedly not supported conclusions that impacts are mitigable when essential studies, and therefore impact assessments, are incomplete *(Sundstrom* v. *County* of *Mendocino* (1988) 202 Cal. App. 3d. 296; *Gentry* v. *City* of *Murrieta (1995)* 36 Cal. App. 4th 1359; *Endangered Habitat League, Inc.* v. *County* of *Orange* (2005) 131 Cal. App. 4th 777).

   CDFW recommends that the DEIR specify mitigation that is roughly proportional to the level of impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). The mitigation should provide long-term conservation value for the suite of species and habitat being impacted by the Project. Furthermore, in order for mitigation measures to be effective, they need to be specific, enforceable, and feasible actions that will improve environmental conditions.

5. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.

   Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project; examples could include retention of woody material, logs, snags, rocks, and brush piles.

6. *Nesting Birds and Migratory Bird Treaty Act:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Fish and Game Code sections 3503, 3503.5, and 3513 afford protective measures as follows: Fish and Game Code section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by the rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.).

CDFW recommends that the DEIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: project phasing and timing, monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the project site. If pre-construction surveys are proposed in the DEIR, the CDFW recommends that they be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

7. *Moving out of Harm's Way:* To avoid direct mortality, CDFW recommends that the lead agency condition the DEIR to require that a CDFW-approved qualified biologist be retained to be onsite prior to and during all ground- and habitat-disturbing activities to move out of harm's way special status species or other wildlife of low or limited mobility that would otherwise be injured or killed from project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety (i.e., CDFW does not recommend relocation to other areas). Furthermore, it should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

8. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species as studies have shown that these efforts are experimental in nature and largely unsuccessful.

California Endangered Species Act

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in "take" (California Fish and Game Code Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the project. CESA ITPs are issued to conserve, protect, enhance, and restore State-listed CESA species and their habitats.

CDFW encourages early consultation, as significant modification to the proposed Project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. The California Fish and Game Code requires that CDFW comply with CEQA for issuance of a CESA ITP. CDFW therefore recommends that the DEIR addresses all Project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of CESA.

Lake and Streambed Alteration Program

Based on review of material submitted with the NOP and review of aerial photography at least two drainage features traverse the site. Depending on how the Project is designed and constructed, it is likely that the Project applicant will need to notify CDFW per Fish and Game Code section 1602. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: Substantially divert or obstruct the natural flow of any river, stream or lake; Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or Deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

Upon receipt of a complete notification, CDFW determines if the proposed Project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify your Project that would eliminate or reduce harmful impacts to fish and wildlife resources.

CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if necessary, the DEIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the proposed Project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to https://www.wildlife.ca.gov/Conservation/LSA/Forms.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). Information can be submitted online or via completion of the CNDDB field survey form at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

REFERENCES

California Department of Fish and Game (CDFG). 2012. Staff report of burrowing owl mitigation. State of California, Natural Resources Agency. Available for download at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.).

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP of a DEIR for the Desert Valley Company Monofill Expansion Project (SCH No. 2019120605) and recommends that the County of Imperial address CDFW's comments and concerns in the forthcoming DEIR. If you should have any questions pertaining to the comments provided in this letter, please contact Charles Land, Environmental Scientist, at (760) 200-9418 or at Charles.Land@wildlife.ca.gov.

Sincerely,

Scott Wilson
Environmental Program Manager

ec: HCPB CEQA Coordinator
Habitat Conservation Planning Branch

Office of Planning and Research, State Clearinghouse, Sacramento
state.clearinghouse@opr.ca.gov

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NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

Governor's Office of Planning & Research

DEC 27 2019

STATE CLEARINGHOUSE

December 26, 2019

Patricia Valenzuela
Imperial County
801 Main Street
El Centro, CA 92243

RE: SCH# 2019120605, Desert Valley Company Monofill Expansion Project, Imperial County

Dear Ms. Valenzuela:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   - **a.** A brief description of the project.
   - **b.** The lead agency contact information.
   - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   - **a.** Alternatives to the project**.**
   - **b.** Recommended mitigation measures**.**
   - **c.** Significant effects**.** (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   - **a.** Type of environmental review necessary.
   - **b.** Significance of the tribal cultural resources.
   - **c.** Significance of the project's impacts on tribal cultural resources.
   - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
   - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:

Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Desert Valley Company Monofill Expansion Project

Lead Agency: Imperial County Planning & Development Services Department
Contact Person: Patricia Valenzuela
Mailing Address: 801 Main Street
Phone: (442) 265-1736
City: El Centro Zip: 92243 County: Imperial

Project Location: County: Imperial City/Nearest Community: Westmoreland
Cross Streets: Highway 86 Zip Code: 92227
Longitude/Latitude (degrees, minutes and seconds): 33 ° 05 ′ 04 ″ N / 115 ° 49 ′ 38 ″ W Total Acres: 100
Assessor's Parcel No.: 019-100-004 Section: 33 Twp.: 12 S Range: 11 E Base: Mount Diablo
Within 2 Miles: State Hwy #: 86 Waterways: N/A
Airports: N/A Railways: N/A Schools: N/A

Document Type:

CEQA: ☒ NOP ☐ Draft EIR
☐ Early Cons ☐ Supplement/Subsequent EIR
☐ Neg Dec (Prior SCH No.) _____
☐ Mit Neg Dec Other: Initial Study

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other: _____

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☒ Rezone ☐ Annexation
☒ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☒ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ Other: Zone Change

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
☐ Educational: _____
☐ Recreational: _____
☐ Water Facilities: Type _____ MGD _____

☐ Transportation: Type _____
☐ Mining: Mineral _____
☐ Power: Type _____ MW _____
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☒ Other: Expansion of existing monofill

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☐ Fiscal ☒ Recreation/Parks ☐ Vegetation
☒ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☒ Water Quality
☒ Air Quality ☒ Forest Land/Fire Hazard ☐ Septic Systems ☒ Water Supply/Groundwater
☒ Archeological/Historical ☒ Geologic/Seismic ☐ Sewer Capacity ☒ Wetland/Riparian
☒ Biological Resources ☒ Minerals ☒ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☒ Noise ☒ Solid Waste ☒ Land Use
☒ Drainage/Absorption ☒ Population/Housing Balance ☒ Toxic/Hazardous ☒ Cumulative Effects
☐ Economic/Jobs ☒ Public Services/Facilities ☒ Traffic/Circulation ☐ Other: _____

Present Land Use/Zoning/General Plan Designation:

Recreation and Open Space (Imperial County General Plan) / Zoning S-2: Open Space Preservation

Project Description: *(please use a separate page if necessary)*

The Desert Valley Company Monofill is an active Class II Solid Waste Management Facility used for the disposal of certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California. The existing DVCM is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility Permit No. 13 AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020 (CUP Amendment 18-0025) , a General Plan Amendment (GPA 18-0004) and a Zone Change (ZC 18-0005) to facilitate expansion of the existing DVCM for development of a new waste storage cell (referred to herein as Cell 4) and associated facilities. The proposed Project would expand the existing DVCM by approximately 80 acres and would provide an additional 1.3 million cubic yards of disposal capacity.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X	Air Resources Board	X	Office of Historic Preservation
	Boating & Waterways, Department of		Office of Public School Construction
	California Emergency Management Agency		Parks & Recreation, Department of
	California Highway Patrol		Pesticide Regulation, Department of
X	Caltrans District # 11		Public Utilities Commission
	Caltrans Division of Aeronautics	X	Regional WQCB # 8
	Caltrans Planning		Resources Agency
	Central Valley Flood Protection Board	X	Resources Recycling and Recovery, Department of
	Coachella Valley Mtns. Conservancy		S.F. Bay Conservation & Development Comm.
	Coastal Commission		San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
X	Colorado River Board		San Joaquin River Conservancy
	Conservation, Department of		Santa Monica Mtns. Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of	X	SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
X	Fish & Game Region # 6		Tahoe Regional Planning Agency
	Food & Agriculture, Department of	X	Toxic Substances Control, Department of
	Forestry and Fire Protection, Department of	X	Water Resources, Department of
	General Services, Department of		
	Health Services, Department of	X	Other: Imperial County Air Pollution Control District
	Housing & Community Development	X	Other: US Army Corps of Engineers
x	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date December 27, 2019 Ending Date January 31, 2020.

Lead Agency (Complete if applicable):

Consulting Firm: BRG Consulting, Inc.
Address: 304 Ivy Street
City/State/Zip: San Diego/CA/92101
Contact: Christina J. Willis
Phone: 619.298.7127 x 102

Applicant: CalEnergy, Anetha Lue,
Address: 7030 Gentry Road
City/State/Zip: Calipatria/CA/92233
Phone: 760.348.4275

Signature of Lead Agency Representative: _____ **Date:** 12/20/19

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Print From

Summary Form for Electronic Document Submittal

Form F

Lead agencies may include 15 hardcopies of this document when submitting electronic copies of Environmental Impact Reports, Negative Declarations, Mitigated Negative Declarations, or Notices of Preparation to the State Clearinghouse (SCH). The SCH also accepts other summaries, such as EIR Executive Summaries prepared pursuant to CEQA Guidelines Section 15123. Please include one copy of the Notice of Completion Form (NOC) with your submission and attach the summary to each electronic copy of the document.

SCH #: _____

Project Title: Addition of a New Waste Holding Cell at Desert Valley Company Monofill

Lead Agency: Imperial County Planning & Development Services Department

Contact Name: Patricia Valenzuela

Email: patriciavalenzuela@co.imperial.ca.us Phone Number: (442) 265-1736

Project Location: Westmoreland (*City*) Imperial (*County*)

Project Description (Proposed actions, location, and/or consequences).

The Desert Valley Company Monofill is an active Class II Solid Waste Management Facility used for the disposal of certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California. The existing DVCM is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility Permit No. 13 AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020 (CUP Amendment 18-0025), a General Plan Amendment (GPA 18-0004) and a Zone Change (ZC 18-0005) to facilitate expansion of the existing DVCM for development of a new waste storage cell (referred to as Cell 4) and associated facilities. The Project would expand the existing DVCM by approx. 80 acres and would provide an additional 1.3 million cubic yards of disposal capacity. The design of Cell 4 would be consistent with DVCM's existing permits and all aspects of the proposed Project, such as operations, maintenance, monitoring, recordkeeping, and financial assurances would be consistent with those of the existing monofill.

Identify the project's significant or potentially significant effects and briefly describe any proposed mitigation measures that would reduce or avoid that effect.

Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Hazards/Hazardous Materials, Hydrology/Water Quality, and ,Tribal Cultural Resources and Utilities and Service Systems.

If applicable, describe any of the project's areas of controversy known to the Lead Agency, including issues raised by agencies and the public.

None.

Provide a list of the responsible or trustee agencies for the project.

Imperial County Public Health Department
Imperial County Air Pollution Control District
Regional Water Quality Control Board, Region 8
Department of Toxic Substances Control
California State Water Resources Control Board
U.S. Army Corps of Engineers
California Dept. of Fish & Wildlife (CDFW)

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

Notice of Preparation

December 24, 2019

To: Reviewing Agencies

Re: Desert Valley Company Monofill Expansion Project
SCH# 2019120605

Attached for your review and comment is the Notice of Preparation (NOP) for the Desert Valley Company Monofill Expansion Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Patricia Valenzuela
Imperial County
801 Main Street
El Centro, CA 92243

with a copy to the State Clearinghouse in the Office of Planning and Research at state.clearinghouse@opr.ca.gov . Please refer to the SCH number noted above in all correspondence concerning this project on our website: https://ceqanet.opr.ca.gov/2019120605/2.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

A-2 Initial Study

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Initial Study & Environmental Analysis

For:

Desert Valley Company Monofill Expansion Project

GPA 18-0004/ZC 18-0005/IS 18-0020

CUP Amendment 18-0025

Prepared By:

COUNTY OF IMPERIAL

Planning & Development Services Department
801 Main Street
El Centro, CA 92243
(442) 265-1736
www.icpds.com

December 2019

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SECTION I. INTRODUCTION

A. PURPOSE

This document is a ☐ policy-level; ☒ project level Initial Study for evaluation of potential environmental impacts resulting with the proposed New Waste Holding Cell at Desert Valley Company Monofill Project.

B. CEQA REQUIREMENTS AND THE IMPERIAL COUNTY "GUIDELINES AND REGULATIONS TO IMPLEMENT CEQA AS AMENDED"

As defined by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines and Section 7 of the County's "Guidelines for the Implementation of CEQA as Amended", an Initial Study is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Mitigated Negative Declaration, Negative Declaration, or other environmental document, would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

☒ According to Section 15065, an EIR is deemed appropriate for a particular proposal if the following conditions occur:

- The proposal has the potential to substantially degrade quality of the environment.
- The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The proposal has possible environmental effects that are individually limited but cumulatively considerable.
- The proposal could cause direct or indirect adverse effects on human beings.

☐ According to Section 15070(a), a Negative Declaration is deemed appropriate if the proposal would not result in any significant effect on the environment.

☐ According to Section 15070(b), a Mitigated Negative Declaration is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study is prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); Section 15070 of the State & County of Imperial's Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended (California Code of Regulations, Title 14, Chapter 3, Section 15000, et. seq.); applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial Guidelines for Implementing CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning Commission and/or Planning Director is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the

principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

C. INTENDED USES OF INITIAL STUDY

This Initial Study is an informational document which is intended to inform County of Imperial decision-makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals.

The Initial Study prepared for the project will be circulated for a period of 35 days for public and agency review and comments. At the conclusion, if comments are received, the County Planning & Development Services Department will prepare a document entitled "Responses to Comments" which will be forwarded to any commenting entity and be made part of the record within 10-days of any project consideration.

D. CONTENTS OF INITIAL STUDY

This Initial Study is organized as described below to facilitate a basic understanding of the existing setting and environmental implications of the proposed applications.

SECTION 1

I. INTRODUCTION presents an introduction to the entire report. This section discusses the environmental process, scope of environmental review, and incorporation by reference documents.

SECTION 2

II. ENVIRONMENTAL CHECKLIST FORM contains the County's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed applications and those issue areas that would have either a significant impact, potentially significant impact, or no impact.

PROJECT SUMMARY, LOCATION AND ENVIRONMENTAL SETTINGS describes the proposed project entitlements and required applications. A description of discretionary approvals and permits required for project implementation is also included. It also identifies the location of the project and a general description of the surrounding environmental settings.

ENVIRONMENTAL ANALYSIS evaluates each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis as necessary. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation.

SECTION 3

III. MANDATORY FINDINGS presents Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

IV. PERSONS AND ORGANIZATION CONSULTED identifies those persons consulted and involved in preparation of this Initial Study.

V. REFERENCES lists bibliographical materials use in the preparation of this document.

VI. FINDINGS

SECTION 4

VIII. RESPONSE TO COMMENTS (IF ANY)

IX. MITIGATION MONITORING AND REPORTING PROGRAM (IF ANY)

E. SCOPE OF ENVIRONMENTAL ANALYSIS

For evaluation of environmental impacts, each question from the Environmental Checklist Form is summarized and responses are provided according to the analysis undertaken as part of the Initial Study. Impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. **No Impact**: A "No Impact" response is adequately supported if the impact simply does not apply to the proposed applications.
2. **Less Than Significant Impact**: The proposed applications will have the potential to impact the environment. These impacts, however, will be less than significant; no additional analysis is required.
3. **Potentially Significant Unless Mitigation Incorporated**: This applies where incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact".
4. **Potentially Significant Impact**: The proposed applications could have impacts that are considered significant. Additional analyses and possibly an EIR could be required to identify mitigation measures that could reduce these impacts to less than significant levels.

F. POLICY-LEVEL or PROJECT LEVEL ENVIRONMENTAL ANALYSIS

This Initial Study will be conducted under a ☐ policy-level, ☒ project level analysis. Regarding mitigation measures, it is not the intent of this document to "overlap" or restate conditions of approval that are commonly established for future known projects or the proposed applications. Additionally, those other standard requirements and regulations that any development must comply with, that are outside the County's jurisdiction, are also not considered mitigation measures and therefore, will not be identified in this document.

G. TIERED DOCUMENTS AND INCORPORATION BY REFERENCE

Information, findings, and conclusions contained in this document are based on incorporation by reference of tiered documentation, which are discussed in the following section.

1. Tiered Documents

As permitted in Section 15152(a) of the CEQA Guidelines, information and discussions from other documents can be included into this document. Tiering is defined as follows:

"Tiering refers to using the analysis of general matters contained in a broader EIR (such as the one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project."

Tiering also allows this document to comply with Section 15152(b) of the CEQA Guidelines, which discourages redundant analyses, as follows:

"Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including the general plans, zoning changes, and development projects. This approach can eliminate repetitive discussion of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration."

Further, Section 15152(d) of the CEQA Guidelines states:

"Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:

(1) Were not examined as significant effects on the environment in the prior EIR; or

(2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means."

2. Incorporation By Reference

Incorporation by reference is a procedure for reducing the size of EIRs/MND and is most appropriate for including long, descriptive, or technical materials that provide general background information, but do not contribute directly to the specific analysis of the project itself. This procedure is particularly useful when an EIR or Negative Declaration relies on a broadly-drafted EIR for its evaluation of cumulative impacts of related projects (Las Virgenes Homeowners Federation v. County of Los Angeles [1986, 177 Ca.3d 300]). If an EIR or Negative Declaration relies on information from a supporting study that is available to the public, the EIR or Negative Declaration cannot be deemed unsupported by evidence or analysis (San Francisco Ecology Center v. City and County of San Francisco [1975, 48 Ca.3d 584, 595]).

When an EIR or Negative Declaration incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines, Section 15150[a]). The General Plan EIR is available, along with this document, at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243, phone (442) 265-1736.
- This document must be available for inspection by the public at an office of the lead agency (CEQA Guidelines Section 15150[b]). These documents are available at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243; phone (442) 265-1736.
- These documents must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized. Furthermore, these documents must describe the relationship between the incorporated information and the analysis in the tiered documents (CEQA Guidelines Section 15150[c]). As discussed above, the tiered EIRs address the entire project site and provide background and inventory information and data which apply to the project site. Incorporated information and/or data will be cited in the appropriate sections.
- These documents must include the State identification number of the incorporated documents (CEQA Guidelines Section 15150[d]). The State Clearinghouse Number for the 1993 County of Imperial General Plan Final EIR is SCH #93011023.
- The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150[f]).

SECTION II. ENVIRONMENTAL CHECKLIST

1.	**Project Title:**	Desert Valley Company Monofill Expansion Project
2.	**Lead Agency Name and Address:**	Imperial County Planning & Development Services Department
3.	**Contact Person and Phone Number:**	Patricia Valenzuela, Planner IV, 442-265-1749
4.	**Address:**	801 Main Street, El Centro CA, 92243
5.	**E-mail:**	PatriciaValenzuela@co.imperial.ca.us

6. Project Location: The Desert Valley Company (DVC) Monofill Facility is located at 3301 West Highway 86, Brawley, California, 92227. The Project site is located immediately west of the existing monofill on private lands north of Superstition Hills and south of State Route 86 (Highway 86), approximately 12 miles (19.3 km) west of the City of Westmoreland and 4 miles (6.4 km) south of the Salton Sea in the County of Imperial, California **(**See Figures 1 and 2**)**. The Project site is located in Section 33, Range 11 East, Township 12 South within the U.S. Geological Survey (USGS) Kane Spring, California 7.5-minute topographic quadrangle (Assessor's Parcel No. [APN] 019-100-004-001).

7.	**Project Sponsor's Name and Address:**	**CalEnergy, 7030 Gentry Road, Calipatria, CA 92233**
8.	**General Plan Designation:**	**Recreation and Open Space**
9.	**Zoning:**	**S-2: Open Space Preservation**

10. Description of Project:

The Desert Valley Company Monofill (DVCM) is an active Class II Solid Waste Management Facility (SWMF) used for the disposal of certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy Operating Corporation's (CalEnergy) geothermal power plant operations in Imperial County, California. The Desert Valley Company Monofill Facility is located at 3301 West State Route in Brawley, California and is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility (SWF) Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020, a General Plan Amendment and a Zone Change to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure and post-closure of a new waste storage cell (referred to herein as Cell 4). At the current rate of waste disposal, Cell 3 is projected to reach its design capacity in 2025 (CalRecycle, 2019a). CalEnergy thus needs to have Cell 4 operational by January 2024 to transition waste storage activities from Cell 3 to Cell 4.

The purpose of the Project is to provide additional disposal capacity through continued operation of the DVCM to meet the solid waste management needs of CalEnergy's geothermal plants. Development of additional economically viable disposal capacity, in a reasonable timeframe, is of vital importance to meet CalEnergy's projected needs, as the existing monofill approaches capacity. The proposed Project will capitalize on the unique opportunity to utilize infrastructure at the existing DVCM facility to facilitate the additional disposal capacity.

The existing DVC Monofill Facility (DVCM), which began operations in May 1991, has three (3) storage/disposal cells (Cell 1, Cell 2 and Cell 3). The total site occupies 181.5 acres, of which approximately 68 acres (the total permitted area) is enclosed by fencing which surrounds the landfill operating area. A total of 28.9 acres of the site is permitted for disposal operations. Cells 1, 2 and the tie-in area in between the cells were closed in 2008 and a permanent cap was constructed. Cell 3, with a design capacity of approximately 1.3 million cubic yards (cy), is the only active cell currently receiving waste. Existing improvements at the DVCM are listed on **Table 1**.

TABLE 1. EXISTING IMPROVEMENTS AT THE DESERT VALLEY MONOFILL

— Monofill Cells 1, 2 and 3 (a)	— Meteorology collection station
— Private single-lane road from State Route 86	— Four (4) air quality total particulate sampling stations;
— Office and administration building	— Seven (7) vadose zone monitoring wells
— Two (2) Leachate Ponds for Cells 1 and 2	— Six (6) radon monitoring probes in Cells 1 and 2 (b)
— One (1) Leachate Pond for Cell 3	— Pole gate at entrance on SR-86
— Equipment storage building	— Manual gate at Monofill fence
— On-site septic tank /leach field	— Fuel tank (aboveground)
— One (1) water well (c)	— Hazardous Material Storage Containment Structure
— Two (2) above ground water storage tanks	— Chain link fencing surrounding entire Monofill Facility
— Eleven (11) groundwater monitoring wells	

Notes:
(a) Cells 1 and 2 Closed in May 2008. Cell 3 is the only(the only active cell currently receiving waste
(b) Six additional radon monitoring probes are planned for Cell 3 upon closure.
(c) Provides water to the office/administrative building and for the soil stabilize

As identified in CUP No. 05-0020 and SWFP Permit No. 13-AA-0022, the waste stream accepted at the DVCM is limited to geothermal filter cake, drilling mud materials and cuttings, soils containing geothermal materials, and incidental plastic sheeting used as truckbed liners by the waste transport trucks. These materials contain a number of substances including arsenic, salts, metals, and organic hydrocarbons and Naturally Occurring Radioactive Materials (NORM)[1]**.** No municipal solid waste is accepted at the DVCM and it is not open for public and/or commercial use at any time. The permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday. The amount of non-hazardous wastes that can be received is limited to a maximum of 750 tons per day and 273,750 tons annually in accordance with current CUP and SWFP.

Solid waste materials are delivered to the monofill by truck. The covered loads are transported from the Salton Sea area, via a designated truck haul route that includes Sinclair Road, Gentry Road, Bowles Road, Lack Road and State Routes 78 / 86. The use of alternate truck routes for deliveries to the DVCM and the use of an alternative truck scale in Calipatria, California are also allowed. The DVCM is accessed via a single lane road that connects to State Route 86 (Highway 86). The access road is approximately 1.25 miles long and is asphalt surfaced.

[1] The monofill operates in conformance with a "Radiation Monitoring Plan", that requires monitoring of workers stationed at the site to ensure that they are not subject to any impacts from radiation.

Trucks arriving at the DVC facility are inspected prior to off-loading and incoming materials are analyzed based upon present sampling and analysis requirements. Next, the trucks are cleared for access to the operational cell and offloaded. After off-loading, site equipment is used to grade and compact the materials. Once the material is graded and compacted, the surface is sprayed with a polymer-based sealant (Soil Seal), which penetrates the graded surface and creates a stable crust and provides for wind protection. The current Monofill typically employs four (4) full-time staff.

The proposed Project includes the expansion of the existing Desert Valley Company Monofill with the addition of waste storage Cell 4 and associated facilities that include:

- a new leachate pond for Cell 4 (1.2 acres);
- the addition and extension of stormwater diversion dikes to divert surface water runoff around the Project site;
- minor extensions/modifications to internal roads to provide access to Cell 4; and,
- installation of a new water well for use during construction
- Additional air quality particulate sampling stations, and additional groundwater monitoring wells

The proposed site plan is shown on **Figure 3**. The design of Cell 4 would be consistent with Cell 3, with a liner system designed to a Class I hazardous waste standard and other criteria that conform to Class II designated waste standards and the existing monofill's permits. All other aspects of the proposed Project, such as operations, maintenance, monitoring, closure/post closure activities, recordkeeping and financial assurances would also be consistent with those of the existing monofill.

Cell 4 would be built in two (2) phases – Phase 1 and 2, referred to herein as Cells 4A and 4B, respectively. Similar to Cell 3, Cells 4A and 4B would have a combined capacity of approximately 1.3 million CY; a projected lifespan of 28.6 years; and, would occupy a surface area of approximately 50 acres (CalEnergy, 2018). Construction of Cell 4A, with an overall area of 24 acres, would be constructed first and would take approximately 12 months to complete. Cell 4A, upon issuance all required permits, would begin to receive solid waste once Cell 3 reaches capacity. Construction of Cell 4B, with a surface area of 21 acres, would commence when there is a demand for additional waste storage capacity (approximately two years prior to Cell 4A reaching capacity). Each cell would include a multi-layer leachate collection and liner system designed and constructed per State of California Title 23, Division 3, Chapter 15, Article 4; Construction Standards for Class I Units.

To prepare the disposal site, required construction activities include access road improvements; onsite grading, berm and levee development, soil compaction, installation of two plastic membranes; and other ancillary improvements required for safe operation. To maintain operational integrity, a series of diversion berms would be extended and/or constructed around the south and western perimeter of Cell 4 to divert surface water runoff from multiple existing ephemeral surface water features around the Project site. The surface water flow would be routed around the landfill facilities and allowed to rejoin the existing surface waters downstream. A 50-foot buffer would also be established along the outer edge of Cell 4 and a new leachate pond would be constructed along the eastern edge of Cell 4B. During construction, portable office trailers may be placed on the Project site to accommodate the construction personnel.

11. Surrounding Land Uses and Setting:

The area surrounding the Project site is very similar to the site on which the existing monofill is located. Man-made disturbances are evident in some sections but not to a major extent. The most prominent feature in the area is State Route 86 (Highway 86), which is located to the north and east of the existing monofill. Kane Springs Jeep Trail crosses Section 29 northeast of the Project site. An Imperial Irrigation District electrical transmission line and its maintenance road cross Sections 27, 28 and 34, running diagonally from northwest to southeast less than a mile from the Project site. Aside from the Kane Jeep Trail, no other man-made features are evident in the immediate area. The Elmore Desert Ranch Community is approximately 1.75 miles northeast of the Project site.

12. Other Public Agencies Whose Approval is Required (e.g., permits, financing approval, or participation agreement):

In order to construct and operate Cell 4, an amendment to CUP No. 05-0020; a General Plan amendment and Zone Change is required (See Figures 4 and 5). Other agency permits and approvals are listed below:

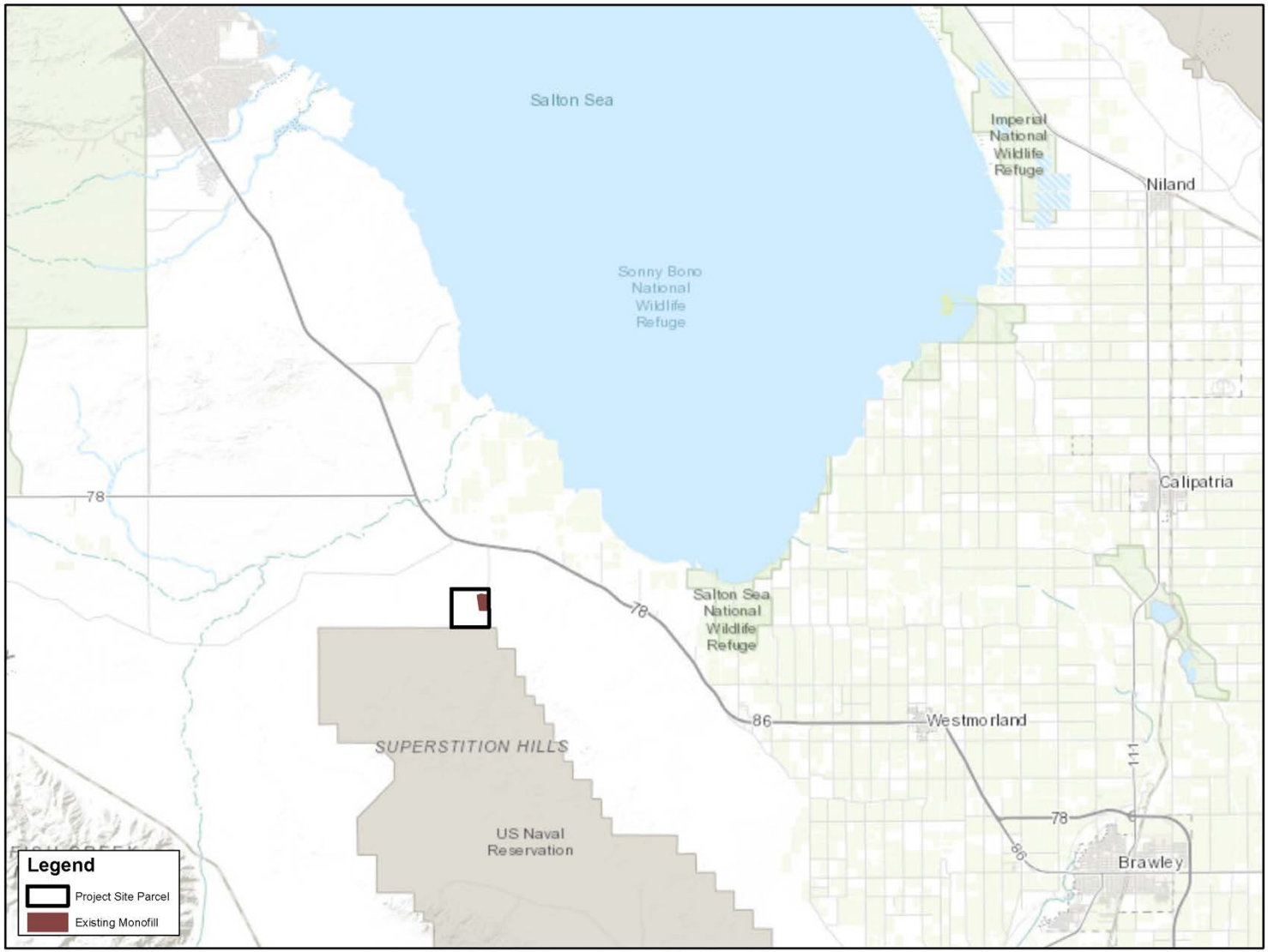
- Imperial County Public Health – Solid Waste Facility Permit Department
- Imperial County Air Pollution Control District – Authority to Construct and Permit to Operate
- State Water Resources Control Board – National Pollutant Discharge Elimination System General Permit
- Regional Water Quality Control Board (Region 7) – Waste Discharge Requirements
- U.S. Army Corps of Engineers – 404 of the Clean Water Act Permit
- California Dept. of Fish & Wildlife (CDFW) – 1602 Lake and Streambed Alteration Agreement

13. Native American Consultation: Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1?

In compliance with Senate Bill 18 (SB 18; Government Code Section 65352.3), the Imperial County Planning & Development Services Department (ICPDSD) sent letters to 12 federally recognized California Native American Tribes and 4 tribal representatives on November 19, 2018, providing notification of the Project and an invitation to participate in consultation. By law, tribes have 90 days from the date of receipt of the notice to request consultation (Government Code 65352.3(a)(2)).

In compliance with Assembly Bill 52 (Chapter 532, Statutes 2014), the ICPDSD sent letters to two (2) California Native American Tribes on November 21, 2018, providing notification of the Project and an invitation to participate in consultation. Under AB-52, California Native Tribes have 30 days from the date of receipt of the notice to request consultation.

As of the date of this Initial Study, no consultation requests have been received.

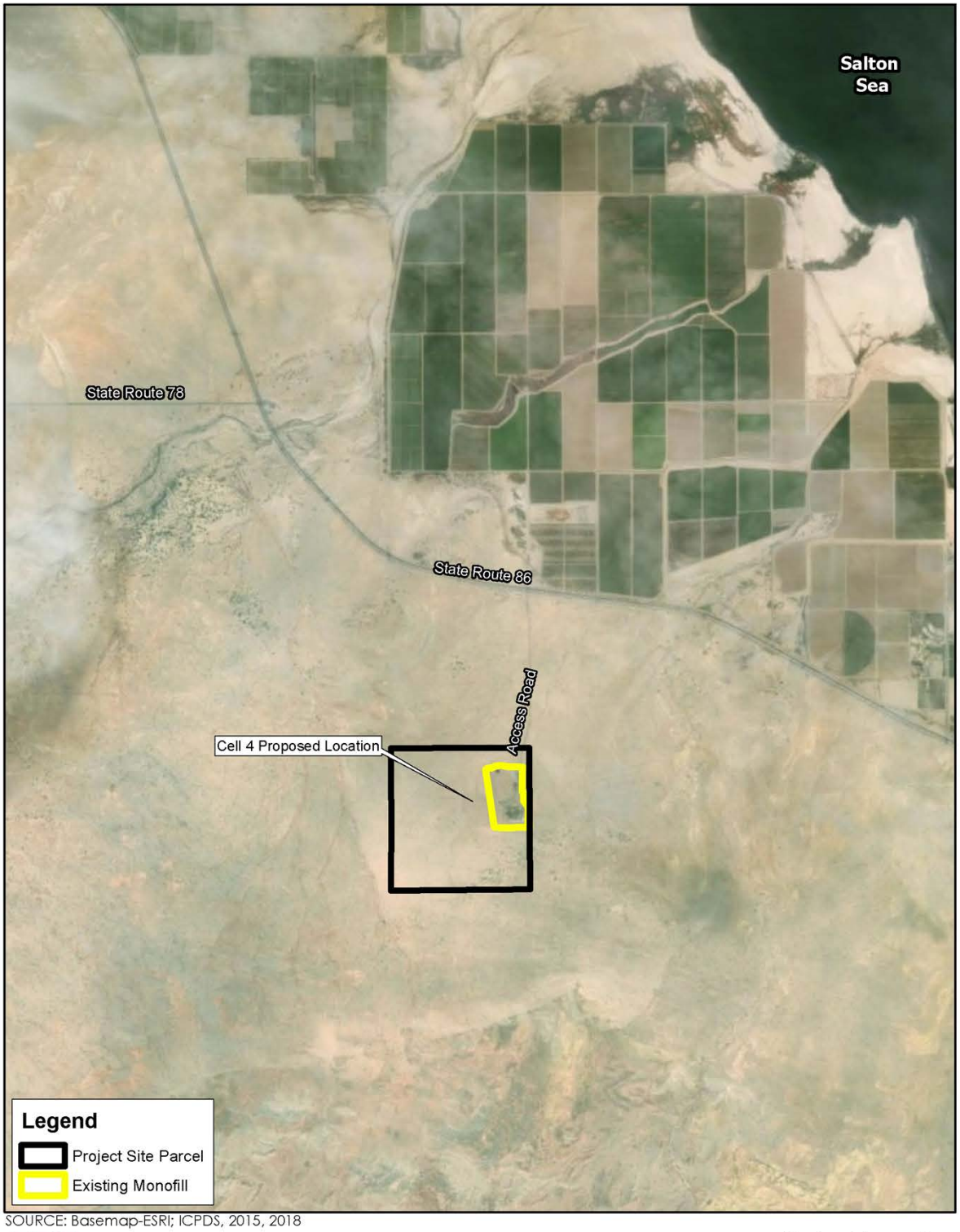


SOURCE: Basemap-ESRI; ICPDS, 2015, 2018

Regional Location

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 1



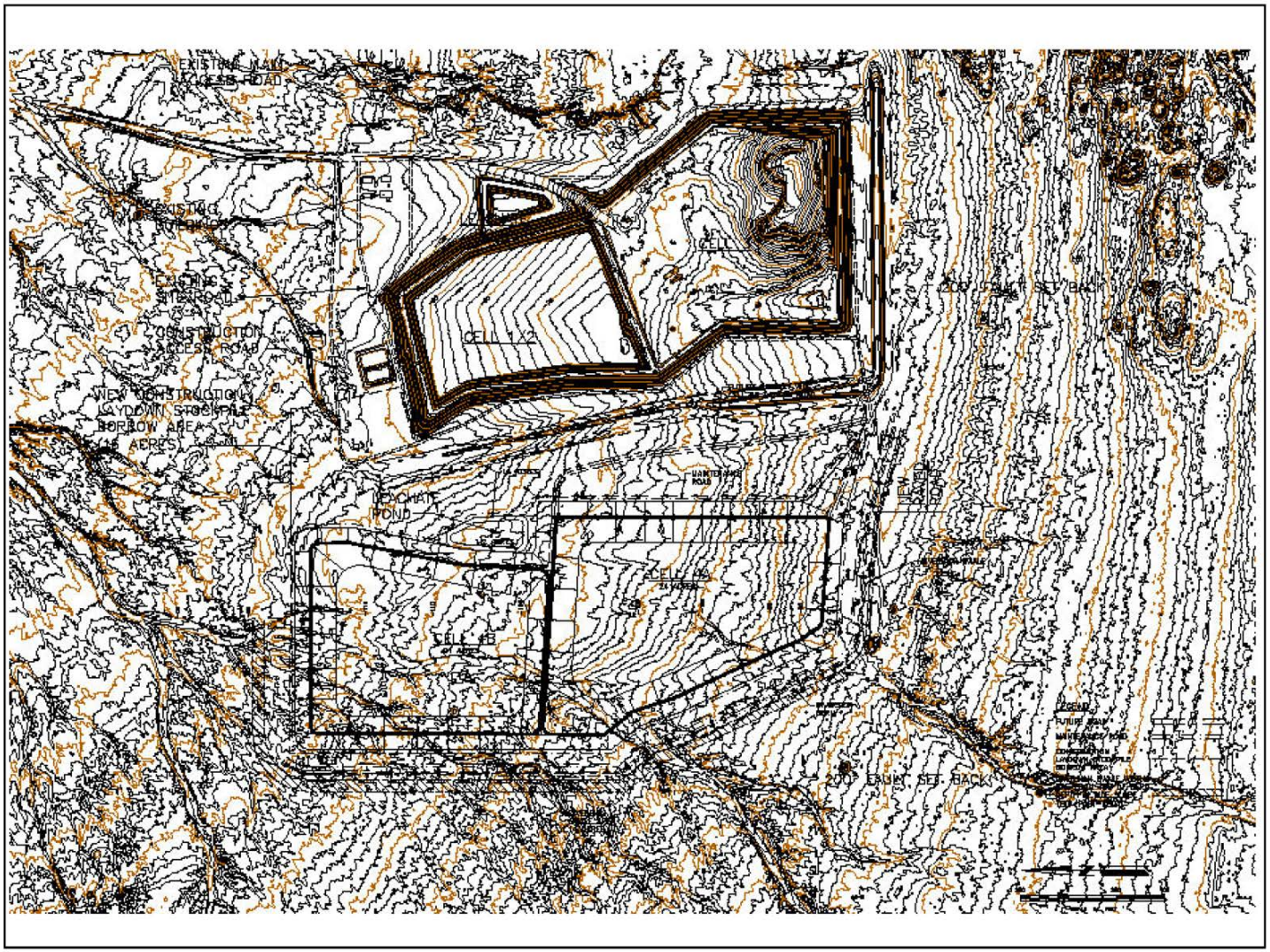
SOURCE: Basemap-ESRI; ICPDS, 2015, 2018

BRG CONSULTING, INC.

Project Location

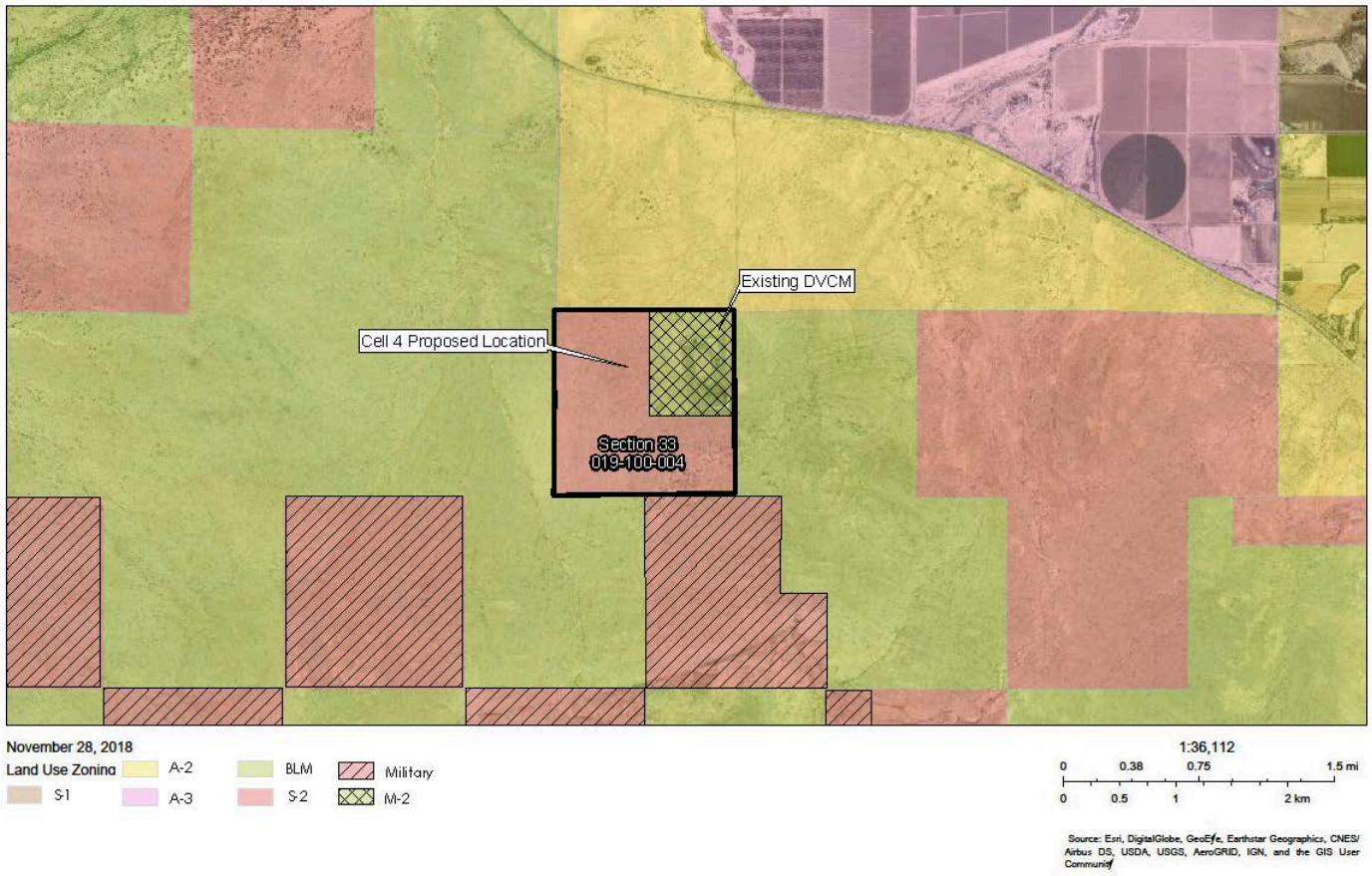
Desert Valley Company Monofill Expansion Project, Cell 4

Figure 2



SOURCE: Veizades + Associates, 2019

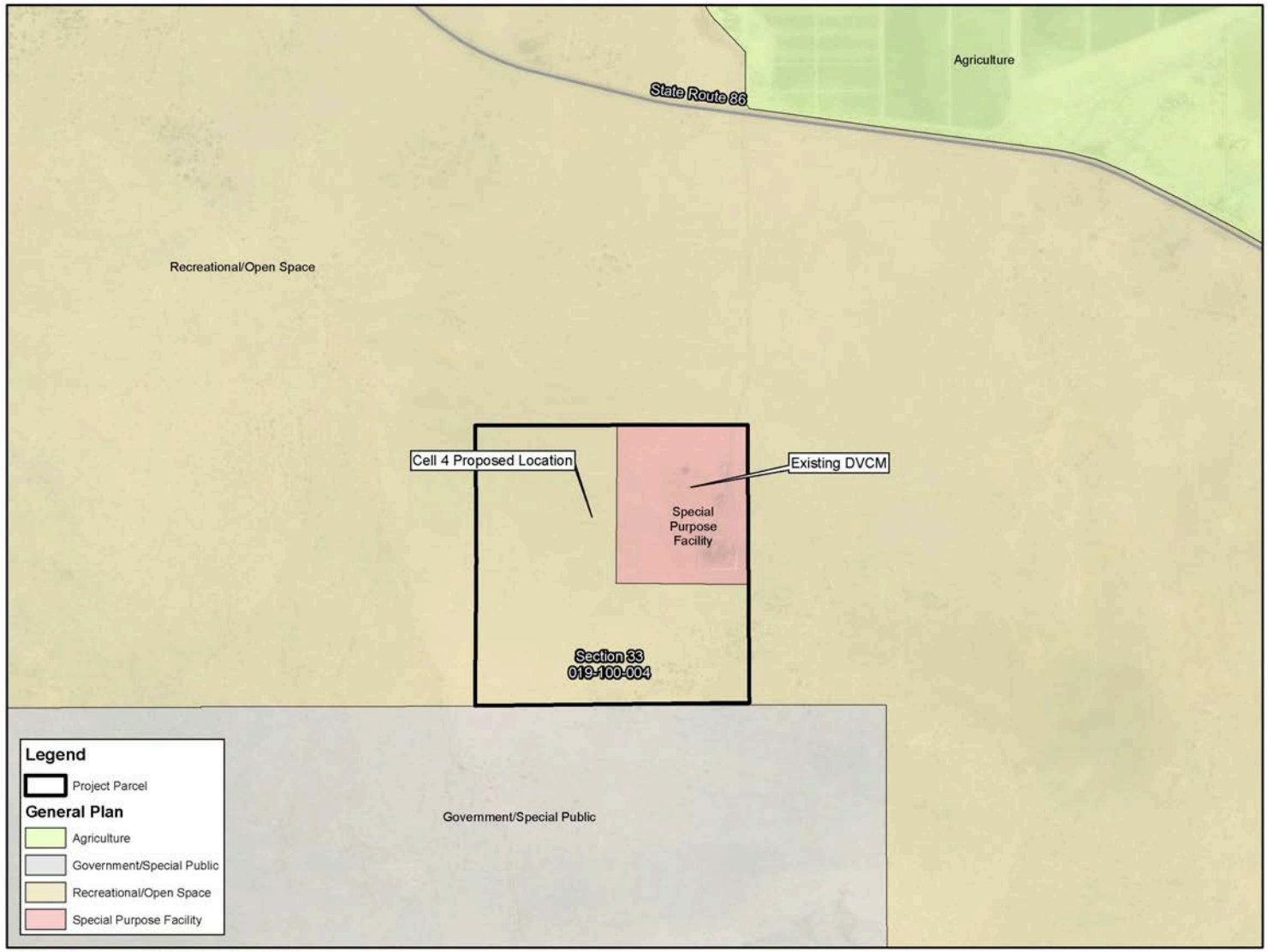
Site Plan
Desert Valley Company Monofill Expansion Project, Cell 4
Figure 3



SOURCE: Imperial County Planning & Development Services, Land Use Zoning, 2018

N

Proposed Zone Change
Desert Valley Company Monofill Expansion Project, Cell 4
Figure 4



General Plan Amendment

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 5

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology /Soils	☒ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☒ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☒ Transportation/Traffic	☒ Tribal Cultural Resources
☒ Utilities / Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

ENVIRONMENTAL EVALUATION COMMITTEE (EEC) DETERMINATION

After Review of the Initial Study, the Environmental Evaluation Committee has:

☐ Found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ Found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ Found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ Found that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ Found that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier Final EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier Final EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DE MINIMIS IMPACT FINDING: ☐ Yes ☐ No

EEC VOTES	YES	NO	ABSENT
PUBLIC WORKS	☐	☐	☐
ENVIRONMENTAL HEALTH SVCS	☐	☐	☐
OFFICE EMERGENCY SERVICES	☐	☐	☐
APCD	☐	☐	☐
AG	☐	☐	☐
SHERIFF DEPARTMENT	☐	☐	☐
ICPDS	☐	☐	☐

Jim Minnick, Director of Planning/EEC Chairman

Date:

PROJECT SUMMARY

Project Location

The Desert Valley Company (DVC) Monofill Facility is located at 3301 West Highway 86, Brawley, California, 92227. The Project site is located on private lands north of Superstition Hills and south of State Route 86 (Highway 86), approximately 12 miles (19.3 km) west of the City of Westmoreland and 4 miles (6.4 km) south of the Salton Sea in the County of Imperial, California. The Project site is located in Section 33, Range 11 East, Township 12 South within USGS Kane Spring, California 7.5-minute topographic quadrangle (APN 019-100-004-001).

Project Summary

The proposed Project includes the expansion of the existing Desert Valley Company Monofill with the addition of waste storage Cell 4 and associated facilities that include:

- a new leachate pond for Cell 4;
- the addition and extension of stormwater diversion dikes to divert surface water runoff around the Project site;
- minor extensions/modifications to internal roads to provide access to Cell 4; and,
- installation of a new water well for use during construction

The design of Cell 4 would be consistent with Cell 3, with a liner system designed to a Class I hazardous waste standard and other criteria will conform to Class II designated waste standards and the existing monofill's permits. The proposed site plan is shown on Figure 3. All other aspects of the Project, such as operations, maintenance, monitoring, recordkeeping and financial assurances will also be consistent with those of the existing monofill.

The Project includes an amendment to the General Plan due to change the land use designation on approximately three-quarters of the parcel (458.5 acres) from "Recreational/ Open Space" to "Special Purpose Facility". The Project also includes a Zone Change for this same area to change the zoning from S-2 (Open Space/Preservation) to M-2 (Medium Industrial).

Environmental Setting

The Project site is immediately adjacent to the existing Desert Valley Company Monofill and is surrounded by open desert on the north, south and west. Surrounding properties exhibit the same desert features as the Project site, namely sparse vegetation, seasonal washes, and with the exception of the monofill facilities, few man-made uses. San Sebastian Marsh-San Felipe Creek, a Bureau of Land Management (BLM) Area of Critical Environmental Concern (ACEC), is located approximately mile north of the Project site. This ACEC is a protected wildlife habitat. Surface water drainage from the existing monofill flows towards to the Salton Sea, which is located approximately four (4) miles northeast of the Project site. The Superstition Hills are located south of the existing monofill.

General Plan Consistency

The Project is located within the unincorporated area of Imperial County. The existing General Plan land use designation is " Recreation and Open Space" and the existing zoning is S-2 (Open Space/Preservation). With a General Plan Amendment to change the land use designation from "Recreational/ Open Space" to "Special Purpose Facility" and a Zone Change to change the zoning from S-2 (Open Space/ Preservation) to M-2 (Medium Industrial), construction and operation of the expanded monofill will be allowed with an amendment to the existing Conditional Use Permit.

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and

    b) The mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**
I. AESTHETICS.				
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion:

a) Less than Significant. The Project site, which is surrounded by open desert to the north, south and west, and by the existing DVC monofill on the east, is not considered to be a scenic vista nor is it an area designated as a scenic route in Imperial County (County of Imperial, 2008b). There are no designated scenic vistas or viewpoints on or near the Project site that would include views of the proposed expansion area. No adverse impacts on a scenic vista have been identified and this environmental parameter is not proposed for further analysis in the EIR.

b) No Impact. State Route (Highway) 86, the highway nearest the Project site, is located more than 1 ¼ miles from the northern and western boundary of the existing DVC Monofill. State Route (Highway) 86 is not designated, nor is it eligible for designation, as a State scenic highway per Caltrans State Scenic Highway Program (Caltrans 2017). The Project site does not contain scenic resources, including but not limited to trees, rock outcroppings, and historic buildings, or state scenic highways. No impacts have been identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

c) Less than Significant. The DVC Monofill is an existing facility in operation since 1991 and has become an established and accepted part of the landscape. The proposed Project includes the addition of a new solid waste disposal cell (Cell 4) immediately west of, and adjacent to the existing monofill. The Project would expand an existing use and increase the permitted disposal area from 28.9-acres to 74.3-acres. Similar to the existing monofill, the final heights of the perimeter dikes and the waste disposal cells would be approximately 20 feet and 30 feet above existing grades, respectively (Veizades & Associates, 2019). Given the distance between the Project site and the nearest public viewers (motorists on State Route (Highway) 86) and the similarity in the height of existing and proposed features, the visual character and quality of public views of the Project site and its

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

surroundings would not be substantially degraded. This environmental parameter is not proposed for further analysis in the EIR.

d) Less than Significant. The existing DVC Monofill operates mainly during daylight hours, Monday through Sunday, from 6:00 AM to 6:00 PM. However, lighting that is shielded and directed to on-site areas, is provided for Monofill operations that occur after sunset or before sunrise (CalEnergy, 2014). Lighting for the employee parking lot and maintenance areas is also provided.

Operations at the expanded Cell 4 would also be conducted from 6 AM to 6 PM, as allowed under the current CUP 05-0020. In the event the Project requires nighttime construction, directional lighting fixtures would be used to avoid light spillage onto adjacent properties and to minimize nighttime glare. Impacts would be less than significant, and this environmental parameter is not proposed for further analysis in the EIR.

II. AGRICULTURAL AND FOREST RESOURCES.

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

Discussion:

a) No Impact. According to the 2016 Farmland Mapping and Monitoring Program Map for Imperial County, the Project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance (California Dept. of Conservation, 2016a). No impacts related to the conversion of FMMP farmlands to non-agricultural use would occur. This environmental parameter is not proposed for further analysis in the EIR.

b) No Impact. The Project site is located within an S-2 Zone, which is considered to be the Open Space Preservation Zone. While the storage of agricultural products is an allowable use within the S-2 Zone, agricultural operations or other agricultural uses are not allowed (County of Imperial, 2017). Additionally, the Project site is not covered under a Williamson Act contract (California Dept. of Conservation, 2016b). For these reasons, the proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impacts are identified for this issue area. This environmental parameter is not proposed for further analysis in the EIR.

c) No Impact. Neither the Project site nor surrounding areas are used for timber production or are defined as forest lands. The proposed Project would not conflict with any zoning designations designed to preserve timber or agricultural resources. No impacts are identified for this issue area. This environmental parameter is not proposed for further analysis in the EIR.

d) No Impact. There are no existing forest lands either on-site or in the immediate vicinity of the Project site. The proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact would occur under this threshold. This environmental parameter is not proposed for further analysis in the EIR.

e) No Impact. The proposed Project does not include changes in the existing environment which, due to their location or nature, would result in the conversion of neighboring farmland to non-agricultural use. The Project site is surrounded by open desert and the nearest agricultural lands occur approximately one mile to the north, across State Route 86/Highway 86. The proposed Project would not result in the conversion of farmlands off-site to non-agricultural uses. No impacts are identified for this issue area. This environmental parameter is not proposed for further analysis in the EIR.

III. AIR QUALITY.

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	*No Impact* (NI)
c) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Discussion:

a) Potentially Significant Impact. The Project site is located within the Salton Sea Air Basin (Basin), which includes all of Imperial County and a portion of central Riverside County. The existing DVC Monofill is under the jurisdiction of the Imperial County APCD (ICAPCD) and operates in compliance with ICAPCD PTO #21208-3.

Implementation of the Project would result in additional air pollutant emissions generated by construction activities, disposal operations, soil disturbance activities, windblown dust and post-closure/maintenance activities. This may conflict with or obstruct implementation of the applicable air quality plan, and impacts may be potentially significant. Potential radiological air quality impacts from the proposed Monofill Facility include radon emission from the geothermal filter cake material and suspension of dust during loading, off-loading, and placement and compaction of the geothermal filter cake material. An air quality and greenhouse gas emission analysis will be prepared for the Project and the EIR will evaluate these potentially significant air quality impacts.

b) Potentially Significant Impact. Currently, the Salton Sea Air Basin is either in attainment or unclassified for all federal and state air pollutant standards, with the exception of O_3 (8-hour), PM_{10} (total suspended particulate matter less than 10 microns in diameter) and $PM_{2.5}$ (total suspected particulate matter less than 2.5 microns in diameter).

The proposed Project would extend the operational life of the DVCM, thereby increasing the duration of air pollutant emissions generated during construction, operation and closure/post closure activities. The proposed Project, in combination with cumulative projects, could result in a cumulatively considerable net increase of O3, PM_{10} and $PM_{2.5}$ due to its longer operational life, increased total refuse to be disposed, and continued truck traffic associated with the monofill's operation. Also, of concern are the potential air quality impacts associated with the naturally occurring radioactive materials in the geothermal filter cake. The EIR will evaluate these potentially significant adverse air quality impacts.

c) Less Than Significant Impact. Atmospheric impacts from landfill disposal sites are typically associated with odors and gaseous emissions from organic matter decay processes. The proposed expansion of the DVC Monofill would not accept residential or commercial refuse, but rather nonhazardous geothermal filter cake and geothermal drilling mud materials, soils containing geothermal materials and incidental planning sheeting used transport truckbed lining (as specified in Solid Waste Facility Permit 13-00-0020). The nature of the material disposed minimizes "traditional" odor impacts associated with disposal site operations.

Potential sources of odors during construction and operation activities include diesel exhaust from construction equipment and diesel vehicles. These odors would not affect a substantial number of people and dissipate as a

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

function of distance from the source. While the proposed Project's odor impact is expected to be less than significant, this impact will be further evaluated in the EIR.

d) Less than Significant Impact. The Elmore Desert Ranch Community, approximately 1.75 miles northeast of the DVCM, is the nearest sensitive receptor in terms of potential human exposure outside the monofill facility area. While the Project is not expected to expose sensitive receptors to substantial pollutant concentrations this impact is considered potentially significant and will be further evaluated in the EIR.

IV. BIOLOGICAL RESOURCES.

Would the project:

a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

Discussion:

a) Potentially Significant Impact. The Project has the potential to adversely affect candidate, sensitive, or special status species including flat-tailed horned lizard, Palm Springs pocket mouse, Burrowing owl and Le Conte's thrasher. Field surveys confirmed the presence of the flat-tailed horned lizard and the Palm Spring pocket mouse. The Project area is suitable or marginally suitable for special status plant species including the Salton milk vetch, Gravel milk vetch , Ashen forget me not, Torrey's box thorn, Thurber's pilostyles, and, Mojave indigo bush; however, recent surveys for rare plants were negative (Chambers Group, 2019). Implementation of the proposed Project has the potential to have a substantial adverse effect on species identified as a candidate, sensitive, or special status. This impact is considered potentially significant. A biological resources technical study that will address the proposed Project's potential impacts on biological resources will be prepared and included in the EIR. This will include impacts to any wildlife movement corridors or native wildlife nursery sites.

b) Potentially Significant Impact. Four vegetation communities were observed within the project area including Creosote Bush Scrub, Creosote Bush–Honey Mesquite Scrub, Rigid Spineflower– Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance, and Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub (CalEnergy, 2019). Implementation of the Project has the potential to have substantial adverse effects on sensitive natural communities. This impact is considered potentially significant and will be further evaluated in the EIR.

c) Potentially Significant Impact. Ephemeral streams in the project area are characterized as a braided channel system that contains multiple channels that divide and rejoin to form a pattern of gently curved channel segments, separated by exposed ephemeral islands or channel bars (Chambers Group, 2019a). The majority of the streams are tributaries to San Felipe Creek and the Salton Sea.

The proposed Project and its associated roadways and laydown areas within Section 33 would result in the permanent removal and or interruption of jurisdictional drainages, and temporary interruption of additional jurisdictional drainages during construction. These impacts are considered potentially significant and will be further evaluated in the EIR.

d) Potentially Significant Impact. See Response to Item IV.b.

e) Potentially Significant Impact. The Imperial County General Plan Open Space and Conservation Element (County of Imperial 2016) contains an Open Space Conservation Policy that requires detailed investigations to be conducted to determine the significance, location, extent, and condition of natural resources in the County, and to notify any agency responsible for protecting plant and wildlife before approving a project which would impact a rare, sensitive, or unique plant or wildlife habitat. As noted above, the Project has the potential to result in significant impacts to candidate, sensitive, or special status species, ephemeral streams and wildlife corridors. Such impacts could conflict with Open Space and Conservation Element and are considered potentially significant. a biological resources technical study will be prepared for the Project and the results will be included in the EIR.

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

f) No Impact. The Project site is not located within an area that is subject to a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur.

V. CULTURAL RESOURCES.

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines § 15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Discussion:

a, b, and c) Potentially Significant Impact. A Phase I Cultural Resources report was prepared for the Project in 2019. The Phase I report included a records search of the South Coast Information Center and a pedestrian survey of the 359-acre project area encompassing the existing DVCM and extending past the monofill facility to the west (Chambers, 2019b). The records search indicated that 34 cultural resources were previously recorded within the area of potential effect (APE). The records search identified an additional 36 cultural resources within a one-half-mile radius of the Project, all of which are prehistoric. A record search of the Sacred Lands File by the Native American Heritage Commission (NAHC) in November 2017 did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the area. A review of additional historic sources did not indicate the presence of any historic resources within the project. Aerial photographs indicated no structures were ever located on or near the APE until facilities for the existing DVCM were constructed in the early 1990s.

The field survey resulted in the relocation of four (4) previously recorded sites (CA-IMP-6144, CA-IMP-6145, CA-IMP-6262, CA-IMP-6269), and the documentation of ten (10) newly discovered prehistoric isolated artifacts. Project-related ground disturbing activities could cause a substantial adverse change in a historical or archaeological resource. Although unlikely, there is a potential for unknown human remains to be unearthed during earthwork activities. Therefore, a potentially significant impact is identified for these resources. The findings of the cultural resources report will be included in the EIR analysis.

VI. ENERGY.

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Discussion:

a) Less Than Significant. During construction energy usage will primarily be diesel engines, and during operation energy use will not change significantly from current consumption levels. No wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation would occur. This is considered a less than significant impact and will be further evaluated in the EIR.

b) No Impact. Approval of the project will allow the continued operations of CalEnergy's geothermal facilities; which contribute positively to California's renewal energy goal. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and no impacts would occur under this criteria.

VII. GEOLOGY AND SOILS.

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☒	☐	☐	☐
2) Strong seismic ground shaking?	☒	☐	☐	☐
3) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
4) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☒	☐	☐	☐

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	*No Impact* (NI)
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

Discussion:

a.1) and a.2) Potentially Significant Impact. The Project site is located in southern California, an area known to be geologically active and which is subject to seismic events. However, according to the Division of Mines and Geology Special Publication 42, the Project site is not located in an area of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map.

The proposed Project would not result in exposing people to impacts beyond those normally anticipated within the region. The existing DVCM operates under a seismic monitoring program approved by the Imperial County Public Works Department (CalEnergy, 2018), with a data reported monthly to regulatory agencies. The expansion of the monofill would result in changes to topography and would be designed to meet stringent landfill regulatory requirements for seismic stability identified in Title 27 of the California Code of Regulations. A soils and geology report was prepared for the Project (Terraphase Engineering, 2019) and will be discussed in the EIR. The EIR will evaluate the potentially significant adverse impacts related to seismicity, fault-rupture and ground failure.

a.3 and a.4) Less Than Significant. Groundwater, at between 58 and 66 feet below the ground surface, is too deep across the Project site to produce significant liquefaction settlements. Additionally, seismically-induced landsliding is not considered a significant hazard on the Project site due to the predominantly level topography (Terraphase Engineering, 2019).

b) and c) Potentially Significant Impact. The proposed Project would result in changes to the current topography because of grading and filling. Although these changes will be designed to meet stringent landfill regulatory requirements, there is a potential for soil erosion, loss of topsoil, and geologic instability. The EIR will evaluate these potentially significant adverse impacts.

d) Potentially Significant Impact. Sediments encountered during preliminary geotechnical investigations contain significant quantities of clay (Terraphase Engineering, 2019). These materials may exhibit expansive (shrink-swell) characteristics due to the water-holding capacity of clay minerals. Significant shrink-swell behavior can adversely affect the integrity of foundations, fill slopes, and associated structures. The EIR will evaluate the potentially significant adverse impacts related to expansive soils.

e) No Impact. Soils in the project area currently support the existing septic system and leach field that provide the small amount of wastewater needed for monofill employees. This same infrastructure would be used for the proposed Project. No impacts are expected.

f) Potentially Significant Impact. A paleontological resources report was prepared for the Project which included a paleontological literature review and record search for a study area consisting of all of Section 33, plus a half-

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

mile buffer (Chambers, 2019c). The Project area was found to be underlain by Quaternary Alluvium (Qal), the Brawley Formation (Qb) and the Lake Cahuilla Beds (Qs). While museum collection records indicate that no fossil localities have been recorded within a half mile of the study area, the Brawley Formation and the Lake Cahuilla Beds have a high paleontological potential. Ground disturbing activities associated with the Project could destroy a unique paleontological resource or site or unique geologic feature. This impact is considered potentially significant and will be discussed in the EIR.

VIII. GREENHOUSE GAS EMISSIONS.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Discussion:

a) Potentially Significant. Greenhouse gases (GHGs) emitted by human activity are implicated in global climate change or global warming. The principal GHGs are Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), and Fluorinated Gases. The transportation sector (e.g., on-road motor vehicles, off-highway vehicles, aircraft) is the single largest source of GHG emissions and accounts for one-half of GHG emissions globally. Short-term greenhouse gas emissions from construction could come from construction equipment, construction support vehicles, material truck trips, and worker vehicle trips. Long-term emissions would come from combustion of natural gas and diesel fuel (producing greenhouse gas emissions of CO2 and CH4), as well as from fugitive emissions (a component of fugitive emissions is methane). Indirect emissions associated with electrical generation and with worker and truck transportation offsite could also result. An air quality and greenhouse gas emission analysis will be prepared for the Project and potentially significant impacts related to GHG emissions will be addressed in the EIR.

b) Potentially Significant. The Project would be considered to have a significant impact if it would be in conflict with State plans, policies or regulations adopted for the purpose of reducing GHG emissions. GHG emissions and the Project's consistency with applicable GHG plans, policies, and regulations will be evaluated in the EIR.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Discussion:

a) Less Than Significant. The existing DVCM is a Class II solid waste management facility that is permitted to accept non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County. The waste stream includes geothermal filter cake, geothermal drilling mud materials, soils containing geothermal materials and incidental plastic sheeting used as truckbed liners of the geothermal waste transport trucks. The disposal of hazardous waste (as defined in 40 CFR Part 26) and polychlorinated biphenyls (PCB) wastes (as defined in 40 CFR Part 761) is prohibited under SWF Permit No. 13-AA-002.

The DVCM is subject to California's Hazardous Materials Business Plan requirements, specified by Sections 2729 to 2732 of Title 19 of the California Code of Regulations (CalEnergy, 2018). The regulations require:

- Annual updates of the site's chemical inventory to the Department of Toxic Substances Control, (as the State Emergency Response Commission and the Local Emergency Planning Committee).

- An Emergency Response Plan to minimize the impact of any possible releases.
- Training of employees on emergency response procedures.

The proposed Project would require the limited transport, storage, and use of fuels, polymer-based sealants, and other fluids for the fueling/servicing of construction equipment. These practices are already in place for current operations and the Project would not substantially increase the transport or use of hazardous materials above current levels.

Transportation, storage, and disposal/recycling of such products are extensively regulated at the local, state and federal levels. Current and future construction and operations are, and will be, required to be in compliance with these regulations. The current inventory of chemicals on site are not expected to increase markedly due to the addition of Cell 4 and the current Hazardous Materials Business Plan for the monofill would be updated to reflect any changes. Because operations for Cell 4 would be similar to operations at Cell 3, impacts would be less than significant and will be evaluated in the EIR.

b) Potentially Significant. Based on a search of the Government Code Section 65962.5 "Cortese" list, the Desert Valley Company Monofill is not listed as a hazardous materials site and is not near any superfund or cleanup sites. According to the State Water Resources Control Board, there are no Underground Storage Tanks in the vicinity of the landfill. This environmental parameter is not proposed for further analysis in the EIR.

c) No Impact. The proposed project would not emit hazardous emissions, handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The nearest schools (Westmore Elementary School and Westmoreland Junior High School) are located 13 miles east of the Project site.

d) No Impact. Based on a search of the Government Code Section 65962.5 "Cortese" list, the DVCM is not listed as a hazardous materials site. No impacts would occur, and this environmental parameter is not proposed for further analysis in the EIR.

e) No Impact. The Project is noted located within the Airport Land Use Compatibility Plan for Imperial County Airports (County of Imperial, 1996) or within two miles of a public airport or public use airport. The nearest public use airport, Salton Sea Airport, is located 13 miles northwest the Project site. For these reasons, the Project would not result in a safety hazard or expose people residing or working in the area to excessive noise levels. No impacts have been identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

f) No Impact. An Emergency Response/Contingency Plan for the existing DVCM is included in the Desert Valley Company's Hazardous Materials Business Plan. Post-project operations would be similar to existing operations and no feature of the proposed Project would impair implementation of or physically interfere with any adopted emergency plan. The proposed Project would not generate large amounts of traffic due to the SWFP's limitation of 38 vehicles per day. Additionally, the proposed Project would not involve the modification of existing roadways along the designated or alternative truck haul routes, such that off-site evacuation routes would be affected. Therefore, the proposed Project would not interfere with any adopted emergency response plans, and no impact would occur. This environmental parameter is not proposed for further analysis in the EIR.

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

g) Less than Significant. The Project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan, the potential for a major fire in the unincorporated areas of the County is generally low (County of Imperial, n.d.). This is considered a less than significant impact.

X. HYDROLOGY AND WATER QUALITY.

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would:				
1) Result in substantial erosion or siltation on- or off-site;	☒	☐	☐	☐
2) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☒	☐	☐	☐
3) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff; or	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion:

a) Potentially Significant Impact. The permitted waste stream accepted at the DVCM includes geothermal drilling muds and cuttings, geothermal filter cake, soils containing geothermal materials [(2)]; and, incidental plastic sheeting used as truckbed liners in waste transport trucks. These materials contain a number of substances

2 Includes soils filter cake, drilling mud materials or geothermal brines.

including arsenic, salts, metals, and organic hydrocarbons and Naturally Occurring Radioactive Materials (NORM). The introduction of these materials into surface or groundwater resources through percolation or inundation would result in significant water quality impacts. Impacts to water quality could also occur through sedimentation of local runoff associated with erosion, and the discharge of substances indirectly related to Project construction or operation (e.g., diesel or automobile fuels).

The proposed Project will be subject to Waste Discharge Requirements (WDRs) that require compliance with water quality standards aimed at avoiding impacts to receiving waters. Prior to construction of Cell 4 one year of background groundwater monitoring would be conducted and submitted to the Colorado River Regional Water Quality Control Board (RWQCB) to establish pre-construction groundwater quality. This test data would be included in an application to the RWQCB for an amended Waste Discharge Permit that includes Cell 4 and existing waste storage areas (Cells 1, 2 and 3). An application will be filed to include the proposed Cell 4 area in a Notice of Intent for coverage under California's General Industrial Storm-water Permit. Storm water runoff could have excessive iron concentrations during qualifying storm events. Prior to construction an application will be submitted to obtain coverage under the state's General Storm-water Construction permit. A Hydrology and Water Quality Analysis Report has been prepared for the Project (EMKO, 2019a) which evaluates potentially significant water quality impacts. Potential significant water quality impacts will be evaluated in the EIR.

b) Less than Significant. Non-potable water for the existing landfill is provided via an existing on-site water well and a new groundwater supply well would be required for the construction of Cell 4. A water supply assessment for the Project (EMKO, 2019b) indicates that the region has sufficient water to supply the Project while maintaining supplies for other users. Potential impacts to groundwater resources are expected to be less than significant and will be addressed in the EIR.

c.1), c.2) and c.3) Potentially Significant Impact. Jurisdictional drainages would be disrupted for the Project (see section IV. Biology) and stormwater flows would be diverted around Cell 4 and returned to the disrupted drainages. While the proposed diversion dikes would be designed to convey the runoff from a Probable Maximum Precipitation event without causing erosion or sedimentation, impacts related to the surface water runoff are potentially significant and will be addressed in the EIR.

d) No Impact. The Project site is not located within a flood hazard, tsunami, or seiche zone. No impacts are identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

e) Less than Significant. The DVCM operates under Waste Discharge Requirements (WDR) Order R7-2016-0016 issued in accordance with the Water Quality Control Plan for the Colorado River Basin. The Project would require an updated, amended or new WDR for Cell 4, consistent with the Water Quality Control Plan for the Colorado River Basin. With the issuance of the WDR, the proposed Project would be consistent with, and would not conflict or obstruct implementation of a water quality control plan.

The Project site located within the Ocotillo-Clark Valley Groundwater Basin (Basin Number 7-25), as defined by the California Department of Water Resources. The Ocotillo-Clark Valley Groundwater Basin does not fall within the basin classification that requires implementation of a sustainable groundwater management plan (also known as a groundwater sustainability plan, or GSP, under the Sustainable Groundwater Management Act definitions). However, in April 2017 the County amended a comprehensive Groundwater Management Ordinance to preserve,

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

protect and manage groundwater resources. The Groundwater Ordinance, codified as Division 22 of Title 9 of the Imperial County Code, aims to avoid or minimize impacts on existing and proposed groundwater extraction activities and groundwater resources. The Groundwater Ordinance requires that existing extraction facilities be permitted and registered with the County. New extraction facilities must also obtain a permit from the County. The Project would apply for an extraction permit for the new well proposed for construction of Cell 4, in compliance with the Groundwater Ordinance, and less than significant impacts are expected. These issues will be evaluated in the EIR.

XI. LAND USE AND PLANNING.

Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

Discussion:

a) No Impact. The Project represents an expansion of an existing monofill and would not divide an established community. No impact would occur.

b) Potentially Significant. The existing DVCM is located within the northeast quarter of Section 33, Township 12 South, Range 11 East, SBBM (APN 019-100-004), and the northernmost 20 acres of the southeast quadrant of Section 33. Collectively, this area has a land use designation of "Special Purpose Facility" and is zoned M-2 (Medium Industrial). The remainder of Section 33 (approximately 458.5 acres) is designated as "Recreational/ Open Space" and is zoned S-2 (Open Space/Preservation).

The Project will require an amendment to Imperial County's General Plan Land Use Element to change the land use designation on the remainder of Section 33 from "Recreational/ Open Space" to "Special Purpose Facility" and a Zone Change to change the zoning from S-2 (Open Space/Preservation) to M-2 (Medium Industrial). The Project will also require an amendment to Conditional Use Permit (CUP) No. 05-0020 to facilitate expansion of the existing monofill. Any conflicts with applicable land use plans, policies, or regulations could be potentially significant and will be addressed in the EIR.

XII. MINERAL RESOURCES.

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site	☐	☐	☐	☒

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**
delineated on a local general plan, specific plan or other land use plan?				

Discussion:

a, b) No Impact. A number of mineral resources are currently being extracted in Imperial County including gold, gypsum, sand, gravel, lime, clay, stone, kyanite, limestone, sericite, mica, tuff, salt, potash, and manganese. According to the Existing Mineral Resources Map (Figure 8) in the Conservation and Open Space Element of the County of Imperial General Plan (2016), no known mineral resources occur within the Project vicinity nor are there any mapped mineral resources within the boundary of the Project site (County of Imperial, 2016). Thus, no impacts related to the loss of availability of a known mineral resource would occur.

XIII. NOISE.

Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion:

a and b) Potentially Significant. Construction activities for Cell 4 could result in temporary or periodic increases in noise and groundborne vibration. Construction activities include site preparation and soil compaction; berm, levee and perimeter dike development; installation of internal access roads; installation of a new leachate collection system/pond, leak detection and liner system and other ancillary improvements required for safe operation of the disposal process (i.e. air monitoring stations, water supply wells, groundwater monitoring wells, etc.). Operation activities, such as trucks hauling and unloading waste materials at the monofill, bulldozers placing/compacting waste materials, and water trucks spraying soil sealant polymer on waste materials to protect from wind erosion could result in long-term increases in noise and groundborne vibration. Although the Project is not expected to expose people to excessive noise or vibration levels, further analysis is warranted, and impacts are considered potentially significant. A noise report will be prepared for the Project and included in the EIR.

c) No Impact. The Project is not located within the vicinity of a private airstrip and the nearest privately-owned/public use airport, Salton Sea Airport, is located 13 miles northwest the Project Site. Additionally, the Project is not located within the Imperial County Airport Land Use Compatibility Plan (County of Imperial, 1996).

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

For these reasons, the Project would not expose people residing or working in the area to excessive noise levels; therefore, no impact would occur.

XIV. POPULATION AND HOUSING.

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

a and b) No Impact. The Project is an expansion of an existing monofill and does not include the demolition of existing housing, nor the construction of new housing or public infrastructure that would directly or indirectly induce unplanned population growth. Operations of proposed Cell 4 would be similar to current operations at Cell 3, with increases in personnel required only during construction (15 to 25 workers). No impacts to population or housing would occur.

XV. PUBLIC SERVICES.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any public services:

Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion:

a) No Impact. Implementation of the project would not include the provision of, or the need for, new or physically altered governmental facilities. Additionally, since the opening of the DVCM, no significant impact has been documented on the demand for public services for this area. Because the Project would not result in a substantial increase in population, it does not require additional public facilities beyond that which already exists. No physical impacts related to the provision of new or alternative government facilities would occur.

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**
XVI. RECREATION.				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion:

a, and b) No Impact. A monofill does not generate users of park or other recreational facilities except for a small number of employees who may utilize these facilities during off-duty hours. No recreational facilities are included in the Project nor would it require the need to construct or expand existing recreational facilities. No impacts would occur.

XVII. TRANSPORTATION / TRAFFIC.				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Discussion:

a) Less than Significant. The current Solid Waste Facility Permit for the DVCM (13-AA-0022) allows up to 38 vehicles per day for incoming waste materials. The Project does not propose to increase the number of allowable vehicle trips, nor would it substantially increase the number of on-site personnel. Therefore, increases in long-term trip generation is not anticipated.

During construction, the Project would result in minor trip increases related to mobilization/demobilization of construction equipment, material delivery trucks and contractor personnel commuting to the Project site. These short-term impacts are not anticipated to be significant and will be evaluated in the Traffic report to be prepared

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	*No Impact* (NI)

for the EIR. Project conflicts with applicable programs, plans, ordinance or policies addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities will also be addressed in the EIR.

b) No Impact. The Project does not propose to modify location(s) where the waste stream is generated, the designated or alternative haul routes, or the maximum number of permitted daily vehicle trips. Therefore, the Project would have no impact on vehicle miles traveled.

Additionally, this threshold is not applicable until July 2020. No impact would occur, and no further analysis is warranted.

c) No Impact. With the exception of a new (interior) road to provide access to Cells 4A and 4B, no alterations or improvements to public roads are proposed as part of the Project. The interior access road would not increase hazards because of design features or incompatible uses and no impact is identified.

d) No Impact. The Project would not block any major thoroughfares and would not result in inadequate emergency access to the monofill. Waste haul trucks would continue to use the designated and alternative truck haul routes approved in the *Addendum to the Final EIR for the Desert Valley Company, SCH No.1989032206 (*County of Imperial, 2008a). No impact is anticipated.

XVIII. TRIBAL CULTURAL RESOURCES.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☒	☐	☐	☐

Discussion:

a) and b) Potentially Significant. As required by SB 18 and AB 52, the Imperial County Planning and Development Services Department sent consultation notices to Native American tribal representatives regarding the proposed Project in November 2018. Specifically, AB-52 Consultation notices were sent to the Quechan and

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

Torres-Martinez Desert Cahuilla Indian Tribes. SB-18 Consultation Letters were sent to the tribes/tribal representatives listed below:

- Augustine Band of Cahuilla Mission Indians
- Campo Band of Mission Indians
- Chemehuevi Reservation
- Cocopah Indian Tribe
- Colorado River Indian Tribe
- Ewiiaapaayp Tribal Office
- Fort Yuma-Quechan Indian Tribe
- Internal Tribal Cultural Resource Protection Council
- Kumeyaay Cultural Repatriation Committee
- La Posta Band of Mission Indians
- Manzanita Band of Kumeyaay Nation
- Torres-Martinez Desert Cahuilla Indians,
- Native American Heritage Commission,
- Kwaaymii Laguna Band of Mission Indians

As of the date of this Initial Study, no Tribes have requested consultation. Results of any Native American consultation will be included in the EIR. As discussed under Response to Item V. Cultural Resources, the Project could have potentially significant impacts to archaeological resources, which could be considered a significant resource to a California Native American tribe

XIX. UTILITIES AND SERVICE SYSTEMS.

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	*No Impact* (NI)
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

a) Potentially Significant Impact. The DVCM has existing infrastructure, including water, wastewater, electrical power and telecommunication facilities that would be used by the proposed Project. No new construction would be required for these utilities/service systems, and no impacts would result.

To maintain operational integrity, a series of proposed diversion berms would be extended and/or constructed around the south and western perimeter of Cell 4 to divert stormwater runoff from multiple existing ephemeral surface water features around the Project site. The surface water flow would be routed around the landfill facilities and allowed to rejoin the existing surface waters downstream. A 50-foot buffer would also be established along the outer edge of Cell 4 and a new leachate pond would be constructed along the eastern edge of Cell 4B. Construction of these features could cause significant environmental effects which will be addressed in the EIR.

b) Less than Significant. Process water for the proposed Project, would be supplied from a new groundwater well. Project water demand would include water for dust control and construction (e.g. soil compaction) during construction, operation and closure of Cell 4. Potable water for site personnel would trucked to the site by a water delivery service.

According to the Water Supply Assessment prepared for the Project sufficient water would be available for the Project during single dry-year and multiple dry-year periods over the next 20 years and beyond(EMKO, 2019). Although the proposed Project is not anticipated to result in a significant increase in water demand/use, this issue will be addressed in the EIR.

c) No Impact. Wastewater treatment for the existing DVCM is provided by an on-site septic system and leach field. This same infrastructure would be used for the proposed Project. No impacts would occur.

d) Less than Significant. Solid waste generation would be minor for the construction, operation and closure of the Project. Solid waste would be disposed of using a locally-licensed waste hauling service. It is anticipated that solid waste would be hauled to the landfill nearest the Project site. The Salton City Solid Waste Site (13-AA-0011) is located at 935 W. Highway 86 Salton City , CA 92275. As of September 2018, this landfill had approximately 1,264,170 cubic yards of remaining capacity and was estimated to remain in operation through 2038 (CalRecycle, 2019b.). The County has sufficient landfill capacity to receive the minor amount of solid waste generated by construction and operation of the Project.

Also, because construction and operation the proposed Project would generate solid waste, the Project must comply with state and local requirements for waste reduction and recycling. A less than significant impact is identified for this issue area.

e) No Impact. The Applicant will comply with federal, state and local statutes related to solid waste. No impacts would occur.

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

XX. WILDFIRE.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Discussion:

a) No Impact. According to the Draft Fire Hazard Severity Zone Map for Imperial County prepared by the California Department of Forestry and Fire Protection, the Project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). As noted under Hazards and Hazardous Materials (Response IX.f) the proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. No impact is identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

b) No Impact. The Project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). Therefore, the proposed Project would not exacerbate wildfire risks. No impact is identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

c) No Impact. The project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). The proposed Project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that would may result in temporary or ongoing impacts to the environment. No impact is identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	***No Impact*** **(NI)**

d) No Impact. The project site is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2007). The proposed Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. No impact is identified for this issue area and this environmental parameter is not proposed for further analysis in the EIR.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino, (1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Revised 2009- CEQA
Revised 2011- ICPDS
Revised 2016 – ICPDS
Revised 2017 – ICPDS
Revised 2019 – CEQA

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	*No Impact* (NI)

SECTION III. MANDATORY FINDINGS OF SIGNIFICANCE

The following are Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects.)	☒	☐	☐	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Discussion:

a) Potentially Significant Impact. The EIR's biological resources section will discuss project-specific direct and indirect impacts on plants, fish and wildlife species. The EIR will also evaluate project-specific direct and indirect impacts on cultural and tribal cultural resources. Finally, the EIR will evaluate the project's contribution to cumulative impacts and propose feasible mitigation, as appropriate, to reduce the impacts to less-than-significant levels.

b) Potentially Significant Impact. The Project has the potential to contribute to cumulative impacts related to aesthetics, air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, tribal cultural resources, and utilities and service systems. The EIR will evaluate the project's contribution to cumulative impacts in these areas as well as other areas as further impacts are identified.

c) Potentially Significant Impact. The Project could potentially result in environmental effects that have adverse impacts on human beings, either directly or indirectly. These impacts will be fully addressed in the EIR.

SECTION IV. PERSONS & ORGANIZATIONS CONSULTED/ REFERENCES

A. COUNTY OF IMPERIAL

- Jim Minnick, Director of Planning & Development Services
- Michael Abraham, AICP, Asst. Director of Planning & Development Services
- Patricia Valenzuela, Planner IV
- Imperial County Air Pollution Control District
- Department of Public Works
- Fire Department
- Ag Commissioner
- Environmental Health Services
- Sheriff's Office

B. OTHER AGENCIES/ORGANIZATIONS

- CDFW
- USFWS
- Cal Trans

SECTION IV. PERSONS & ORGANIZATIONS CONSULTED/ REFERENCES

CalEnergy, 2018. Desert Valley Company CUP No. 05-0020 Conditional Use Permit Amendment, Submitted August 20, 2018. Updated November 27, 2018.

_____, 2019a. Desert Valley Company Request for Zone Change, 2019.

_____, 2019b. Desert Valley Company General Plan Amendment Request, 2019.

_____, 2019c. Desert Valley Company Cell 4 Permitting Summary of CalEnergy's Technical Reports, 2019.

_____, 2016. Revisions to the Joint Technical Document for the Desert Valley Company Monofill Facility Solid Waste Permit 13-AA-0022. Prepared for the Imperial County Public Health Department, January 15, 2016.

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_____, 2019b. SWIS Facility Detail – Salton City Solid Waste Site (13-AA-0022). Available at: https://www2.calrecycle.ca.gov/swfacilities/Directory/13-AA-0011. Accessed December 11, 2019.

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_____, 2019b. Phase I Cultural Resource Report For The Desert Valley Monofill Cell 4 Expansion Project, Brawley, Imperial County, California. July 2019.

_____, 2019c. Paleontological Report For The Desert Valley Company Monofill Cell 4 Expansion Project Brawley, Imperial County, California, July 2019.

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_____, 2016. Final Conservation and Open Space Element of the Imperial County General Plan. Adopted by the Imperial County Board of Supervisors, March 8, 2016. Available at: http://www.icpds.com/CMS/Media/Conservation-&-Open-Space-Element-2016.pdf. Accessed December 2, 2019.

_____, 2008a. Addendum to Desert Valley Company's Final Environmental Impact Report EIR (Section 3.8 Transportation System). Prepared for the County of Imperial Planning Department; State Clearinghouse No. 89032206, October 10, 2008.

_____, 2008b. Circulation and Scenic Highways Element. Approved by: Board of Supervisors January 29, 2008. Available at: http://www.icpds.com/CMS/Media/Circulation-Scenic-Highway-Element-(2008).pdf. Accessed November 1, 2019.

_____, 1996. Airport Land Use Compatibility Plan for Imperial County Airports. Prepared by County of Imperial Planning/Building Department and the Airport Land Use Commission, June 1996. Available at: http://www.icpds.com/CMS/Media/ALUC-Compatibility-Plan-1996-Part-I.pdf. Accessed December 2, 2019.

_____, n.d. Seismic And Public Safety Element. Approved by the Imperial County Board of Supervisors. Available at: http://www.icpds.com/CMS/Media/Seismic-and-Public-Safety-Element.pdf. Accessed December 2, 2019.

EMKO Environmental, 2019a. Hydrology and Water Quality Analysis Report for the Desert Valley Company Monofill Facility Cell 4 Waste Storage Area, Imperial County, California, July 26, 2019

_____, 2019b. Water Supply Assessment for the Desert Valley Company Monofill Facility Cell 4 Waste Storage Area, Imperial County, California, July 10, 2019.

Imperial County APCD, 2018. Conditions for Authority to Construct and Permit to Operation #2120B-3, CalEnergy Operation Corporation. Prepared by the Imperial County Air Pollution Control District, February 22, 2018.

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B Public Scoping Meeting Materials/Comments

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Public Scoping Meeting for Desert Valley Company Monofill Expansion Project

Environmental Impact Report

County of Imperial

January 9, 2020 6:00 PM

1

Scoping Meeting Overview

- Introductions
- Purpose of Public Scoping Meeting
- Roles and Responsibilities
- Project Overview
- CEQA Purpose, Process, Schedule
- Topics to be Addressed in Draft EIR
- Contact Information
- Public Comments
- Adjourn

2

Introductions

- County of Imperial – CEQA Lead Agency
- CEQA Consultants
- Project Applicant
  - CAlEnergy Operating Corporation (CalEnergy)
  - Consultant Team

1/9/2020

3

Purpose of Scoping Meeting

- Inform public of proposed Project and the County's intent to prepare an Environmental Impact Report (EIR)
- Present an overview of the CEQA process
- Review topics to be addressed in the Draft EIR
- Solicit comments and receive input on:
  - Scope and content of the environmental analysis (direct, indirect, cumulative, unavoidable)
  - Potential measures to reduce adverse environmental impacts
  - Potential Alternatives to avoid or reduce environmental impacts

1/9/2020

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Roles and Responsibilities

- **Imperial County is the "Lead Agency" responsible for Project's CEQA documentation**
- **County is responsible for:**
  - Adequacy/accuracy/objectivity of Project's CEQA document
  - Considering Project's CEQA document prior to acting upon/approving Project
- **County has retained BRG Consulting, Inc. to prepare the Environmental Impact Report (EIR)**

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Project Overview

- **CalEnergy is proposing to expand the existing Desert Valley Company Monofill (DVCM) with the addition of a new waste storage cell (Cell 4) adjacent to and immediately west of the existing monofill**
- **The existing monofill is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016**
- **CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020 (CUP Amendment 18-0025), a General Plan Amendment (GPA 18-0004) and a Zone Change (ZC 18-0005) to facilitate expansion of the existing DVCM for development of a new waste storage cell (referred to herein as Cell 4) and associated facilities**

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Project Location

- Desert Valley Company Monofill Facility
  3301 West Highway 86,
  Brawley, California, 92227
- Located on private lands north of Superstition Hills and south of State Route 86 (SR 86);12 miles west of the City of Westmoreland and 4 miles south of the Salton Sea in the County of Imperial, California
- Within Section 33, Range 11 East, Township 12 South within USGS Kane Spring, California 7.5-minute topographic quadrangle
  (APN 019-100-004-001)

1/9/2020

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Project Background

- **Desert Valley Company Monofill (DVCM) is an active Class II Solid Waste Management Facility**
- **Waste stream is limited to geothermal non-hazardous waste and byproducts generated by CalEnergy's geothermal power plants in Imperial County**
  - Geothermal filter cake
  - Drilling mud materials and cuttings
  - Soils containing geothermal materials
  - Plastic sheeting used as truckbed liners in waste transport trucks

1/9/2020

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Project Background (Cont.)

- DVCM began operations in May 1991
- Consists of three storage/disposal cells (Cells 1, 2 & 3)
- Cells 1 and 2 were closed in 2008
- Cell 3 (design capacity of approx. 1.3 million cubic yards) is the only active cell currently receiving waste
- Cell 3 is projected to reach its design capacity by 2025
- Total site occupies 181.5 acres
  - 68 acres (the total permitted area) is enclosed by fencing around landfill operating area
  - 28.9 acres is permitted for disposal operations

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Project Background (Cont.)

- No municipal solid waste is accepted
- DVCM is not open for public and/or commercial use at any time
- Permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday
- Amount of non-hazardous wastes that can be received is limited to 750 tons per day and 273,750 tons annually
- Monofill typically employs four (4) full-time staff

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Project Background (Cont.)

DVCM's Existing Improvements	
Monofill Cells 1, 2 and 3	Meteorology collection station
Private single-lane road from SR 86	Four (4) air quality sampling stations
Office and administration building	Seven (7) vadose zone monitoring wells
Two Leachate Ponds for Cells 1 and 2	Six (6) radon monitoring probes in Cells 1 & 2
One Leachate Pond for Cell 3	Pole gate at entrance on SR-86
Equipment storage building	Manual gate at Monofill fence
On-site septic tank /leach field	Fuel tank (aboveground)
On-site water well	Hazardous Material Storage Containment Structure
Two above ground water storage tanks	Chain link fencing surrounding entire facility
Eleven groundwater monitoring wells	

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Monofill Operations

- Solid waste materials are delivered to the monofill by truck
- Covered loads are transported from the Salton Sea area, via a designated truck haul route that includes Sinclair Road, Gentry Road, Bowles Road, Lack Road and State Routes 78/86
- DVCM is accessed via a single lane road that connects to SR86
- Trucks are inspected prior to off-loading and incoming materials are analyzed according to existing sampling and analysis requirements
- Trucks are cleared for access to the operational cell and offloaded
- After off-loading, the material is graded and compacted, the surface is sprayed with a polymer-based soil sealant which creates a stable crust and provides for wind protection

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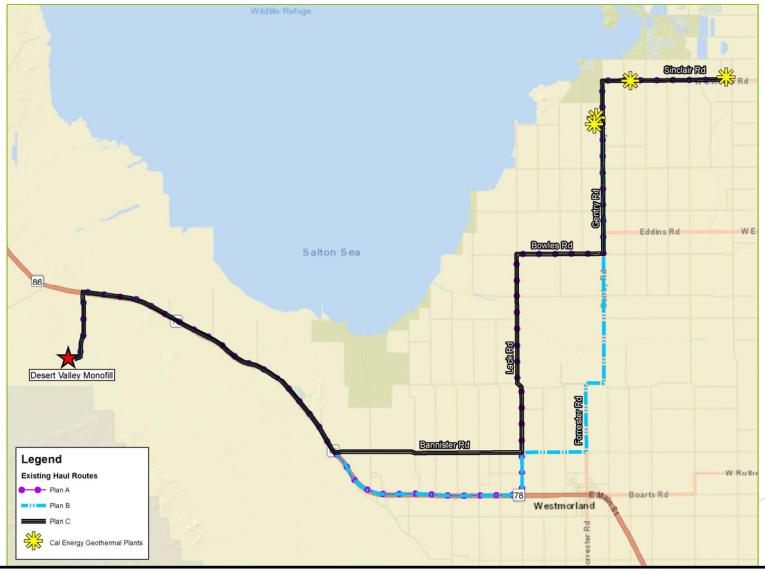
Monofill Operations



1/9/2020

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Proposed Project

- The proposed Project would expand the existing DVCM by approximately 80 acres and would provide an additional 1.3 million cubic yards of disposal capacity
- Design of Cell 4 would be consistent with the DVCM's existing permits
- All aspects of the proposed Project, such as operations, maintenance, monitoring, recordkeeping, and financial assurances, would be consistent with those of the existing monofill

1/9/2020

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Proposed Project (Cont.)

- **Proposed expansion of the existing monofill includes the addition of waste storage Cell 4 and associated facilities:**
  - New leachate pond for Cell 4
  - Addition and extension of stormwater diversion dikes to divert surface water runoff around the Project site
  - Minor extensions/modifications to internal roads to provide access to Cell 4
  - New water well for use during construction
  - Additional air quality particulate sampling stations, and additional groundwater monitoring wells

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Proposed Project (Cont.)

- **The design of Cell 4 would be consistent with Cell 3, with a liner system designed to a Class I hazardous waste standard and other criteria that conform to Class II designated waste standards and the existing monofill's permits**
- **All other aspects of the expansion, such as operations, maintenance, monitoring, closure/post closure activities, recordkeeping and financial assurances would be consistent with those of the existing monofill**

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Construction

Cells 4A and 4B

- Cell 4A would have a capacity of approx. 1.3 million CY; a projected lifespan of approx. 29 years; and occupy a surface area of approximately 50 acres
- Construction of Cell 4A would take 12 months
- Cell 4B would to be similar in size to Cell 4A
- Construction of Cell 4B would commence when there is a demand for additional waste storage capacity

Construction Activities

- Access road improvements
- Grading and soil compaction
- Berm and levee development
- Plastic membranes
- Diversion berms
- 50-foot buffer
- New leachate pond would be constructed

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Required Project Approvals/Actions

County of Imperial

- Amendment to CUP No. 05-0020 (Amendment 18-0025)
- General Plan Amendment (GPA 18-0004)
- Zone Change (ZC 18-0005)
- Imperial County Public Health - Solid Waste Facility Permit Department
- Imperial County Air Pollution Control District – Authority to Construct and Permit to Operate

Other Approvals

- State Water Resources Control Board – National Pollutant Discharge Elimination System General Permit
- Regional Water Quality Control Board (Region 8) – Waste Discharge Requirements
- U.S. Army Corps of Engineers – Section 404 of the Clean Water Act Permit
- California Dept. of Fish & Wildlife - 1602 Lake and Streambed Alteration Agreement

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Environmental Determination

- An environmental initial study has been prepared to determine if the project may have a significant effect on the environment
- Evaluated all environmental issues
- Determined that the proposed project may have a significant effect on the environment
- An Environmental Impact Report will be required

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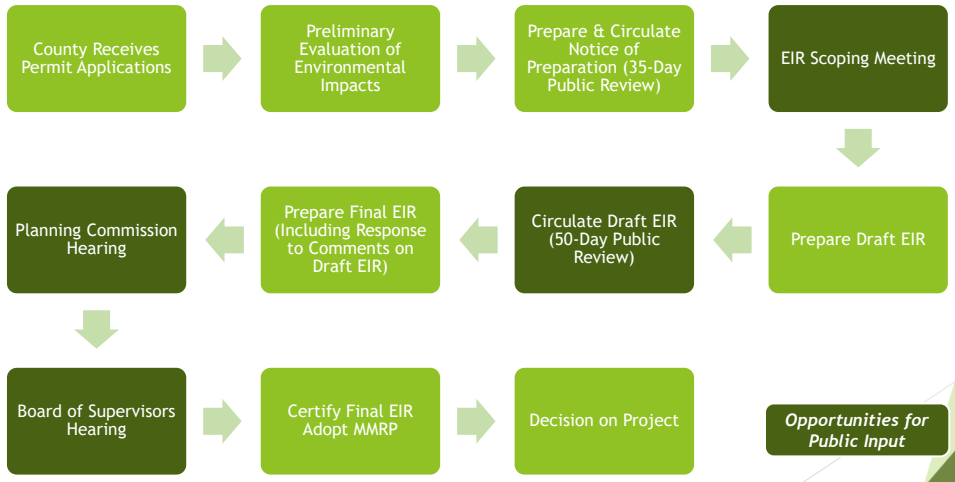
Draft EIR will:

- Analyze Project's Environmental Impacts
  - Short-Term Construction
  - Long-Term Operational
  - Direct and Indirect
  - Cumulative
  - Growth Inducing
  - Unavoidable
- Identify feasible mitigation measures to avoid/reduce Project's significant impacts
- Evaluate feasible Alternatives to the Proposed Project
- Undergo 50-day public review period

20

CEQA EIR Process



1/9/2020

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Topics to be Analyzed in Draft EIR

- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology & Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use and Planning
- Noise
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities & Service Systems
- Cumulative Impacts
- Project Alternatives

1/9/2020

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Tentative EIR Schedule

Tentative Schedule	
35-Day NOP Scoping Period	Dec. 27, 2019 – Jan. 31, 2020
Public Scoping Meeting	January 9, 2020
Draft EIR Preparation	Winter/Spring 2020
50-Day Draft EIR Public Review	Spring/Summer 2020
Final EIR Preparation	Summer 2020
Public Hearings	Fall 2020

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Public Comments

- Please fill out a speaker slip and hand it in
- When your name is called, please walk up to the microphone, state your name and what agency/organization you represent (if any)
- Each speaker will be given 3 minutes to speak
- In addition, you can fill out a Comment Form and hand it in before you leave or send it to the address provided on the form

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Public Comments

- Your comments may be submitted in writing to:

Jim Minnick, Director,
Imperial County
Planning & Development Services Department,
801 Main Street,
El Centro, CA 92243

- Available project information may be reviewed at this location
- Due to the limits mandated by State law, your response must be sent at the earliest possible date but no later than January 31, 2020

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Adjournment

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EXISTING MAIN ACCESS ROAD

EXISTING BUILDINGS

EXISTING SITE ROAD

CONSTRUCTION ACCESS ROAD

CONSTRUCTION LAYDOWN STOCKPILE BORROW AREA

LEACHATE POND

CELL 1/2

CELL 3

NEW PAVED ROAD

TOTAL CELL 1–3
40.9 ACRES

FUTURE 25 FEET WIDE CELL 4B ACCESS ROAD

MAINTENANCE ROAD

LEACHATE POND

NEW PAVED ROAD

CELL 4A

CELL 4B

200' FAULT SET BACK

DIVERSION BERM

TOTAL CELL 4A/4B
AREA 46.2 ACRES

DRAFT LAYOUT OF DESERT VALLEY COMPANY
PROPOSED CELLS 4A AND 4B

CELLS 1, 2, AND 3 ARE EXISTING.
THE LANDFILL WOULD EXPAND TO THE WEST.
THE NEW CELLS WOULD BE ACCESSED BY
THE EXISTING ROAD.

LEGEND
FUTURE ROAD
MAINTENANCE ROAD
CONSTRUCTION LAYDOWN STOCKPILE BORROW AREA
TOPOGRAPHIC CONTOURS, 1 FT

200 0 200 400
SCALE IN FEET

Plot Date: 10 Jul 2019 - 16:28:32; Drawing file: S:\CAD Folder\CAD\FILES\242\058\ CELLS 1-4 Site plan.dwg

THESE DRAWINGS ARE INSTRUMENTS OF PROFESSIONAL DESIGN SERVICES PERFORMED BY VEIZADES & ASSOCIATES INC. FOR THIS SPECIFIC PROJECT REFLECTING THE UNIQUE REQUIREMENTS OF THE PROJECT. ANY UNAUTHORIZED CHANGES OR USE OF THESE DRAWINGS, INCLUDING ANY INFORMATION CONTAINED THEREIN, FOR ANY OTHER PROJECT IS PROHIBITED. THE CLIENT AGREES TO INDEMNIFY VEIZADES & ASSOCIATES, INC. AGAINST ANY CLAIMS OR DAMAGES ARISING FROM SUCH UNAUTHORIZED CHANGES OR USE. VEIZADES & SSOCIATES, INC. IS THE AUTHOR OF THESE DRAWINGS AND RETAINS ALL RIGHTS INCLUDING COPY RIGHTS.

NO.	REVISIONS	BY	APPR.	DATE
A	ISSUED FOR REVIEW			

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1 INCH

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CONSULTING ENGINEERS
5 THIRD STREET • SUITE 400 • SAN FRANCISCO • CA 94103
TEL: 415. 394.8855 FAX: 415. 394.8866

DESIGNED BY	
CHECKED BY	
DRAFTED BY	
APPROVED BY	DRAFT
DATE	07/10/19
SCALE	1"=200'

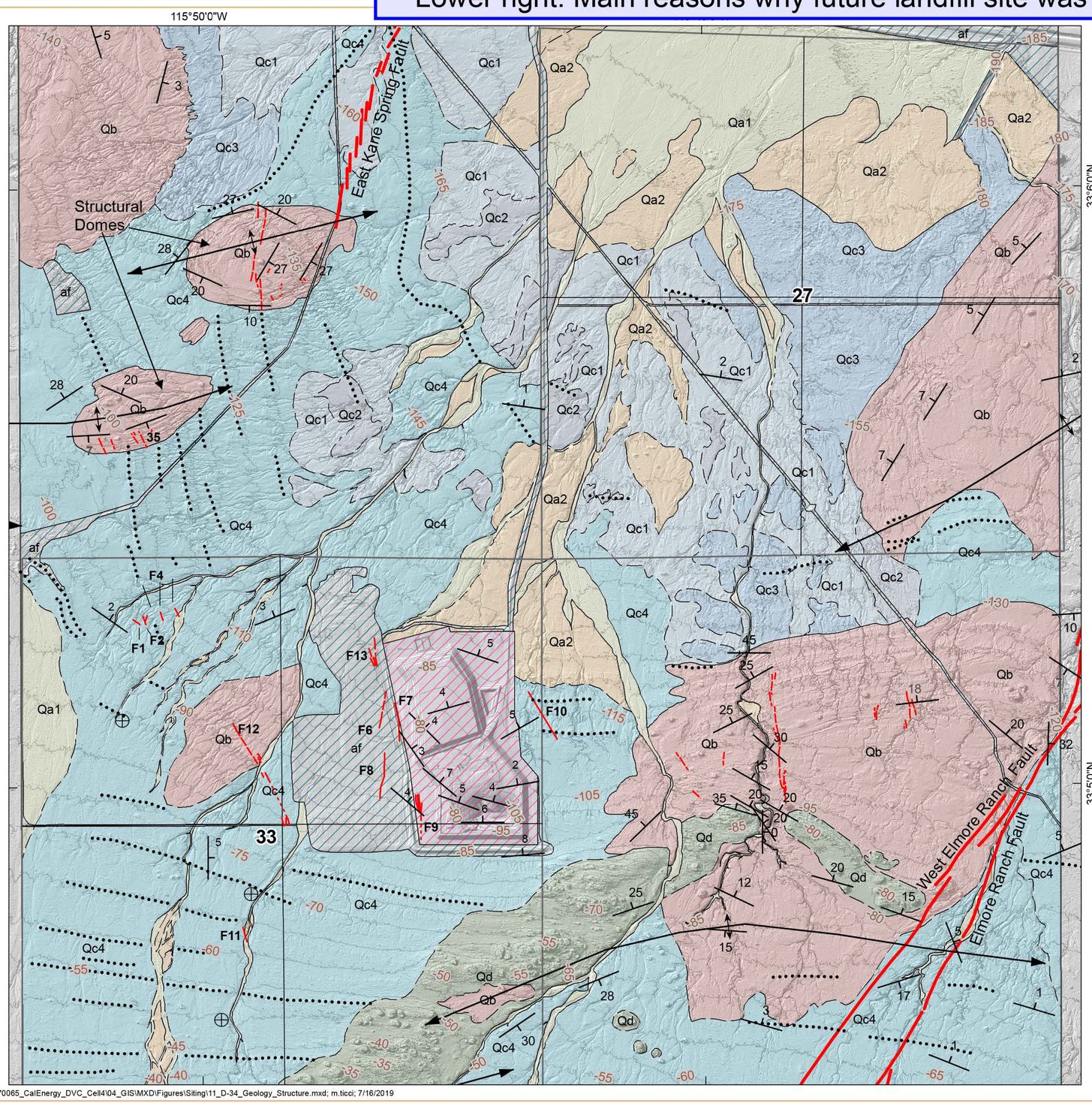
CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DVC MONOFILL

CELL 1–4 SITE PLAN

PROJECT NO.	242–058
CONTRACT NO.	
CADFILE NO.	–
SHEET NO.	G1
REV. NO.	△

Top: Soil types and geological features around DVC, including disturbed ground.
Lower left: Landfills cannot be built within 200 feet of an active fault (pink areas).
Lower right: Main reasons why future landfill site was located at Site A.



Legend

- Horizontal bedding (Balderman, 2002)
- 27 — Strike/dip measurement (Balderman, 2002; Dibblee, 2008; this study)
- Anticline showing directions of plunge (Dibblee, 2008)

Faults

- Active, historic rupture (Treiman, 1989 and USGS/CGS, 2006)

Quaternary (Fugro, 2018d, 2019c; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection
- Beach ridges, Lake Cahuilla
- 5-ft topographic contour (Fugro 2018c, LiDAR)
- DVC Cells 1, 2, 3

Geologic Units

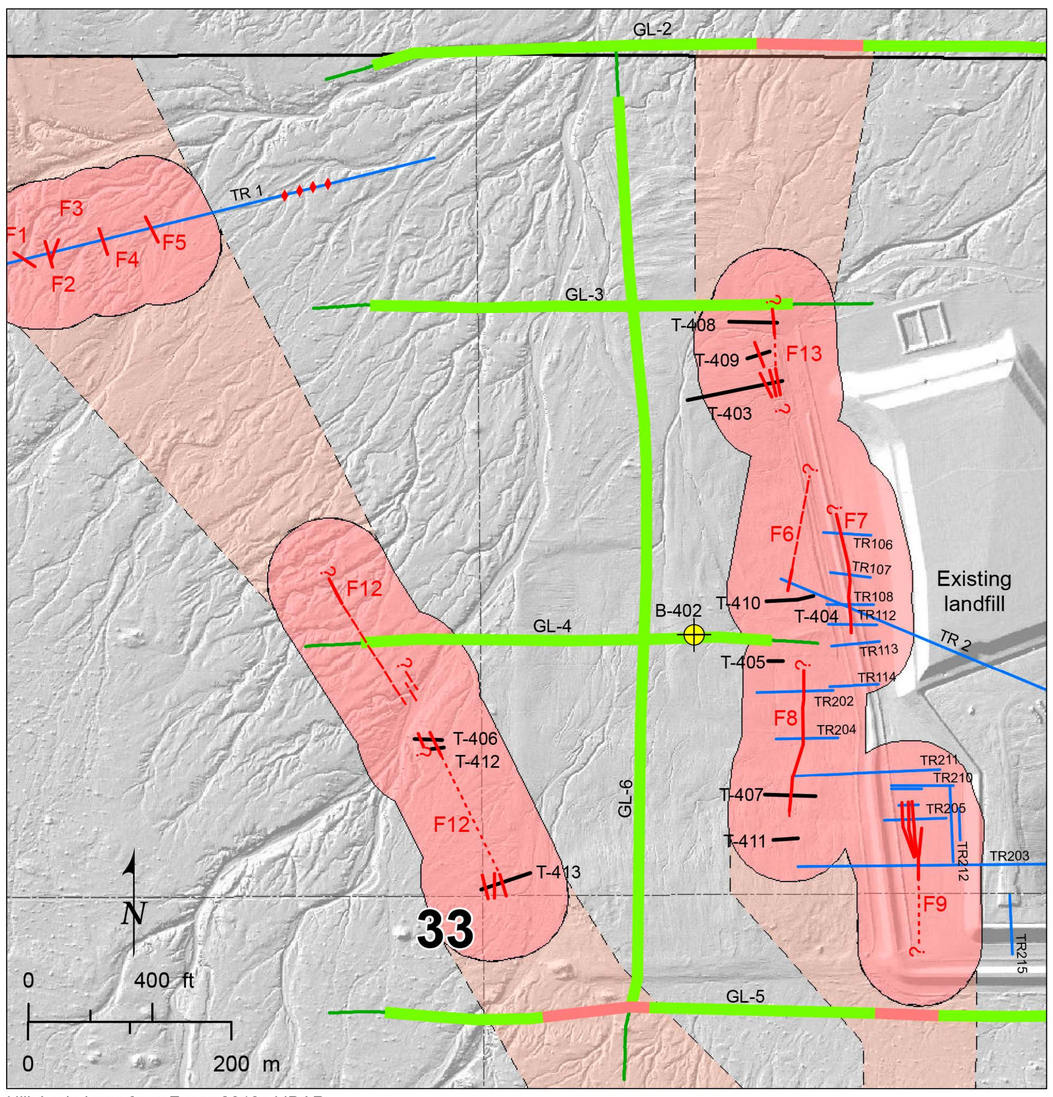
- af — Disturbed ground
- Qa1 — Active channel and alluvial fan deposits
- Qa2 — Inactive alluvial fan and terrace deposits
- Qc1 — Lake Cahuilla Deposits - light gray silt
- Qc2 — Lake Cahuilla Deposits - sand
- Qc3 — Lake Cahuilla Deposits - tan silt
- Qc4 — Lake Cahuilla Deposits - silt and sands with beach ridges
- Qd — Aeolian deposits
- Qb — Brawley Formation

0 1,000 ft
N
0 400 m

SITE GEOLOGY AND STRUCTURE

FIGURE 11

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\11_D-34_Geology_Structure.mxd; m.ticci; 7/16/2019



Hillshade base from Fugro 2018c LiDAR.

Legend

- Calibration borehole (Fugro, 2019b)
- 33 — Section 33, with quadrants
- T-403 — Trench, 2019
- TR 203 — Trench (Balderman 1988, 1989, 2002)
- Possible fault feature (Balderman, 1989)

Fault
(Fugro 2019d; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection
- 200-ft fault setback area
- Fault avoidance zone

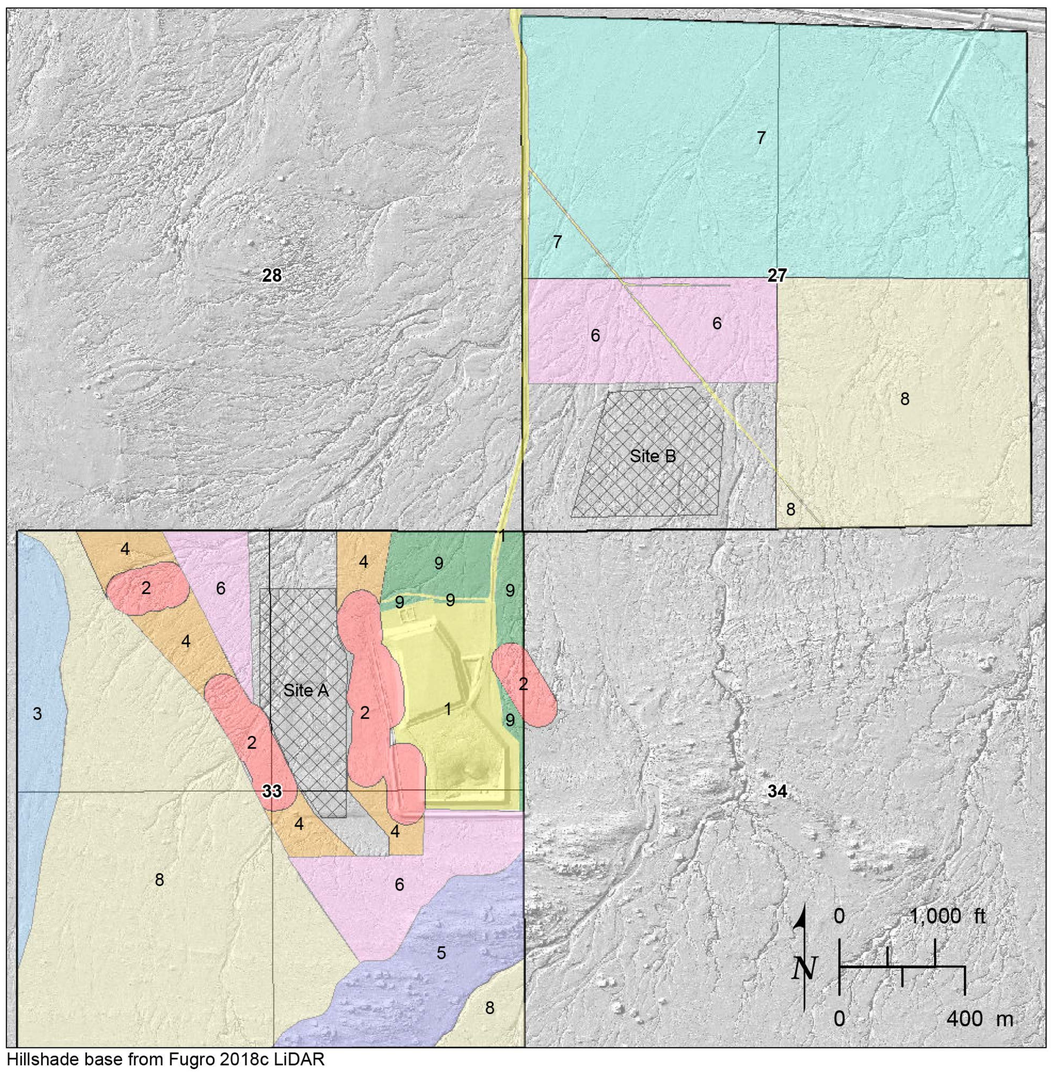
Seismic Reflection Results (Fugro, 2019a)

- Potential fault area
- Absence of faulting
- GL-4 — Geophysical line, faulting not evaluated

FAULT SETBACK AREAS, SECTION 33

FIGURE 14

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\14_D-72_Siting_Faults_S33.mxd; m.ticci; 7/17/2019



Hillshade base from Fugro 2018c LiDAR

Site A — Candidate site

Sections 27 and 33, with quadrants

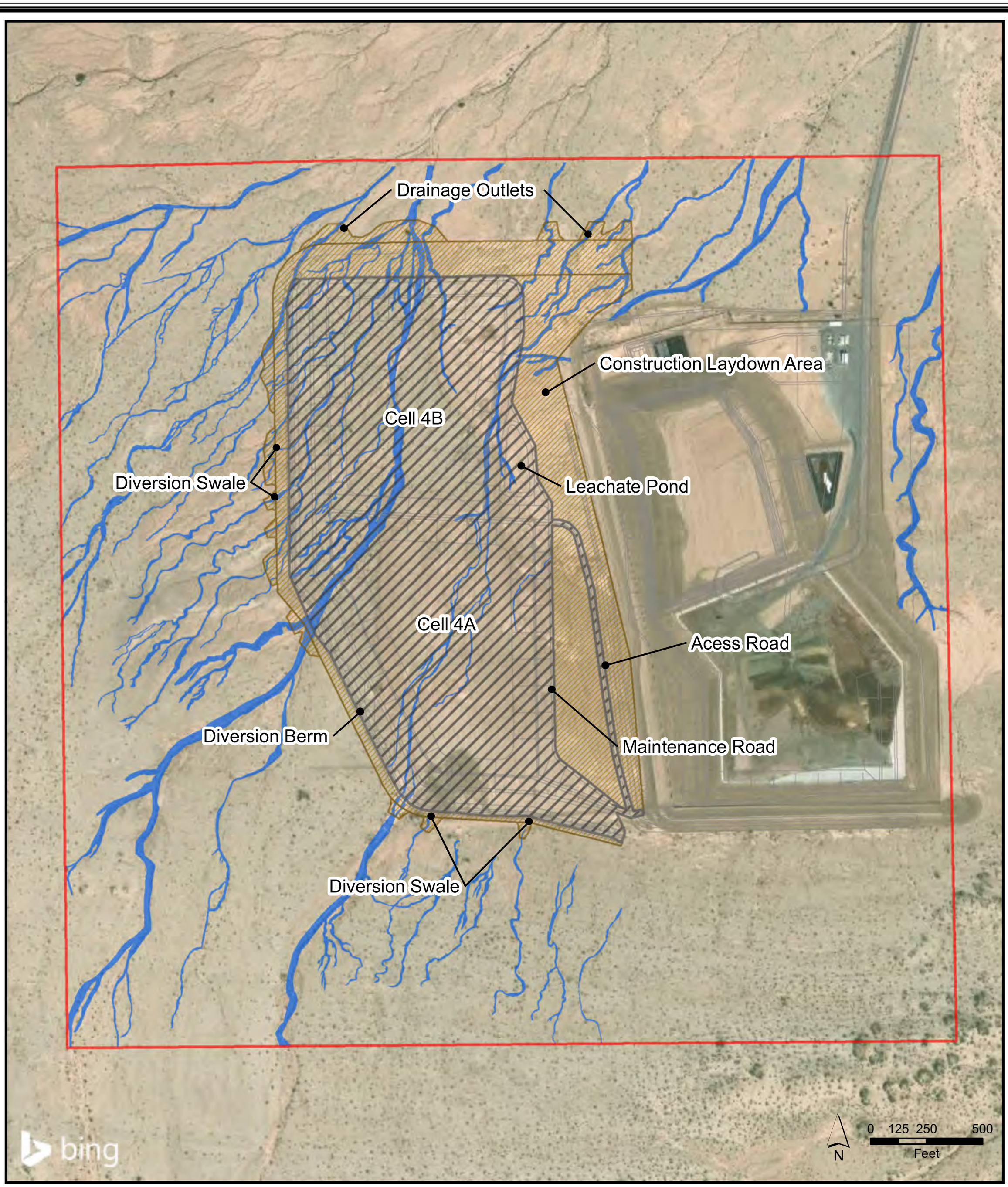
Siting Zones

- 1 — Existing facilities
- 2 — Fault setback area
- 3 — San Felipe Creek watershed
- 4 — Fault avoidance zone
- 5 — Habitat avoidance zone
- 6 — Fault investigation needed
- 7 — Impacts view from Highway
- 8 — Distant from access
- 9 — Bounded areas with insufficient acreage

SCREENING ANALYSIS

FIGURE 16

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\16_D-102_Screening_Analysis.mxd; m.ticci; 7/17/2019



Legend

Survey Area

Proposed Project Area

Permanent Impact

Temporary Impact

Jurisdictional Delineation

Waters of the US (USACE)

Temporary Impact (2.20 acres)

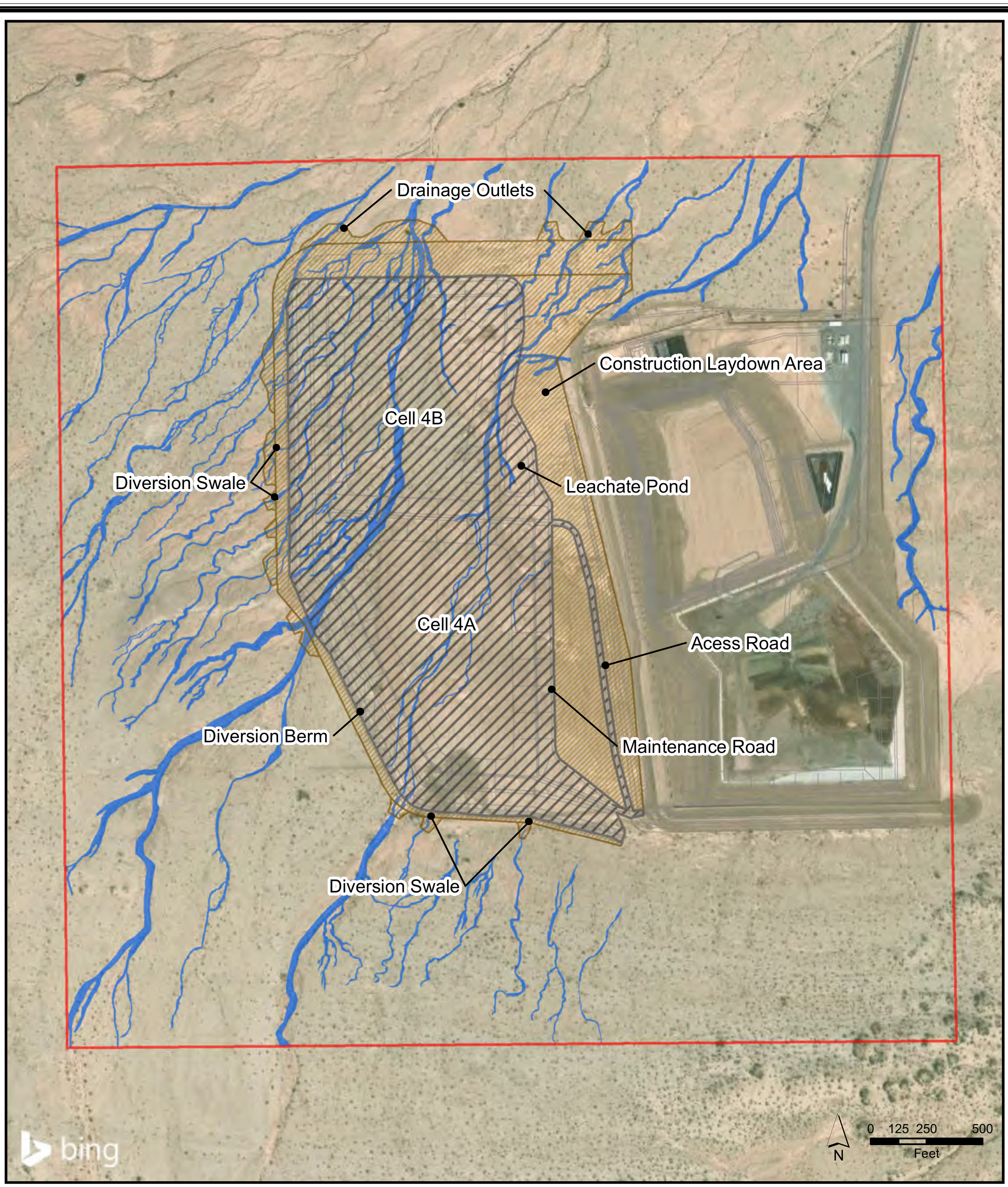
Permanent Impact (3.95 acres)

Figure 3

Desert Valley Monofill
CEQA Tech Studies
Waters of the US

Name: 21163 BIO Fig 3 JD Results Waters of the US.Mxd
Print Date: 7/26/2019, Author: pcarlos

CHAMBERS GROUP



Legend

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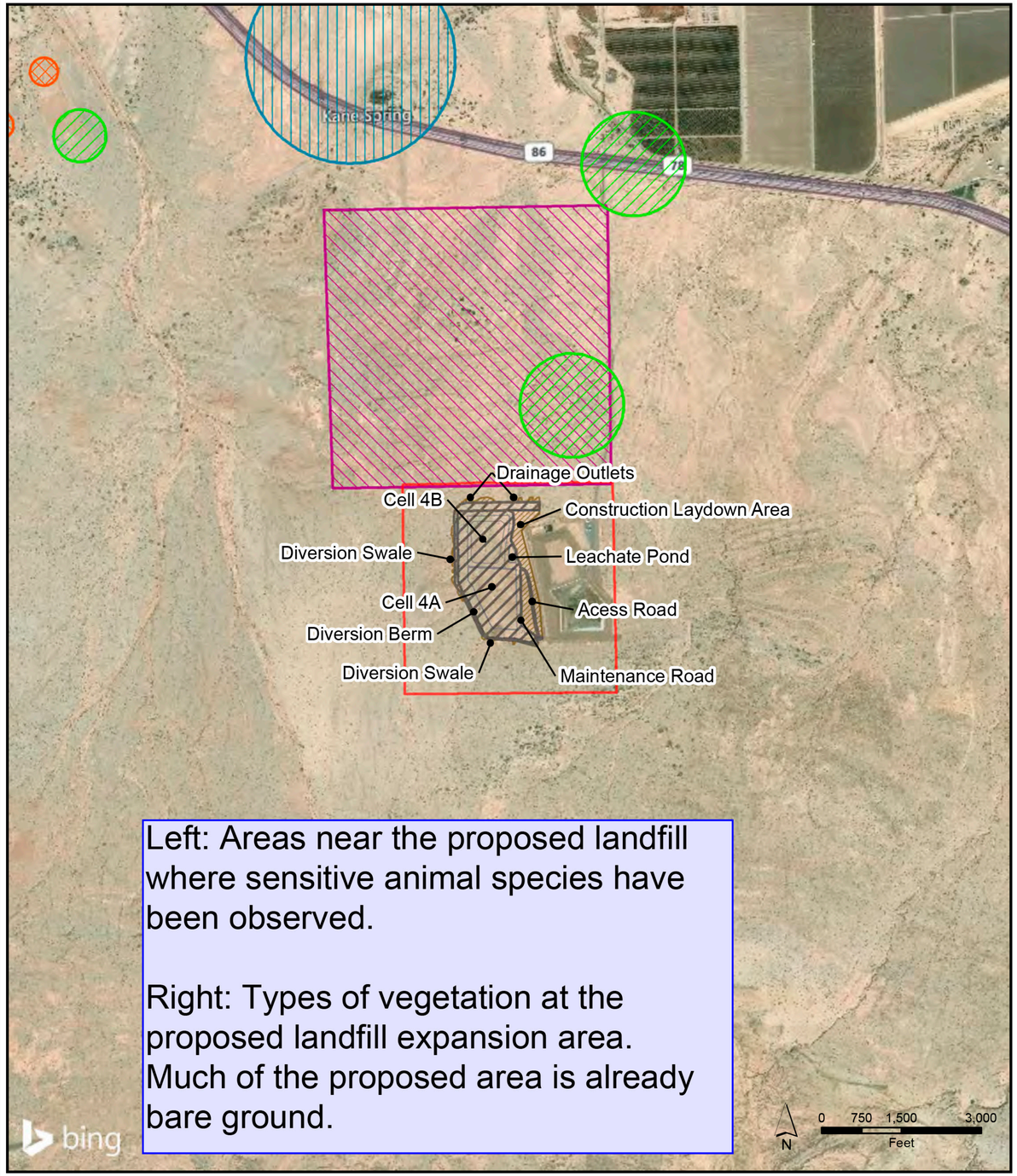

Left: Areas near the proposed landfill where sensitive animal species have been observed.

Right: Types of vegetation at the proposed landfill expansion area. Much of the proposed area is already bare ground.

Legend

Survey Area

Proposed Project Area

Permanent Impact

Temporary Impact

Sensitive Species Occurrences

Thurber's pilostyles

flat-tailed horned lizard

pallid bat

sand food

Figure 5
Desert Valley Monofill
CEQA Tech Studies
Sensitive Species Occurrences

Name: 21163 BIO Fig 5 Sensitive Species Occurrences.Mxd
Print Date: 7/26/2019, Author: pcarlos
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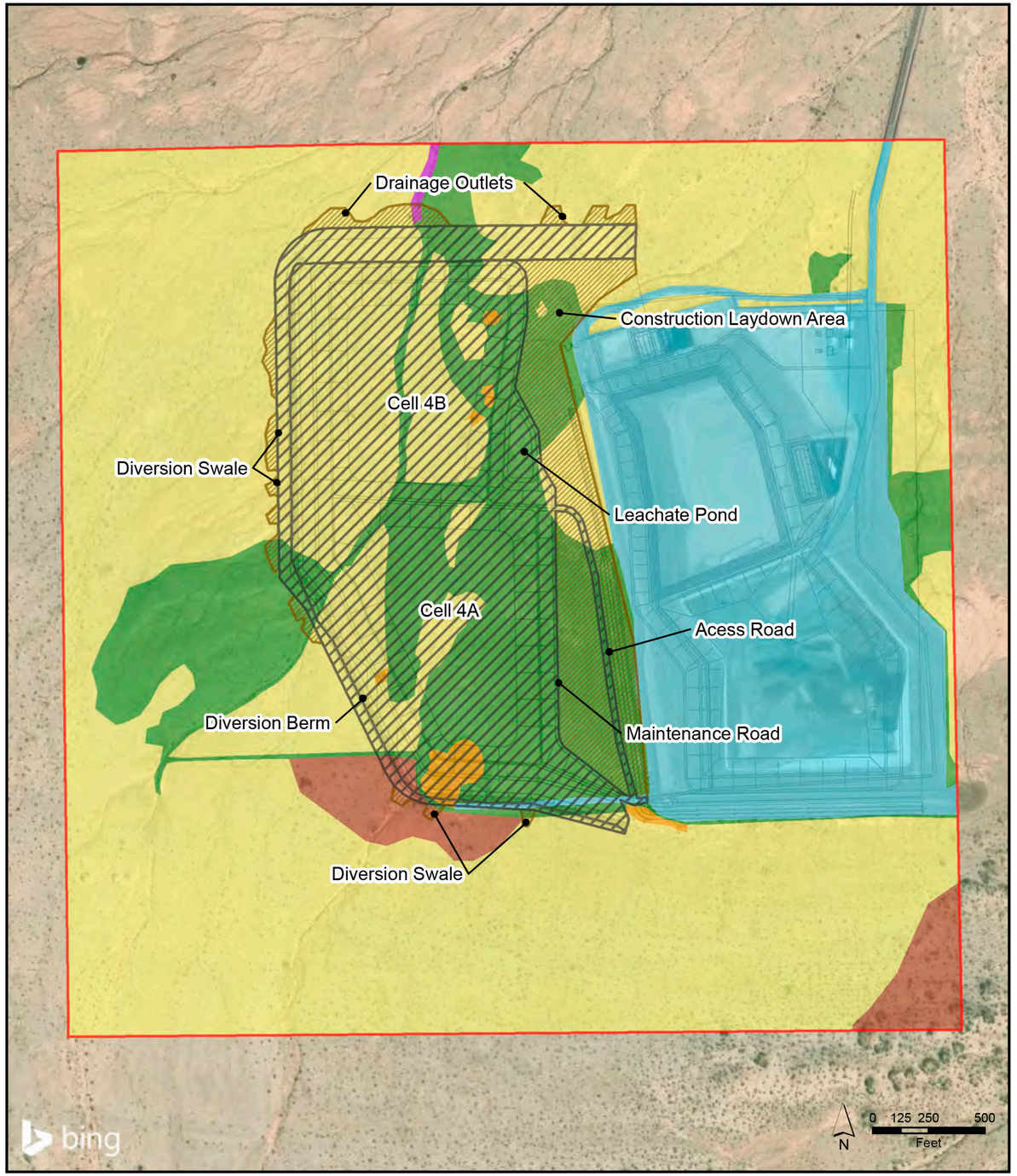


Legend

Survey Area

Proposed Project Area

Permanent Impact

Temporary Impact

Vegetation Communities

Bare Ground

Creasote Bush Scrub

Creosote Bush - Honey Mesquite Scrub

Developed

Rigid Spineflower-Hairy Desert Sunflower Sparsely Vegetated Alliance

Tamarisk/Honey Mesquite/Four Wing Saltbush Scrub

Figure 2
Desert Valley Monofill
CEQA Tech Studies
Vegetation Communities

Name: 21163 BIO Fig 2 Vegetation Communities.Mxd
Print Date: 7/26/2019, Author: pcarlos
CHAMBERS GROUP

Desert Valley Company
Monofill Expansion

January 2020
Imperial Valley Public Scoping Meeting

by CalEnergy Operating Company
A BHE Renewables company

Current Operations

Desert Valley Company (DVC) Location?

Located approximately 4 miles inland from Highway 86 at the southwestern end of the Salton Sea.

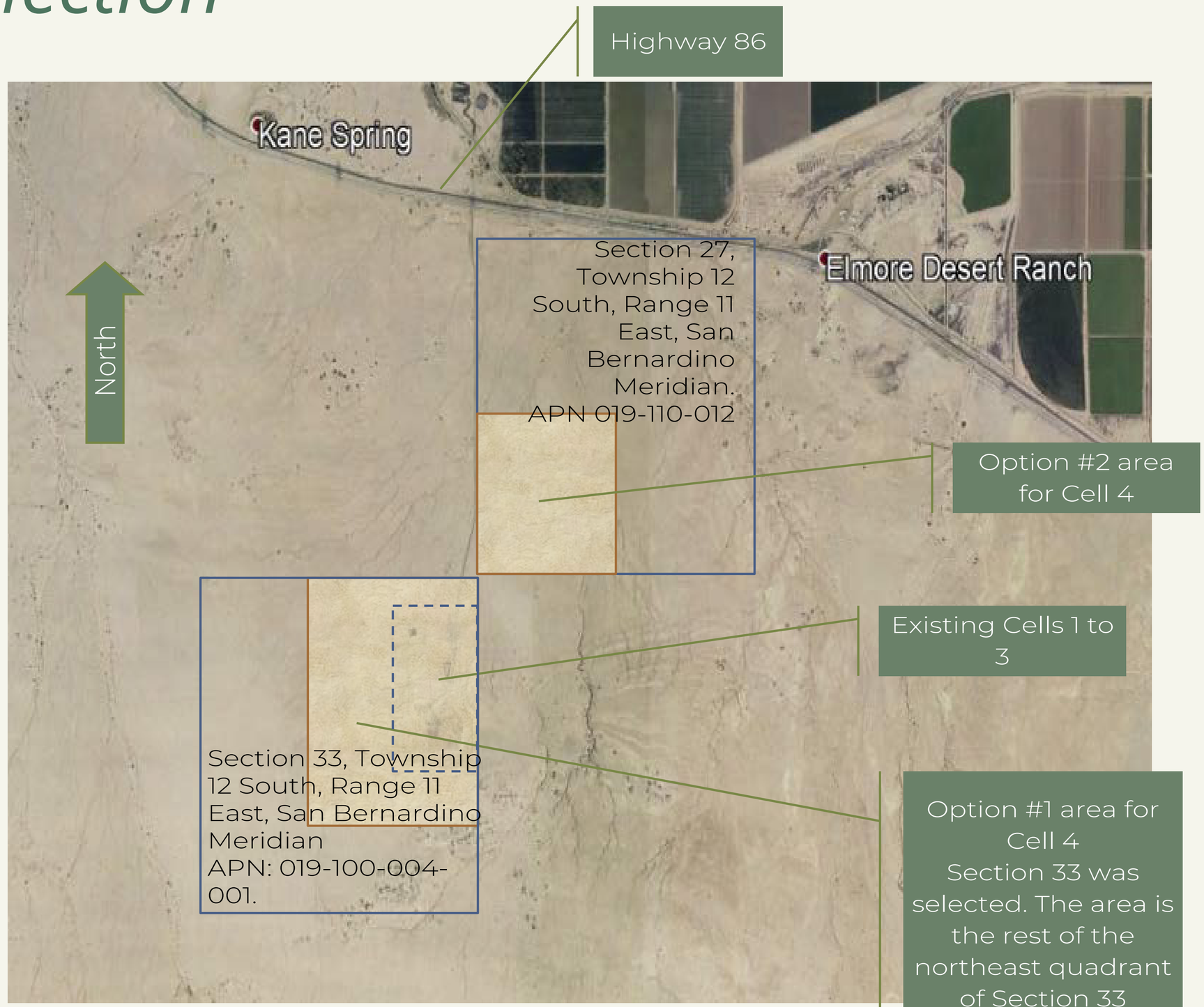
Current Operations

Where is waste stored?

Waste is disposed of in cells/areas that have a double liner system to protect groundwater. Trucks haul filter cake from geothermal power plants to the monofill . Approx. 30 trucks/day with 20 tons/loads.

III. Site Selection

The technical studies evaluated Sections 27 & 33 as possible locations for the future Cell 4. The location nearest to the existing cells - Section 33 - was selected in order to minimize disturbance to new areas.



Stages of Development

Environmental Reviews were Conducted for all Project Stages

- May 1991, Start of operations - Cell 1, Capacity 300,000 cubic yards
- 2000, 1st Expansion – Cell 2, Capacity 214,000 cubic yards
- May 2008, Filling & Closure - Cells 1 & 2
- May 2005, 2nd Expansion – Cell 3, Capacity 1,298,800 cubic yards
- 2025, 3rd Expansion planned – Phase 1 of Cell 4, Capacity 1, 300,000 cubic yards
- Post-2035, 2nd part of 3rd Expansion - Phase 2 of Cell 4, Capacity 1,300,000 cubic yards

II. Environmental Controls & Monitoring

Water	Air	Biological	Land Use
• Quarterly groundwater monitoring to verify no impacts • Storm water monitoring to verify no waste runoff outside of monofill • Consumptive water use monitoring	• Continuous ambient air sampling for particulate matter to ensure minimal dust transport from site	• Wildlife monitoring plan for Flat-tailed Horned Lizard. Employees are trained to avoid impacts to lizards.	• Standard financial insurance to reimburse the county in the event that any repairs not completed by CalEnergy

Social Benefits

Tax Payments

10 Jobs @ Desert Valley Company

200 Jobs @ CalEnergy's power plants

Geothermal Emissions vs. Conventional Power Typical Air Emissions (lbs/MWhr)				
	Nitrogen Oxides	Sulfur Dioxide	Carbon Dioxide	Particulate Matter
CalEnergy's geothermal power	<0.030	<0.039	116	<0.133
Coal (average facility)	4.31	10.39	2191	2.23
Natural Gas (average facility)	2.96	0.22	1212	0.14

Environmental Benefits

Monofill supports geothermal power production, which has less air emissions than conventional power

A Community Partner in Imperial Valley,

Supporting Jobs in...

Brawley

Westmorland

Imperial

Calipatria

El Centro

Salton City

Holtville

Calexico

6 miles

10 miles

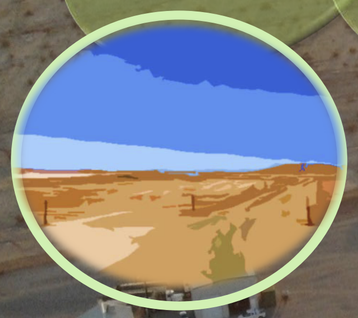
12 miles

15 miles

17 miles

23 miles

24 miles



Desert Valley Company, in Brawley, CA

C-1 Conditional Use Permit Application

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DESERT VALLEY COMPANY
CELL 4 CONDITIONAL USE PERMIT APPLICATION

CONDITIONAL USE PERMIT #05-0020
3301 WEST HIGHWAY 86
BRAWLEY, CA 92227

SUBMITTTED AUGUST 20, 2018, NOVEMBER 26, 2018 Rev. 2

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Acronyms

APN	Assessor Parcel Number
CalEnergy	Calenergy Operating Corporation
CCR	Code of California Regulationss
CEQA	California Environmental Quality Act
cm/sec	centimeter per second
CUPA	Certified Unifed Program Agency
DVC	Desert Valley Company
ERA	Exceedance Response Action (plan)
gpm	gallons per minute
IC	Imperial County Planning Department
ICPD	Imperial County Planning Department
klbs/hr	Thousand pounds per hour
LCRS	Leachate Collection and Removal System
LDS	Leak Detection System
mg/l	milligrams per liter
MW	Megawatts
NORM	Naturally Occurring Radioactive Materials
PERP	Portable Equipment Registration Program
ppm	parts per million
WDR	Waste Discharge Requirements

1. Executive Summary

The Desert Valley Company is seeking a modification of Conditional Use Permit No. 05-0020 in order to support the permitting activity for the development of a new cell (Cell 4) adjacent to the existing monofill facility. Desert Valley Company owns the Desert Valley Company Monofill (DVC) Facility, which is permitted as a Class 2 solid waste facility under Solid Waste Permit No. 13-AA- 0022 and Conditional Use Permit (CUP) No. 05-0020. The facility is a disposal location for nonhazardous 'filter cake' solids that precipitate from geothermal brine used for power generation at the geothermal facilities owned and operated by CalEnergy Operating Corporation (CalEnergy). Other minor waste streams accepted at the monofill facility are byproducts of the handling of filter cake or waste streams from the development of geothermal wells. These minor waste streams include- drilling mud materials, geothermal contaminated soils and materials, and plastic liners from transporting filter cake. The monofill has one active waste storage cell that is accepting waste - Cell 3. At the current rate of waste disposal at Cell 3, it is projected to reach its design capacity of 1,298,800 cubic yards in 2025. CalEnergy thus needs to construct and have operational Cell 4 by January 2024 in order to allow a transition from the activities at Cell 3 to Cell 4. In initiating this project CalEnergy met with the Imperial County Planning and Development Services (referred to herein as ICPDS or the planning department) on April 25, 2018, and was advised to submit an application to modify the Conditional Use Permit for the monofill. This submittal is intended to initiate that effort. At a following meeting with ICPDS additional details regarding the operation of the facility were requested. In September 2018, CalEnergy updated this application to include additional descriptions of the operation of the facility (in Section 4). CalEnergy also expanded the projected size of the cell to be permitted to allow for future expansion of Cell 4. In addition, an update was provided on CalEnergy's current Siting Studies and areas for future consideration, as shown in Figures 6.

Desert Valley Company and CalEnergy Operating Corporation are both owned by Magma Power Company. CalEnergy conducts business, and is authorized to sign/authorize permits, on behalf of Desert Valley Company.

The standard application form for the expansion of the monofill is included in Attachment A. CalEnergy intends to update this application once initial siting efforts (noted herein) are complete, which is expected to be during 2018. CalEnergy expects that (as with Cells 1 through 3) the Cell 4 project will be subject to reviews under the California Environmental Quality Act (CEQA); therefore, CalEnergy is requesting for Imperial County Planning and Development Services to facilitate and authorize the CEQA review to be completed on CalEnergy's behalf. CalEnergy will therefore be working with the planning department with regard to initiating the CEQA review process.

This application summarizes the information on-hand regarding the impacts of expanding the monofill. The application concludes that the based on the available information the project is not expected to significantly alter impacts from the monofill, or produce a deleterious impact on the environment of the community. As detailed in the application the information contained herein will be updated with siting data when a final site for Cell 4 is selected, and after the final design data for Cell 4 is available. On the contrary the application concludes that the failure to permit an expansion of the landfill would have a direct negative effect on local employment and an indirect negative effect on the availability of renewable energy from CalEnergy's geothermal plants, as the geothermal power generating plants rely on the operation of the monofill for the disposal of waste.

2. Project Information:

A summary of the project information related to the addition of a new non-hazardous waste storage cell - Cell 4 - to the existing Desert Valley Company monfill is provided in this section. A summary of the type of project, scope, impact area, proposed buildings and structures, access from adjacent roadways, location of driveway(s), and existing facilities on-site follows:

2.1. Type of Project:

CalEnergy owns and operates the Desert Valley Company Monofill Facility located at 3301 West Highway 86 in Brawley, California. CalEnergy's administrative offices are located at 7030 Gentry Road, Calipatria, California – shown in Figures A-1. CalEnergy is requesting a modification to the existing Conditional Use Permit No. 05-0020 to allow the addition of a waste storage area (Cell 4) to the existing monofill. The CUP 05-0020 permit for the monofill limits the facility to Class 2 waste disposal activities that can only accept certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California. The Solid Waste Facility Permit No. 13-AA-0022 specifies that the following wastes can be accepted at the monofill:

- Geothermal drilling muds and cuttings;
- Geothermal filter cake;
- Soils contaminated with geothermal material; and
- Incidental plastic sheeting (truck bed liners)/materials.

The design of Cell 4 will be consistent with Cell 3, where the liner system will be designed to a Class I hazardous waste standards and other criteria will conform to Class 2 designated waste standards and the facility's permits. Cell 4 will be designed so that it does not have adverse impacts on the environment or on the existing waste stored in Cells 1, 2 and 3. All other aspects of the proposed Cell 4 waste storage area such as operations, maintenance, monitoring, recordkeeping and financial assurances will also be consistent with those of the existing monofill, therefore, the anticipated aspects and impacts of Cell 4 are assessed herein based on the performance of the existing monofill (as described in Section 5).

2.2. Scope of the Project

Cell 4 will be built in two (2) phases – Phase 1 and 2. The first phase of Cell 4 will be comparable in size to Cell 3 with a volumetric capacity of approximately 1.3 million cubic yards, occupying an estimated surface area of up to 50 acres. The construction of Phase 1 will commence immediately upon issuance of the Conditional Use Permit modification requested by this application. Phase I of Cell 4 will receive the waste from Cell 3 when Cell 3 reaches/nears its capacity. Phase 2 of Cell 4 is expected to be similar in size to Phase 1 of Cell 4, however, the construction will commence when there is a demand for additional waste storage capacity.

The projected life of each phase of Cell 4 is based on an estimated design capacity of approximately 1.3 million cubic yards, and a projected disposal rate of 45,454.54 cubic tons per year. The annual cubic tonnage is calculated by dividing the average annual waste disposal tonnage of 60,000 tons/year by an empirically determined airspace utilization factor of 1.32 tons per cubic yard. The approximate life span of Cell 4 is thus calculated to be 28.60 years, based on the total volumetric capacity of 1.3 million cubic yards divided by the average annual disposal rate of 45,454.54 cubic tons per year.

The estimation of the planned project capacity of each phase of Cell 4 is:

- Projected Cubic Tonnage per year: 60,000 tons per year / 1.32 cubic tons per cubic yard = 45,454.54 cubic tons per year.
- Projected Life-Span of Cell 4: 1.3million cubic yards / 45,454.54 cubic tons per year = Life span of 28.60 years.

In addition to the siting and construction of the monofill, in order to be able to permit Cell 4, CalEnergy has determined that the project has the possibility of environmental impacts, which will be mitigated by design and operational standards. Therefore, the project would be subject to permitting under the California Environmental Quality Act (CEQA). Via a separate submittal CalEnergy has requested that the Imperial County Planning and Development Services proceed with the CEQA evaluation for this project.

CalEnergy has also determined that the Conditional Use Permit No 05-0020 will need to be amended and has submitted a draft markup of the permit to show changes that are expected to result from the addition of Cell 4 (see Attachment B). In addition to the modification of the conditional use permit, applications will be submitted to the respective environmental agencies for modification of the permits shown in Table B-1.

Table B-1 – Regulatory Permits to Amend for Cell 4

Permit	**Number**	**Issuing Agency**	**Expiration/Renewal Date**
Conditional Use Permit	05-0020	IC Planning and Development Services	No date stated.
Solid Waste Facility Permit	13-AA-0022	IC Public Health Department	9/28/2020
Authority to Construct and Permit to Operate	2120 B-3	Air Pollution Control District	N/A
National Pollution Discharge Elimination System General Permit	CAS000001	State Water Resource Control Board	Every 5 years
Waste Discharge Requirements	R7-2016-0016	Regional Water Quality Control Board	N/A

Various operating plans and certificates will also have to be amended to reflect the operations of Cell 4 including:

Table B-2 – Regulatory Plans to Amend for Cell 4

Document/Record	Type	Issuing Agency	Permit or Regulation Related to Plan Number
Certified Unified Program Certificate	Certificate	Department of Toxic Substances Control - CUPA	FA0000598
Hazardous Material Business Plans	Plan	Department of Toxic Substances Control - CUPA	NA

Table B-2 – Regulatory Plans to Amend for Cell 4

Document/Record	Type	Issuing Agency	Permit or Regulation Related to Plan Number
Employee Training Plan	Plan	Imperial County Public Health Department	Solid Waste Permit Facility No. 13-AA-0022
Operation Plan	Plan	Imperial County Public Health Department	Solid Waste Permit Facility No. 13-AA-0022
Joint Technical Document	Plan	Imperial County Public Health Department	Solid Waste Permit Facility No. 13-AA-0022
Closure Plans for Cells 3 & 4	Plan	Imperial County Public Health Department	Solid Waste Permit Facility No. 13-AA-0022
Preliminary Closure & Post-Closure Plan Cell4	Plan	Imperial County Public Health Department	Solid Waste Permit Facility No. 13-AA-0022
Storm-water Pollution Prevention Plan	Plan-	California State Water Resources Control Board	CAS000001

Copies of the existing plans and permits will also be transmitted separately as part of this application as Supplement I.

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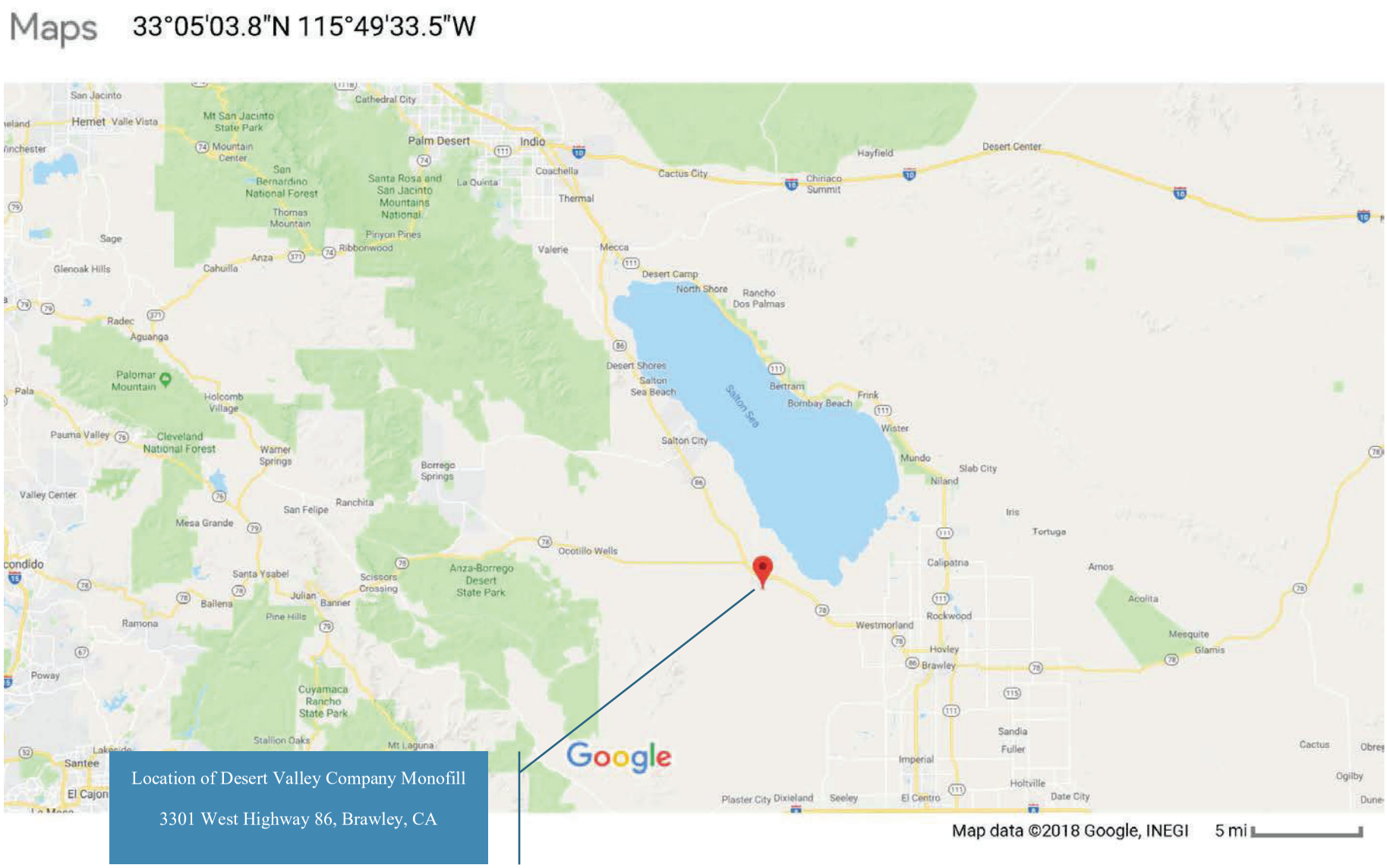
FIGURE B.1. –LOCATION OF DESERT VALLEY COMPANY MONOFILL



3. Site Plan & Surrounding Area

Information on the site plan for the proposed project site, the surrounding area, and information on the nearest drinking water source and sewer facilities that may be utilized for the proposed development are described in this section, with drawings and related figures in Attachment A. Attachment A also contains the application form for the conditional use permit modification.

3.1. Legal Description of Property & Assessor's Parcel Number

The site plan information is summarized in the completed application form found in Attachment A of this submittal. The project will result in an expansion of the existing monofill, which is comprised of Cells 1 through 3 and located on approximately 181.5 acres[1] within northeast quarter-section of Section 33, Township 12 South, Range 11 East, of the San Bernardino meridian.

The legal description and contacts for the existing and expanded monofill is as follows

Table C-1 – Legal Description of Site

Owner & Operator Name	Desert Valley Company
Physical address	3301 West Highway 86 Brawley. CA 92227
Mailing address	7030 Gentry Road Calipatria, CA 92233
Assessor Parcel Number & Legal description of Cells 1 to 3	• APN: 019-100-004-001 • Northeast ¼, Section 33, Township 12 South, Range 11 East, San Bernardino Meridian°
Site coordinates, Cells 1 to 3	Latitude: 33.08472°, Longitude: - 115.82444
Assessor Parcel Number & Legal Description for Cell 4	Cell 4 Option 1 –: • APN 019-110-012; • Southwest ¼, Section 27, Township 12 South, Range 11 East, San Bernardino Meridian. Cell 4 Option 2 – • APN: 019-100-004-001. • Section 33, Township 12 South, Range 11 East, San Bernardino Meridian, (with minor areas in the adjacent quarter-sections of Section 33) outside of existing landfill.

Additional information to be submitted:
Final site selection for Cell 4 following completion of Phase II siting study.

[1] It is noted that the current Conditional Use Permit shown 160 acres for the existing landfill – Cells 1 to 3. For this project the final area will be updated following the completion of the final siting.

3.2. Site Location-Regional

The Desert Valley Company facility is located in Imperial Valley, southwest of the Salton Sea. Other than the facility, the area is undeveloped and located in a fairly remote, unirrigated portion of the open desert in the western portion of Imperial Valley. The City of Westmoreland is located approximately twelve miles to the east. The Salton Sea is situated approximately four miles distance from the monofill. South of the facility are the Superstition Hills and to the west is open desert. Figures A1 though A5 shows a county overview of the site in relationship to the surrounding area and the CalEnergy geothermal facilities.

3.3. Surrounding Areas

The sections surrounding the monofill property are very similar to Section 33, of the county map, on which the existing monofill is located. Man-made disturbances are evident in some sections but not to a major degree. Kane Springs Jeep Trail crosses Section 29 northeast of Section 33. A power transmission line and its maintenance road cross Sections 27, 28 and 34, running diagonally from northwest to southeast less than a mile from Section 33. No other man-made features are evident in the immediately adjacent sections to the existing or future monofill facility. The most significant development in the area is Route 86, which is located to the north and east of the facility.

Surrounding properties exhibit largely the same desert features as Section 33 – which is sparse vegetation seasonal washes, exposed soil and essentially no man-made projects or uses. Human presence in the area is evidenced by occasional off-road vehicle trails, refuse dumps/litter, and survey points. Some of the areas have more pronounced mesquite hummocks than Section 33 but in general, the area is sparsely vegetated.

There is a wildlife and habitat reserve several miles north of the section (San Sebastian Marsh). The San Sebastian Marsh area is a protected habitat and vehicles are prohibited. This general area supports more diverse vegetation at a higher concentration. Surface water drainage from the Monofill area does not flow toward the reserve

3.4. Site Plan

Table C-2 summarizes preliminary information on the existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, existing and .proposed buildings and structures, access from adjacent roadways, location of driveway(s), and existing facilities on-site. After the location of Cell 4 is finalized the figures in Attachment A will be updated with the final location and coordinates for Cell 4.

Attachment A contains the figures referenced in the sites Table C-2, Section 5 provides a description of the environmental monitoring results for the facility (which are not anticipated to differ from the current impacts observed from the existing operation). Sections 5.5.2 and 5.10 provide a description of the current and planned waste storage cell design criteria.

Table C-2 – Site Plan Summary Descriptions

Project Location:	The impact area for the existing facility, which includes Cells 1 to 3, is Section 33, Township 12 South, Range 11 East, identified as the Assessors' Parcel Number 019-100-04-01. In January 2018, CalEnergy's siting consultant (Fugro) conducted desktop evaluations of two initial areas as possible locations for Cell 4, these being – a) the areas of Section 33 not currently occupied by Cells 1 to 3, and b) the southwest quarter-section of Section 27 of Range 11 East, Township 12 South. As a result of the identification of sensitive areas west of the Northwest quarter-section of Section 33, as of August 2018 the focus of the siting review for Cell 4 has been changed to – a) the remaining areas of Section 33 closest to the existing Cells 1 to 3 (as shown in Figure A.6b), and b) the Southwest quarter-section of Section 27 (which is undeveloped). Figures of the project location are provided in Attachment A, and additional descriptions of the siting studies undertaken to assess impacts and identify the appropriate location for Cell 4 are provided in Section 6.
Proposed Building and Structures	No additional buildings are being proposed for the Cell 4 project during operation. During construction portable office trailers might be placed on the site to accommodate the construction personnel. The facilities at the existing DVC Monofill are intended to be used for the operation of the proposed Cell 4. Additional structures for stormwater containment are expected to be needed for Cell 4 along with additional groundwater monitoring wells and air monitoring stations. Maps showing the location of the buildings and structures currently in place at the monofill are included in Attachment A in the Site Plan drawings of the facility. Design information for Cell 4 has not yet been finalized, however, since Cell 4 will be designed in accordance with Cell 3. The design criteria for Cell 3 are included in Sections 5.5.2 and 5.10. The locations being studied for siting Cell 4 are shown in Attachment A in the series titled "Figure 6".
Access from Adjacent Roadways	The monofill is accessed from Highway 86 by all vehicles entering and leaving the facility. This access route is expected to be unchanged by the addition of Cell 4. There will also be no change to the public roadway Highway 86 - as a result of the construction or operation of Cell 4.
Location of Driveways	The existing private single lane road between Highway 86 and the existing monofill facility is the "driveway" vehicles will continue using to deliver filter cake to the monofill. Minor extensions/modifications to the private roadway will be required in order to access Cell 4. The modifications needed will be determined by the final site location of Cell 4, therefore, the details of the changes to the private driveway are not yet available. The modifications will conform to CUP requirements and/or other regulatory, local, state and federal requirements.

Table C-2 – Site Plan Summary Descriptions

Existing Facilities on Site:	Existing facilities consist of Cells 1 and 2, which are closed, and Cell 3 which is actively receiving waste. Support structures include the office building and a shop and stormwater holding areas. Existing structures for Cells 1 to 3 include: • Single level office and administration building • Two Leachate ponds • Equipment storage building • One (1) water well • Two (2) water storage tanks • Eleven (11) groundwater monitoring wells • Meteorology data collection station • Four (4) air quality total particulate sampling stations • Seven (7) vadose zone monitoring wells. • On-site septic tank /leach field For the addition of Cell 4 the following additional structures are planned for the operation : • New Leachate pond for Cell 4 • Additional air quality particulate sampling stations (to be specified by a future modification of the air permit) • Additional groundwater monitoring wells (to be specified by a future modification of the Waste Discharge Permit) During the construction and studying of Cell 4 the following additional structures are currently anticipated: • New well for water use during construction • Trailers for construction crews • Drilling and excavation heavy equipment • Portable diesel lighting and portable diesel engines

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4. Existing Operations

Since the waste management and disposal resulting from the expansion of Cell 4 is expected to be similar to the current impacts from Cells 1 to 3 (since similar design, operational controls and siting requirements will be followed) the results observed from the current operation are provided as evidence of anticipated environmental impacts of the future Cell 4.

4.1. Existing Cells and Supporting Equipment

The Desert Valley Company (DVC) monofill facility began operations in May 1991 in an undeveloped area of western Imperial County. Cell 1 of the monofill was built in 1990, and Cell 2 was built in 1999. Cell 1, Cell 2 and the tie-in area in between these cells were closed and capped in May, 2008. Cell 1 was rated at a 300,000 cubic yard capacity, and Cell 2 was rated at a 214,000 cubic yard capacity, with the tie-in area between the two rated at 27,100 cubic yards. The area of Cells 1 and 2 is approximately 12 acres. Construction of Cell 3 began in the summer of 2004 and was completed in June, 2005. Cell 3 is the only active cell currently receiving waste. In 2015 An updated Preliminary Closure and Post Closure Maintenance Plan for Cell 3 was submitted to and approved by CalRecycle, showing a remaining life of Cell 3 as 11.4 years based on a remaining capacity of 789,644 cubic yards (which is equivalent to 1,042,330 tons), based on data from March 2015. The site is not open for public and/or commercial use at any time.

An Environmental Impact Report (EIR) was prepared for Cells 1 and 2 encompassing an area of 160 acres. This report has a State Clearing House Number of 89032206. The development of Cell 3 relied upon the environmental studies and reports for Cells 1 and 2. In order to authorize the construction of Cell 3 a mitigated negative declaration was certified for Conditional Use Permit No 02-0003 and Zone Change #02-0001. The State Clearing House Number for the Cell 3 CEQA records is 2002121138. Technical Addendum to the Final Environmental Impact Report for the Desert Valley Company, SCH No. 1989032206 was also filed to allow use of alternative truck routes for filter cake deliveries to the disposal site and the use of an alternative truck scale at 701 North Sorenson Avenue in Calipatria, California.

Cell 3 is rated at 1,298,800 cubic yards. Cell 3 encompasses approximately 16.8 acres. The facility also has two leachate ponds with a rated capacity of approximately 400,000 gallons, total. The total site occupies 181.5 acres, of which approximately 68 acres is enclosed by fencing, which surrounds the Monofill cells. 28.9 acres of the site is permitted for disposal[2].

The site is accessed via a single lane road connecting the site to Highway (State Route) 86. The site access road is approximately 1.25 miles long and is asphalt surfaced.

The DVC Monofill Facility classified as a Class 2 storage/disposal site. Each cell has two (2) clay liners and two (2) synthetic liners. The DVC monofill facility was constructed to handle non-hazardous geothermal wastes generated by CalEnergy.

The site consists of the following general improvements:

- Monofill Cells 1 and 2 - Closed as of May, 2008
- Single lane road from State Highway 86 to the Monofill Facility
- Single level office and administration building
- Two Leachate ponds

[2] Desert Valley Company, December 2015, Joint Technical Document for the operation of the monofill.

- Equipment storage building
- One (1) water well
- Two (2) water storage tanks
- Eleven (11) groundwater monitoring wells
- Meteorology data collection station
- Four (4) air quality total particulate sampling stations
- Seven (7) vadose zone monitoring wells.

A series of photos in Attachment C provides a view of the current operation.

4.2. Waste Disposal Operations

The DVC Monofill Facility receives wastes from geothermal power plants operated by CalEnergy Operating Corporation in Calipatria, California. These waste streams consist of geothermal filter cake, drilling mud materials, geothermal contaminated soils and materials, and plastic liners used to line the trailers that are used to transport the waste to the monofill.

The DVC facility typically employs 4 full-time staff. Materials are received at the site (Cell 3) by truck only. The number of daily truck deliveries ranges from 6 to 38 per day; each with an approximate filter cake load capacity of less than 25 tons. Daily tonnage has not exceeded 750 tons per day. Trucks arriving at the DVC facility are inspected prior to off-loading. Sampling of incoming materials continues based upon present sampling and analysis requirements. Subsequent to inspection and sampling, the trucks are cleared for access to the operational cell and offloaded. After off-loading, site equipment is used to grade and compact the materials. Once the material is graded and compacted, the surface is sprayed with a polymer based sealant (Soil Seal), which penetrates the graded surface and creates a stable crust and provides for wind protection. On average, approximately 7,700 gallons (29 m^3) of Soil Seal are applied at Desert Valley Company annually. Activities within Cell 3 are ceased if wind speeds exceed 13 mph, and all site activities which generate fugitive dust are ceased when wind speeds exceed 21 mph.

Table D-1 identifies the geothermal power production plants that generate the waste sent to the monofill; Table D-2 shows the approximate composition of the filter cake waste disposed of at the monofill; and Table D-3 provides a summary of the annual waste tests for the filter cake waste generated during 2017. The material planned for Cell 4 is expected to be consistent with the material currently disposed of in the monofill.

Table D-1 – Geothermal Power Waste Sources Shipped to Monofill

CalEnergy Power Plant	Number of production wells	Brine production flow, nominal (Klbs/hr)	Number of Turbines	Gross Electric generation (MW)	Filter cake generation rate (tons/day)
Region 1	7	15,800	7	197.3	150
Region 2	6	8,200	4	75.5	72
Elmore	4	4,000	1	35.8	40
Leathers.	5	4,300	1	35.8	40

Table D-2 – Typical CalEnergy Filter Cake Composition		
Major Elements	**Probable Compound**	**(Percent)**
Silicon (Amorphous)	($Si0_2$+Silicates)	62
Iron	(Fe_30_4+$FeSi0_4$)	15
Barium	($BaS0_4$+$BaC1_2$)	4
Calcium	($CaS0_4$+$CaC0_3$)	3
Minor Components	**Probable Compound**	**(ppm)**
Sodium	(NaC1)	6,000
Strontium	($SrS0_4$)	6,000
Manganese	($MnS0_4$)	3,500
Potassium	(KC1)	1,300
Arsenic	(AsS_2+$FeAs_2$)	300
Copper	(CuS)	250
Zinc	(Zns)	130
Trace Components	**Probable Compound**	**(ppm)**
Lead	(PbS)	30
Antimony	(SbS)	10
Beryllium	(BeS)	10
Cobalt	(CoS_2)	4
Nickel	(NiS)	1.5
Chromium	(CrS)	1
Silver	(AgS)	0.4
Cadmium	(CdS)	0.2

Table D2 Filter Cake Waste Test Results, 2017

2017 Annual Filter Cake Analysis

Method: EPA 6010B/6020A, STLC Title 22 Metals

Constituent	Units	PQL	Region 1	Region 2	Elmore	Leathers
Mercury	mg/L	0.0278	ND	ND	ND	ND
Antimony	mg/L	0.210	0.801	0.482	0.547	0.643
Arsenic	mg/L	0.152	1.13	1.17	0.548	0.498
Barium	mg/L	0.0116	22.3	7.90	5.85	5.97
Beryllium	mg/L	0.00635	0.0438	0.0140	0.0578	0.0879
Cadmium	mg/L	0.0359	ND	0.0763	0.0624	0.0745
Chromium	mg/L	0.0531	ND	ND	ND	ND
Cobalt	mg/L	0.0445	ND	ND	ND	ND
Copper	mg/L	0.0762	1.19	0.677	1.43	1.19
Lead	mg/L	0.103	0.248	2.29	1.82	2.17
Molybdenum	mg/L	0.0790	ND	ND	ND	ND
Nickel	mg/L	0.0569	ND	ND	ND	ND
Selenium	mg/L	0.257	ND	ND	ND	ND
Silver	mg/L	0.0537	ND	0.123	0.0969	0.276
Thallium	mg/L	0.183	ND	ND	ND	ND
Vanadium	mg/L	0.0781	ND	ND	ND	ND
Zinc	mg/L	0.0281	1.48	10.0	12.7	15.2

Method: EPA 6010B/6020, CCR Title 22 Metals (TTLC)

Constituent	Units	PQL*	Region 1	Region 2	Elmore	Leathers
Mercury	mg/kg	2.50	ND	ND	ND	ND
Antimony	mg/kg	2.13	40.1	52.1	176	242
Arsenic	mg/kg	2.26	77.6	244	376	435
Barium	mg/kg	0.139	2,070	233	72.7	76.8
Beryllium	mg/kg	0.0976	2.83	12.5	25.5	45.5
Cadmium	mg/kg	0.153	2.45	7.29	11.1	12.9
Chromium	mg/kg	0.282	1.75	1.35	2.39	2.47
Cobalt	mg/kg	0.345	ND	1.77	3.84	1.47
Copper	mg/kg	0.570	28.2	28.1	43.7	34.0
Lead	mg/kg	1.52	11.3	34.6	33.9	38.2
Molybdenum	mg/kg	0.256	ND	ND	ND	ND
Nickel	mg/kg	0.347	0.978	ND	ND	ND
Selenium	mg/kg	2.08	ND	ND	ND	ND
Silver	mg/kg	0.580	18.2	22.6	8.19	25.3
Thallium	mg/kg	1.40	ND	ND	ND	ND
Vanadium	mg/kg	0.822	3.27	4.62	9.95	9.92
Zinc	mg/kg	0.318	44.2	160	199	234

PQL : Practical Quantitation Limit

ND : Non-Detected

* Reporting Limits (PQL) vary due to samples weight that are not uniform for each sample (see CalEnergy Report)

Table D3 Filter Cake Waste Test Results, 2017

2017 Annual Filter Cake Analysis

Method: 1010, Flashpoint

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Flashpoint	Degree F	>200	>200	>200	>200

Method: EPA 9045C, Soil and Waste pH

Constituent	Units	Region 1	Region 2	Elmore	Leathers
pH	pH units	4.7	6.1	4.9	5.1

Method: SW-846-7.3.3-H_2S Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Sulfide	mg/Kg	<2.0	<2.0	<2.0	<2.0

Method: SW-846-7.3.3-HCN Test Method to Determin HCN Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Cyanide	mg/Kg	<0.50	<0.50	<0.50	<0.50

Method: 8260B Volatile Organic Compounds

Constituent	Units	Region 1	Region 2	Elmore	Leathers
VOC Analytes*	ug/Kg	ND	ND	ND	ND

*Please refer to the cover letter of the report for information on the result for Bromomethane (non-Title 22 VOC)

Fish Bioassay

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Fish Bioassay	mg/L	750	750	750	750
	Status	0% Mortality	0% Mortality	0% Mortality	0% Mortality

Gross Alpha,Beta and Gamma Analysis

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Gross Alpha	pCi/g	22.00	4.11	7.03	5.77
Gross Beta	pCi/g	20.5	<6.10	8.35	7.40
K 40	pCi/g	<3.27	7.89	6.96	7.91
Co 60	pCi/g	<0.30	<0.12	<0.07	<0.085
Cs 137	pCi/g	<0.41	<0.148	<0.077	<0.092
Ra 226	pCi/g	14.40	5.59	0.27	0.413
Th 228	pCi/g	12.10	4.98	0.324	<0.407
Th 234	pCi/g	<5.54	3.10	0.987	2.73

MDA : Minimum Detaction Activity
ND : Non-Detected

4.3. Financial Assurance & Operating Liability

The state's regulations require landfill owners/operators that are not state or federal entities to provide adequate financial assurance of their ability to perform closure of the landfill, and to carry out all required post-closure site care and corrective actions. Regulations require that these financial estimates and

assurances be updated whenever conditions arise which may result in an increase or decrease in the estimated costs of closure, post-closure care, or performance of any corrective action. DVC has obtained and updated bonds to provide financial assurances for the monofill throughout the life of the facility. The most recent cost estimates submitted to CalRecycle for DVC provided assurances against the following cost exposures (estimated in 2018 dollars): $5,808,429 for closure of the monofill, $2,970,407 for 30 years of post-closure maintenance, and $290,591 for any water or non-water corrective actions[3].

In addition as required by the Conditional Use Permit the facility maintains financial liability insurance with environmental impairment coverage. Coverage in the amount of $2,500,000 has been obtained and maintained; which names Imperial County Planning and Development Services as an additional insured under the policy.

[3] Costs of non-water corrective action exceeded those for water release corrective action; therefore financial assurance coverage was based on the cost of possible non-water damage. Water Release Corrective Action Costs were estimated by Veizades & Associates in 2015 at $222,075, while costs for non-water damage corrective action were estimated by Geosyntec consulting in 2015 at $ 279,000. Costs are escalated annually using the inflation factors prescribed by CalRecycle. Cost estimates by Geosyntec and by Veizades & Associates are contacted in the appendix to the Joint Technical Document for the landfill, which is submitted as Supplement I.

5. Environmental Impacts

Potential environmental impacts of the construction and operation of Cell 4 are identified in this section.

5.1. Aesthetics

The monofill is bounded by open land on 3 sides and is adjacent to Highway 86 on the North side. However the facility is sufficiently distanced from Highway 86 such that it is not easily viewed by vehicles traveling along the highway. Furthermore the tan color of the waste disposed of at the site blends into the treeless sandy desert landscape, with rock outcroppings, such that the monofill blends with the background and does not present a negative visual impact. A series of photographs of the existing site are provided in Attachment C.

The addition of Cell 4 to the existing monofill is not expected to alter the aesthetic impacts of the operation.

5.2. Agricultural Resources

The areas proposed for the expansion of the monofill are owned by CalEnergy and a not used for farming.

5.3. Water & Sewer Supply

Drinking water to the monofill is supplied by a commercial bottled water provider.

Water for sanitary uses and dust suppression at the facility is supplied by an onsite well that is limited to withdrawal rate of approximately 8.5 acre-feet per year, based on the estimated flow of 5.269 gallons per minute (see Section W of the Conditional Use Permit). The facility complies with the limit for water usage. During 2017 annual water usage at Desert Valley Company was 3.58 acre-feet. For the expansion of the facility the usage rate from the onsite well(s) is expected to be increase slightly once Cell 4 becomes operational. The increase will be due to maintaining cover and repairs on 3 closed cells (Cells 1, 2, and 3) instead of the current 2 closed cells. However, water usage or the future active cell (Cell 4) is expected to be similar to the current active cell (Cell 3). During construction of Cell 4 it is anticipated that the usage rate will increase, therefore, as part of the design of Cell 4 a determination will be made of the quantity and quality of water needed for the construction project, and the source from which the water will be supplied. At present it is anticipated that an additional/second water supply well will be installed to provide additional water during construction and that water usage will return to slightly above current levels after the completion of the construction of Cell 4 and the closing of Cell 3. The availability of tertiary/reuse water from any available nearby sources will be investigated as an option/supplement to supply water for the construction phase of the project. This assessment will be completed as a water supply study. A preliminary assessment is planned to be completed in early 2019.

Additional information to be submitted:
A water supply assessment will be conducted to assess the quantity, quality, and source of water needed for the construction phase of the project; and to demonstrate that the post-construction expansion will not have significant impacts on historical water usage rates. The assessment results will be submitted to the planning department for use in the CEQA review.

Documentation of past compliance with water usage requirements is provided by the following supplemental report (SR) (contained in Supplement II) to this submittal:

SR #1 - 2017 Annual conditional use compliance and water use report.

Sewage treatment for the existing monofill is provided onsite by a leach field. For the expanded facility no changes or notable increases in volumes are anticipated as a result of operating the expanded facility. The existing septic tank/leach field for Cells 1 to 3 will be used for the support services for the operation of Cell 4.

5.4. Air Quality

5.4.1. Air Monitoring Requirements

Condition S5 of Section S of the Conditional Use Permit, and Air Permit 2120 (issued by the Imperial County Air Pollution Control District), regulate air emissions from the facility.

The Conditional Use Permit requires:

- Air monitoring systems to measure the amount of any air contaminants, and measurement of ambient particulates.
- Compliance with the air permit issued by the Imperial County Air Pollution Control District
- Monitoring of works for radiological exposure and limiting the dose of exposure to 1.25 REM per calendar quarter, and quarterly radiological assessments.
- Installation of a weather station to record wind speed and direction.
- Halting operations at the monofill when wind speeds exceed 13 miles per hour, daily use of a chemical sealant to prevent dusting from the waste, and cessation of all earth moving whenever wind speeds exceed 21 miles per hour.

The air permit further requires that:

- The facility comply with the Rule 800, of the Imperial County Air Pollution Control District to reduce dusting from roadways, waste storage areas, and waste storage trailers.
- Radon must be measured every 3 years.

All conditions of the permits have been met during past years with no deviations or non-compliance reported. A supplemental submittal (Supplement II) is provided with the following reports documenting compliance data for the facility:

SR #2 - 2018 DVC Radon Test (of annual landfill gas testing commencing one (1) year after closure of the cell).

SR #3 - June 2018 quarterly report of air samplers and personnel radiological monitoring results.

5.4.2. Mobile Sources

The monofill has minor emissions of nitrogen-oxides and volatile organic compounds resulting from the combustion of diesel fuel in off-road equipment used to stack the waste. In addition, emissions along the highway are generated by the trucks transporting waste to the facility. The onsite equipment and transport of waste material to the site will not be altered by the addition of Cell 4.

5.4.3. Emissions During Construction

Since an area of more than 5 acres will be disturbed during construction, a Dust Control Plan will be developed for the construction project and submitted to the Imperial County Air Pollution Control District for approval at least 10 days prior to the start of construction. Actions to mitigate dusting during construction will include:

- Pre-water site unless it is already wet, or if there would be an adverse reaction from the application of water such as water runoff from the site. Where water cannot be used other control measures should be undertaken to keep opacity below 20%.
- Phase work to minimize the amount of disturbed surface area at any one time
- During work, apply water or chemical stabilization (as needed to avoid opacities exceeding the 20%).
- During work, construct wind barriers (as needed to avoid opacities exceeding the 20%).
- Cease work when wind gusts exceed 25 miles per hour.
- Avoiding tracking-out of material unto public roads by vehicles.
- Daily inspections and cleanup.

Additional diesel powered equipment will be onsite during construction; which will be permitted locally, or registered under California's Portable Equipment Registration Program (PERP). Emissions from the construction operation will be limited in duration and impact, and will be confined to the period during which Cell 4 is being constructed and Cell 3 is being closed. Furthermore, during construction dust control will comply with Rule 800 of the Imperial County Air Pollution Control District's regulations.

5.5. Groundwater Impacts

The CEQA process, and by extension the approval of this conditional use permit application, requires that the effects of a project on local and regional hydrology, flooding, and water quality be addressed in a project's impact analysis. The anticipated hydrology effects of Cell 4 are based on the results observed for the operation of the existing monofill as described in this application. Hydrological and water quality monitoring results for the existing operation are described in this Sections 5.5.1 and 5.5.3, and stormwater/flooding monitoring results are described in Section 5.6.

5.5.1. Groundwater Conditions

A 2016 review of the groundwater monitoring at DVC conducted by RPS Iris Environmental summarizes groundwater conditions at the monofill as follows:

> "DVC is located in Imperial County, California, in Imperial Valley, southwest of the Salton Sea and north of the Superstition Hills. This region of Imperial Valley, a flat, featureless playa floor, is almost entirely below sea level. The elevation at DVC and the surrounding land is approximately 100 feet below mean sea level. The topography in the vicinity of the DVC is relatively flat and slopes gently down to the north. Typical of desert climates, annual precipitation within Imperial Valley is highly variable. Mean annual precipitation is between 3 to 5 inches per year (Hely et al. 1964). Temperatures range between 41 degrees Fahrenheit (°F) to more than 105°F during the summer months. Total net infiltration is expected to be insignificant/very low.
>
> Imperial Valley is part of the Salton Trough which extends from San Gorgonio Pass southeast to the Mexican border, including the Gulf of California and beyond the tip of the Baja California

Peninsula. The Salton Trough is a faulted basin with bordering mountain slopes defined by fault planes of members of the San Andreas Fault system. The surrounding mountains are largely faulted blocks of the Southern California batholith granitic rocks of Mesozoic age, overlain by fragments of an earlier metamorphic complex of various ages dating back to Precambrian time. The valley is also laced with major members of the San Andreas Fault system that experience minor to moderate earthquakes. At the bottom of the valley lies the Salton Sea, the largest man-made lake in California (formed during a 1905 incident). The lake does not have an outlet to the ocean, because the valley lies below sea level (Singer 1998).

The valley basin contains sedimentary fills of sands and gravel up to 15,000 feet in thickness that accumulated during the Cenozoic time. Most of these sediments are only partially consolidated into sandstones and conglomerates. The fill increases in thickness from north to south. The layers slope gently down-valley and contain several important aquifers, such as the Coachella Aquifer. The aquifers of the valley are zones of relatively coarse-grained alluvial materials deposited during the cool, wet years of Pleistocene time. These sediments are the products of intensive erosion of the surrounding mountains during that time. The erosional debris was brought to the valley floor by the various stream channels that drained the San Bernardino, San Jacinto, and Santa Rosa Mountains (Singer 1998).

The Coachella aquifer is shaped as a cone with the apex at San Gorgonio Pass and the base merging into the Salton Sink. This elongated structure contains a thick sedimentary sequence with granitic bedrock defining its sides. The sediments lap against the granitic margins, sloping to the central axis from both sides, then thickens and becomes more deeply buried as the trough opens to the south (Singer 1998).

DVC is located on the west side of the Imperial Valley, just north of the Superstition Hills. According to Balderman Consulting, Inc.'s 2002 report on Geology and Seismicity, Proposed Cell 3 (2002 Balderman), DVC is underlain by units of the Pleistocene Brawley and/or Pliocene Borrego Formations, lake bed sequences consisting mostly of clay beds and other fine-grained sediments. The two formations are often separated by alluvial gravels. Reports prepared for the area, including a 1989 Report of Geologic Investigations by Balderman and the 2002 Balderman report, have divided the units beneath DVC into eight geologic units, informally designated as Qb1 through Qb8, with number designation increasing with depth. The units dip generally northward. Qb6 is the deepest unit observed beneath Cells 1 and 2. Units beneath Cell 3 include Qb3 through Qb8."

5.5.2. Cell 3 & 4 Design – Hydrological Constraints

With respect to the existing Cell 3, as stated in the Joint Technical Document for the facility, it has been designed and constructed so that the ground and surface waters will have no effect on the cell and so that the cell (including any hypothetical releases) will not affect any groundwater or surface waters.

There is no perennial surface water within more than a mile of the site; the only surface water in this area is stormwater, consisting of the ephemeral sheet flow and the runoff in intermittent streams during or immediately after the infrequent precipitation events. The Cell 3 design includes a compacted soil diversion berm along the south and west (up-gradient) sides of the cell/unit. This berm is designed to divert surface-water flows and to avoid any effects on the cell from the occasional flows of surface water. The monofill is designed to withstand the probable maximum precipitation of the 100-year storm.

Surface drainage will not contact the waste. Aside from dust control, the only water contacting the waste would be direct precipitation.

The monofill is designed, constructed, and operated to ensure that precipitation does not create runoff from the waste cells. During the operating period, any precipitation or other water contacting the waste is contained within the cell. Any water or other liquid ponded on the waste is promptly removed and transferred to the on-site leachate holding pond or to an above ground tank. After the operating period, the cells will be closed and covered with a cap equivalent to the coverage provided by a 2-foot clay layer and a 40-mil HDPE liner. The cap will prevent precipitation from contacting the waste.

Groundwater would have no effects on Cell 3 the waste, liner, and other engineered components of the Unit are designed to be well above the underlying groundwater.

The only present beneficial use of groundwater in the site area is at the existing monofill facility. There are no off-site wells within a mile.

The design of Cell 4 has not been finalized; however, it will be equivalent to Cell 3, and it is anticipated that the design will be provided before the end of the Environmental Impact Report.

Additional information to be submitted:
The final design of Cell 4 with - coordinates, areal dimensions, depth, arrangement of liner, and arrangement of leachate collection system - will be submitted following completion of final siting studies. The design information will be submitted to the planning department for use in the CEQA review process.

5.5.3. Groundwater Monitoring Results

The existing waste discharge permit for the facility requires each cell to be constructed with two (2) clay liners, two (2) synthetic liners, a leachate collection and removal system (LCRS), and a leak detection system. The permit further requires that the LCRS for the monofill cells consist of a drain net that is placed on the top of the first synthetic liner. The purpose of the LCRS is to minimize accumulation of liquids on top of the main liner. The LCRS must be inspected weekly and any liquid present is removed and stored in either an above ground storage tank or lined surface impoundment for evaporation. Quarterly inspections of the LCRS are required. The liquid removed is tested for field electrical conductance and pH. For Cell 3 the permit requires that the Leak Detection System (LDS) consist of a drain net located between the two synthetic liners. The LDS is used to assist in determining if a leak exists in the primary synthetic liner. The LDS of Cell 3 must be monitored weekly and any liquid found is removed and stored in either an above ground storage tank or lined evaporation surface impoundment used for the LCRS liquids. The liquid removed is tested for field electrical specific conductance and pH. The design and operation of Cell 4 will adhere to these or equivalent requirements.

In addition to monitoring the cell, monitoring of ground water monitoring wells is required for the existing monofill. Eleven groundwater monitoring wells are currently present at DVC, these being identified as: W01, W09A, W10A, W11, W12, W302, W305, W306, W307, W308, and W309. Quarterly and annual monitoring of the wells have demonstrate that groundwater has been protected. The following results (provided in the supplemental submittal) document the results of groundwater monitoring:

SR #4 - 2014 Annual Waste Discharge Report (which includes a 5-year report of constituents of concern).
SR #5 - 2017 Annual Waste Discharge Report.

In order to update (where necessary) and validate previous hydrological, flooding/stormwater, and water quality assessments, CalEnergy will retain a contractor to conduct a study to review previously submitted hydrological data and answer anew the hydrology and water questions found in Section IX of California's CEQA checklist. The results of this study will also use information from the water supply assessment that will be conducted by CalEnergy contractors (as noted in Section 5.3)

Additional information to be submitted:
A hydrological and water quality assessment will be performed for the monofill to evaluate the impact of the construction and operation of Cell 4. The results of this assessment will be provided to the planning department for input to the CEQA review process.

5.6. Stormwater Protection

5.6.1. Storm-Water Engineering Controls

Like Cell 3, Cell 4 will be designed so that stormwater does not runoff of the waste and impact surrounding areas. In the event that rainwater, or other liquid, is ponded within a cell, it will be promptly removed and transferred to the on-site leachate holding pond or to an above-ground tank. The facility operates under a general permit - National Pollution Discharge Elimination System Stormwater Permit No. CAS000001 - which became effective on July 1, 2015, for the discharge of uncontaminated stormwater runoff from the monofill. DVC conducts monitoring and sampling of stormwater in accordance with the general permit requirements. The general permit imposes the following limits on stormwater management at the monofill.

Table E-1

General Permit Limits	Annual Numerical Action Limit	Instantaneous Maximum Numerical Action Limit
Iron (mg/L)	1.0	N/A
pH*	N/A	<6.00 or >9.0
Total Suspended Solids (mg/L)	100	400
Total Oil & Grease (mg/L)	15	25

A site-specific Stormwater Pollution Prevention Plan has been developed and adhered to for the operation of the site. For the existing monofill, annual stormwater monitoring for prior years has demonstrated that the facility does not have a deleterious effect on stormwater; however, more recent results have been subject to interference as concentrations of iron above the Numeric Action Limits have been observed. Background concentrations of iron have also been above the Numeric Action Limits in the state's general permit. In response, an Exceedance Response Action Plan was developed for the facility in 2017. Evaluation of the facility by a Qualified Industrial Stormwater Professional concluded that the elevated levels of iron are not resulting from the operation of the monofill but from other sources. The Level 2 ERA Action Plan Report dated December 8, 2017, which was submitted to the State Water Resources Control Board (state water board) recommends the removal of the automatic samplers and the use of grab sampling as it was concluded

that the automatic samplers had the potential of exceeding the holding times and thus skewing qualitative analytical results.

Given the arid nature of the area there is limited stormwater monitoring data. A summary of past stormwater monitoring data is provided in the Level 1 Exceedance Response Action Evaluation and Report prepared for the site in 2016 (see Supplement II) for the following file:

SR #6 - Level 1 Exceedance Response Action Evaluation and Report

5.6.2. Stormwater Best Management Practices

The stormwater pollution prevention plan included in Supplement I identifies the Best Management Practices that are used at the existing mono-fill, and which will be adhered to during the operation of Cell 4, to contain chemicals and prevent oil spills or soil sediments from impacting stormwater. These practices include:

- Good housekeeping.
- Supervision of chemical and material loading/unloading areas, and the use of drip pans during material transfers.
- Containment of liquid storage tanks.
- Maintenance of fleet vehicles, in order to avoid vehicle fluid leakage.
- Application of Soil Seal chemical to waste piles at the end of each day to prevent dust transport, and the adherence to the air permit and air regulations to control dust.
- Ensuring spill response readiness, in the event of a release.
- Sediment and erosion control design features and daily inspection of the site to ensure rapid repair of any observed/impending areas of erosion.

A Notice of Intent will be filed for the proposed Cell 4 requesting the addition of Cell 4 to the state's general stormwater permit. The design for Cell 4 and an associated stormwater sampling system will ensure that the facility does not produce deleterious effects on stormwater, and that reliable stormwater sampling results can be obtained. As noted previously, final design details for Cell 4 are pending and will be provided by CalEnergy's consultant.

5.6.3. Stormwater Construction Permit

Since the area to be disturbed for the construction project exceeds 5 acres it is anticipated that a Notice of Intent will be required and filed for the Cell 4 construction project, in order to comply with California's general stormwater construction permit (National Pollution Discharge Elimination System General Permit No. CAS000002). In addition, a request for coverage under the state's Industrial General Permit 2014-0057-DWQ, and which regulates landfills, might also be required. A determination will be requested from the State Water Resource Control Board on the stormwater permit(s) that will regulate the construction project. Regardless, a new/updated Stormwater Pollution Prevention Plan (SWPPP) will be required for the construction project (detailing the controls to be implemented during the construction project). Reporting of stormwater management activities related to the construction project will also be required. Stormwater management during construction will thus be designed and implemented to mitigate effects from the construction project.

As noted in Section 5.6 CalEnergy's contractor will conduct a hydrological assessment that will update previous stormwater studies conducted for the monofill, upon which the site's stormwater pollution prevention plan and current monitoring program is based. In addition to validating past submittals, the study will answer anew the CEQA checklist question on whether or not construction or operation the project will. "Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?" As noted previously, this report will be submitted the planning department for input to the CEQA review process.

5.7. Hazards & Hazardous Materials

5.7.1. Hazardous Materials

The facility is also subject to California's Hazardous Materials Business Plan requirements, specified by Sections 2729 to 2732 of Title 19 of the California Code of Regulations (CCR). The regulations require:

- Annual updates of the site's chemical inventory to the Department of Toxic Substances Control, (as the State Emergency Response Commission and the Local Emergency Planning Committee).
- An Emergency Response Plan to minimize the impact of any possible releases.
- Training of employees on emergency response procedures.

The current inventory of chemicals on site (shown in Figure A-6a) are not expected to increase markedly due to the addition of Cell 4. Chemical storage is localized nearby the Administrative offices. Chemical tanks and drums are provided with impermeable containment. As described in the section on "Air Quality", Soil Seal chemical is the only chemical used widely across the waste storage operation for stabilizing the surface of the waste geothermal material and thereby preventing dust. With the addition of Cell 4 the business plan for the site will be updated to reflect any changes in hazardous materials.

5.7.2. Seismic Hazards

The site is in a seismically active area that contains several major active faults and which has experienced a number of large earthquakes during historic times, thus the siting of Cell 4 is being conducted in consideration of this hazard in order to avoid negative impacts of seismic activity. As shown in the siting activities outlined in Fugro's siting plan (submitted separately as Supplement III) siting is being conducted so as to minimize potential impacts from faults. Cell 4 will also be designed to meet seismic and liner requirements for a Class I hazardous waste landfill (which are intended to mitigate the impacts of seismic activity). As noted previously the design information for Cell 4 will be developed after the final site selection. The "Phase 1 Biological, Cultural, and Geological Constraints Report" by Fugro consultants (which is submitted separately as part of Supplement III) provides an updated review of seismic hazards along with results on a new three-dimensional geologic map of the monofill. The model will be updated as the siting effort is being completed. In addition to the siting and design of the landfill, the Conditional Use Permit requires on-going monitoring of the site for seismic activity.

The existing facility operates under a seismic monitoring program approved by the Imperial County Public Works Department. The data from the monitoring is reported monthly to regulatory agencies. Initially the installation of a Kinemetrics Accelerograph model SSA2 monitor was approved. On December 19, 2006, Desert Valley Company upgraded the seismic detection system by replacing the Kinemetrics Accelerograph with a Kinemetrics Etna Digital Recorder. In 2017, the unit recorded one seismic event. A seismic report was submitted previously with the monthly report for March 2017.

The facility has financial assurances to provide coverage for any seismic damage that might occur at the facility. Appendix 17 of the Joint Technical Document for the landfill shows an estimate of $279,000 in the "Non-Water Release Corrective Action Plan Cost Estimate for Financial Assurance", which prepared in 2015 by Geosyntec consultants. The plan and evaluation of potential damage is provided as a separate transmittal as Supplement I of this submittal.

5.7.3. Radiological Hazards

As a result of the Naturally Occurring Radioactive Materials (NORM), which is a characteristic of the waste disposed of at the monofill, workers stationed at the site are monitored to ensure that they are not subject to any impacts from radiation as a result of their work at the site. The monofill operates in conformance with a "Radiation Monitoring Plan", which is part of the Operating Plan for the monofill (provided in Supplement I of this submittal). The Radiation Monitoring Plan requires issuing a film-badge/dosimeter to all Desert Valley Company employees at the monofill. This film-badge/dosimeter will be worn when employees are present at the facility. The badges are collected, analyzed and reported quarterly. A sample report is included as a supplement to this submittal (filename "SR #3 - June 2018 quarterly report of air samplers and personnel radiological monitoring results.")

In addition to the monitoring of personnel, the solid waste permit issued by the Imperial County Public Health Department (acting for CalRecycle) requires annual NORM analyses of the waste disposed of at the monofill for gross alpha, gross beta and gamma spectroscopy). Sample results are provided in Table D3.

Since the construction of Cells 1 and 2 the monofill has been monitored for radon as described in the section on "Air Quality". Most monitoring has found zero gas pressure at the landfill and zero or negligible gasses released from the landfill. The monofill is not expected to pose a threat with respect to radon, however, monitoring for radon will continue in accordance with the air permit issued by the Imperial County Air Pollution Control District.

Since the operation of the monofill no adverse effects from NORMS have been observed for employees and no abnormal levels of NORM have been observed in the annual waste analyses.

5.7.4. Other Hazards

Due to the remote, low-terrain, and desert location of the facility it has not and is not expected to be subject to any of the following hazards:

- Landslides
- Mudflows
- Tsunami
- Volcanic hazards
- Seiche
- Floods
- Vehicle or pedestrian traffic
- Explosions

5.8. Wildlife & Biological

A biological survey was conducted in 1989 of the northern half of Section 33. In addition a biological survey was conducted for a small area of Cell 3 that was not included in the earlier biological survey, when Cell 3 was being developed in 2002. These early studies identified the Flat-tailed Horned Lizard as a California Species of Concern. The Flat-tailed Horned Lizard is a protected species which means it cannot be taken or processed without a permit from the Department of Fish and Game. DVC has in place a management plan of mitigation measures to ensure minimal impact to the Flat-tailed Horned Lizard. DVC proposes to have the Horned Lizard or other species that might have entered the area since the last biological survey. A 2001 survey by URS consultants (which was included in the 2002 Conditional Use Permit application) found that the Flat-tailed Horned Lizard was present in low abundance and that only one scat per hour per transect was detected by the URS survey.

The Conditional Use Permit specifies mitigation measures to reduce potential flat-tailed horned lizard mortality, including:

- Requiring the access roads to the monofill to be paved in order to eliminate the amount of time the flat-tailed horned lizard spends on roads.
- Screening the project site to reduce flat-tailed horned lizards entering the landfill area.

In addition to the Conditional Use Permit, the Joint Technical Document for the site contains an Operating Plan that contains a 'Flat-tailed Horned Lizard Management Plan' that specifies additional measures to prevent harm to wildlife, which among other requirements related to areas that might have active streams require that:

- Established washes, going through project, if diverted, shall be rejoined downstream.
- Geotextile material shall be placed between subgrade soil and base material at streamed crossings.
- For the initial year following construction the facility was required to plant at least six mesquite trees, along the south side of diversion berm, and maintain the trees for at least one year.
- Disturbance of washes shall be kept to a minimum.

With the addition of Cell 4 no changes to the wildlife or biological conditions are expected, however, the biological survey will be redone in the area of the final Cell 4 site. A desktop biological survey was performed in December 2017 by Hernandez Environmental Services as a preliminary step in identifying the possible presence of sensitive species. The screening biological survey conducted by Hernandez is included in the draft 'Phase 1 Biological, Cultural, and Geological Constraints Report' included in Supplement III of this submittal. The screening work will be completed in future phases of the siting work by CalEnergy's consultants. The final biological resources report prepared by CalEnergy's consultant will provide sufficient information to respond to the questions in Section IV of the CEQA guidelines checklist.

Additional information to be submitted:
A final biological survey in the area selected for Cell 4 will be completed as part of the final site selection of Cell 4. These results will be provided to the planning department as part of the CEQA review process.

5.9. Cultural Resources & Tribal Cultural Resources

The potential for cultural resources at the site were initially assessed in 1990. A cultural resources technical report was made and filed with the Imperial County Planning and Development Services during that period. Mitigation has been achieved by avoiding culturally sensitive areas. Desert Valley Company allows off-road vehicular traffic only as required to conduct surveys of the property. A draft 'Phase I Cultural Resource Report' was conducted in December 2017 by Brian F. Smith and Associates, Inc. for the northwest quarter of Section 33 and the southwest quarter of Section 27 of the site. The report is included in Supplement III of this submittal. Similar to the 1990 study, cultural resources were identified in the 2017 survey where the archaeological survey found 11 recorded sites and 10 isolates within the areas studied. The draft study further states that a site testing program would be required to generate data to determine if the archaeological sites are significant for the purpose of the CEQA review.

Since the areas being studied have been changed to the northeast quarter of Section 33, while study on the southwest quarter of Section 27 continues, some of the initial draft studies will need to be redone. These studies will be completed by CalEnergy's contractor, and will include a review for Tribal Cultural Resources.

CalEnergy's consultant will complete the identification of cultural and archaeological features that was initiated in 2017, with additional site assessments for the final location for Cell 4. The final report will incorporate the initial surveys conducted to date, include final site surveys and research, and respond anew to the questions in Section V of the CEQA checklist. The contractor's assessment will include any **publicly available** information to assess impacts to "tribal cultural resources", and will respond to the questions in Section XVII of the CEQA checklist, conditioned upon the basis that tribes may wish to tribal cultural resources therefore input from the state and planning department will be required to complete this assessment. That is, CalEnergy's consultant will not directly request information from Tribes on archaeological or cultural resources at the site but the consultants will instead rely on publicly available information.

Additional information to be submitted:
In order to finalize the siting of Cell 4 the initial archaeological studies for Section 33 will be completed for the northeast quarter of Section 33, and site testing needs to be conducted in order to determine cultural resources that are CEQA-significant.

In order to demonstrate lack of impact to cultural, archaeological and tribal cultural resources an assessment report will be completed by CalEnergy's contractor and submitted to the planning department as input to the CEQA review process

5.10. Geological & Soils

The CEQA review process for the approval of this project, and by extension the approval of this permit application, requires that the project's impact on geology and soils be assessed. In addition, in order to site the landfill CalEnergy needs to conduct such studies, therefore, CalEnergy's contractor will complete the geological and soils review required by CEQA and submit those study results to the planning department for input into the CEQA process.

For the siting of Cell4, desktop geological surveys were conducted by Fugro consulting and a draft 'Geological Screening Report, DVC Cell 4' was issued by Fugro in January 2018. While overall Cell 4 project and the existing landfill meet Class II requirements, the Cell 4 siting criteria will adopt Class I standards for avoiding active faults and for the design of the landfill liner system. These requirements are noted in the January 2018 report by Fugro, which notes that in order to satisfy the requirements of the State Water Resource Control Board Class I solid waste facilities requires a setback of 200 foot from any known Holocene active fault is required. Fugro's report further indicates that faults might be present in the areas studied – which were the northwest quarter of Section 33, and the southwest quarter of Section 27, as it concludes that, "our analysis identified: 1) several mapped faults that project towards the quadrants of interest; 2) several lineaments that may be fault-related, and more notably, 3) areas where continuous marker beds within the Brawley Formation appear to be un-broken, suggesting positive evidence for the absence of fault displacement in localized areas." In order to confirm the location of faults the report recommends that Phase 2 studies involving the collection of geophysical data and fault trenching investigation be performed. Phase 2 geophysical data collection commenced in the summer of 2018, and is documented in an August 2018 report by Fugro consulting titled, "Phase 2, Site Geologic Review, DVC Cell 4 Project'. The report concludes that boreholes and additional seismic surveys are needed to conclude the geological and soils assessments. These additional activities are expected to commence in October 2018.

The report also summarizes the following requirements of California Code of Regulations, Title 23, Section 2530 for siting Class I and II landfills/units (which will be adhered to for siting Cell 4). The regulations as applied to Cell 4, will impose the following geological constraints:

i. Unit must be underlain by natural geologic materials having permeability of 10^{-6} cm/sec or less (e.g., clay), or an equivalent liner system.
ii. Units must be located outside the area of a 100-year flood.
iii. Units must have a 200-foot setback from any known Holocene fault.
iv. Units must be designed, constructed and maintained to preclude failure from tidal waves[4].
v. Waste shall be a minimum of 5 feet above the highest anticipated ground water level[5].
vi. Site must not be subject to rapid geological change.
vii. No impact to significant cultural features, rare and endangered species, sensitive or unique habitats.

The 2017 geological screening report is included as Appendix C of the 'Phase 1 Biological, Cultural, and Geological Constraints Report', which is included in Supplement III of this submittal. The draft 'Phase 2: Site Geologic Review, DVC Cell 4 Project' is also included in Supplement III of this submittal. Additional study results are being submitted to the planning department as the evaluations proceeds. The final geological and soils assessment report will incorporate the submittals made to date, and provide sufficient information to respond to the questions in Section VI of the CEQA checklist.

[4] Tidal waves are unlikely, except along the shore of the Salton Sea, an area which would also be eliminated by the groundwater depth requirement in item (v) of the list.
[5] With the exception of areas near the shore of the Salton Sea, groundwater levels are deeper than 5 feet throughout the Imperial Valley

Additional information to be submitted:
In order to finalize the siting of Cell 4 additional geological screenings and investigations will be completed by CalEnergy's contractor at the candidate sites and at the final site selected for Cell 4. The investigations should be completed by the first quarter of 2019.. In addition to being used for the siting of Cell 4 the studies will be expanded and formatted, to provide responses to the CEQA evaluation process. Study results are being submitted to the planning department as data is being collected and analyzed.

5.11. Land Use/Planning & Housing

5.11.1. Imperial County Land Use plan

As shown in Figure A-5b the location for the existing monofill for Cells 1, 2 and 3 is identified as a "special purpose facility", and surrounding areas are planned as "Recreation/Open Space" area by the Imperial County Land Use Plan (which is part of the Imperial County General Plan). Cell 4 would be sited on Section 33 or Section 27, adjacent to the existing cells, which would require an amendment of the county's land use plan to designate the southwest quarter or Section 27 and the remaining quarters of Section 33 as areas for the use of "special purpose facilities". An application is therefore being submitted as a supplement to this application – Supplement IV – to request the amendment of the county's Land Use Plan. A special purpose facility as defined in the Land Use Plan is an area where:

> "Permitted uses are subject to approval of a Conditional Use Permit and include Class I, II, and III solid and liquid waste facilities, prisons, and general aviation airports, or sites approved for those purposes. It is the intent of this designation that such proposed and existing facilities be protected from encroachment by development or incompatible land uses."

The expansion of the monofill would result in the expanded boundary being abutted by 'recreation/open access areas' to the north, east and west, and by an area designated as 'government/special public' to the south.

5.11.2. Zoning

As shown in Figure A-5a the location for the existing monofill for Cells 1, 2 and 3 is zoned as "M-2" and the surrounding area to the south and west is zoned as "S-2', the area to the north is zoned "A-2", and the area to the east is zoned 'M-2". The appropriate uses of these zones are as follows:

- M-2: Medium Industrial
- S-2: Open Space Preservation
- A-2: General Agricultural Zone

In order to allow Cell 4 to be sited to the west and south of Cell 3 most of the remainder of Section 33 will need to be rezoned to M-2, and the expanded monofill will be abutted by areas zoned with similar zonings as the current facility (i.e. M-2 and A-2 areas). In order to allow Cell 4 to be sited in the southwest quarter of Section 27 that area would need to be rezoned from A-2 to M-2, and the expanded monofill would be surrounded by similar zoning as the current facility (i.e. M-2 and A-2 areas). An application is therefore being submitted as a supplement to this application – Supplement IV – to request the amendment of the county's zoning designation for Sections 27 and 33.

5.11.3. Compatibility

If/when the potential areas for siting the landfill are re-designated to "special purpose" the county's Land Use Element shows that this designation is "conditionally compatible" with areas zoned as A-2, S-2, and M-2 (as shown by Table 4 of the Land Use Element for Imperial County). Therefore the re-designated areas would be compatible with the surrounding areas.

5.11.4. Housing

A change in the designation of Section 33 and 27 from "Recreation/Open Space" to "special purpose facility" will not affect housing in the area. The Imperial County 'Housing Element" indicates the one house per acre would have been allowed on recreational areas (as shown in Table E-2. Given that CalEnergy owns the monofill property, CalEnergy has no intention using the property for housing, and there is no housing currently located on the property, the project will not affect housing in the area.

Table E-2, Imperial County "Housing Element" Goals

Area Designation	Housing Goal
Recreation/Open Space	The maximum allowed residential use for Open Space/Recreation is one residence per acre. Greater densities may be permitted by a specific plan encompassing at least 160 acres for appropriate recreation-oriented residential development where adequate facilities and services for such use exist or can be provided.
Industrial (which is similar to a 'Special purpose facility')	Industrial land uses within this category consist of heavy manufacturing land uses located in areas with the necessary supporting infrastructure and located away from conflicting existing or planned land uses. Residential land uses are limited to one single-family dwelling unit if appurtenant to a permitted industrial or commercial use and occupied by a caretaker, custodian, or night watchman when on the same lot as the industrial use and only upon the issuance of a conditional use permit by the Planning/Building Department or the Planning Commission.

5.12. Population

The initial Environmental Impact Report for the monofill in 1990 concluded that, "The project site is located in a relatively unpopulated area of the county, with the closest permanent residence 2 miles away. Most of the population of Imperial County lives in the seven incorporated cities within the county. The largest of these cities is El Centro, which had an estimated 1988 population of 29,667, which represented 27 percent of the people in the county. Calexico's population in 1988 was 19,030 people, which represented 17 percent of the county's population. Brawley also has less than 17 percent of the county's 1988 population with 18,659 residents within its city limits. The populations of the cities of Holtville and Imperial were 4986 and 4305, respectively, in 1988. Calipatria's population of 2782 represented 2.5 percent of the county's total population, while the number of residents in Westmorland was 1893, or 1.7 percent of the total population (WESTEC 1989b). Westmorland is the closest incorporated city in the project area."

Data from 1988 and 2000 shows that the population of all nearby cities have increased, as shown by the 2010 United States Census, as shown in Table E-3.

Table E-3, Population Growth in Nearby Cities				
	Distance to Monofill	1988	2010 U.S. Census	Population Growth
Brawley	Monofill location	18,659	24,953	34%
Westmoreland	6 miles	1893	2225	18%
Imperial	10 miles	4305	14,758	243%
Calipatria	12 miles	2782	7,705	177%
El Centro	15 miles	29,667	42,598	44%
Salton City	17 miles	978 (in 2000)	3,763	285%
Holtville	23 miles	4986	5,939	19%
Calexico	24 miles	19,030	38,592	103%

The expansion of the facility is not expected to alter potential environmental impacts from the facility therefore it should not affect continued population growth in the area.

5.13. Transportation/Traffic

Traffic flow to and from the facility will be unaffected by the expansion of the facility once the facility is operational. During construction of Cell 4 a minor increase in vehicles and construction equipment accessing the site will occur. Permits will be obtained for use of the public roads as needed during the construction period.

5.14. Recreation

The expansion of the monofill will not affect recreational use of nearby areas on land not owned by CalEnergy.

5.15. Mineral Resources

The expansion of the monofill will not affect access to mineral resources in any areas of the county.

5.16. Public Services

The expansion of the monofill will not affect access to public services in any areas of the county.

5.17. Noise

The monofill is subject to noise ordinances established by the City of Brawley and the Imperial County Board of Supervisors. Section 90702 of Title 9, of the Land Use Ordinance for the County of Imperial, limits general industry to a noise limit of 75 decibels (based on a one-hour average). Operation of the facility does not result in noise that can be detected at the nearby Highway 86 (which is approximately 1 mile away from the active area of the monofill), and the nearest dwelling is approximately 2 miles away from the site resulting in an even lesser potential for noise impacts. The expansion is not expected to change the existing noise in the area. During construction noise levels are expected to increase slightly due to the presence of onsite engines and additional vehicles; however, levels are not expected to disturb residents or wildlife.

5.18. Greenhouse Gas Emissions

The monofill currently purchases power from the local utility. Power consumption is not expected to increase as a result of the expansion of the facility with the addition of Cell 4. During construction the use

of heavy duty vehicles for the construction project will result in a minor and temporary increase in greenhouse gas emissions. Fuels are not combusted on site therefore the facility does not emit greenhouse gasses directly from onsite stationary sources.

6. Project Status: Environmental Studies & Schedules

6.1. Previous Environmental Studies

Prior to 2016, environmental studies were conducted as part of the 1988 Site Selection Process for Cells 1 and 2. Cell 3 was sited as a result of additional reviews that took place in 1997. Information on those historical studies can be provided upon request.

6.2. Current Siting Studies

For this application to expand the monofill with the addition of Cell 4 CalEnergy has retained consultants to perform the biological, cultural and geological studies for the siting of the landfill. The information from these studies will also contribute to the permitting effort required by the California Environmental Quality Act. Detailed activities as described by the siting consultant, Fugro are:

Table F-1 Post-2016 Environmental Siting Studies (by Fugro consultants)
Phase 1: Constraints study (complete) •Focus on NW ¼ Sec. 33 and entire Sec. 27 •Desktop review of geologic and biologic constraints •Cultural field survey of known sites
Phase 2: Siting investigations (in progress) •Focus on entire Sections 33 and 27 •Key criterion = Active faults •Site Investigations - − Geophysical survey of SW¼ of Section 27: completed April 25, 2018 − Rare plant survey of Section 27: completed July 30, 2018 − Lidar and imagery survey of DVC area: completed July 3, 2018 − Jurisdictional delineation of Sections 27and 33: completed August 16, 2018 − Geologic mapping of Sections 27 and 33: Completed August 16, 2018 − Site geologic review and 3D model: Completed August 16, 2018 − Geophysical screening campaign, with calibration boreholes: Target October 2018 − Fault trenching: Target November 2018 − Data analysis and site selection: Target December 2018 •Site selection by December 2018
Phase 3: Site characterization (pending) •Focus on site footprint •Starting in winter of 2019

6.3. Future Environmental Studies

In the course of completing the siting work CalEnergy will complete, and submit to the attention of the Imperial County Planning Department, technical studies to determine the impact (or lack thereof) of the project on:

A. Biological resources (which are currently being assessed).
B. Cultural resources including historical/archaeological (which are currently being assessed).
C. Geological/geotechnical features and soils (which are currently being assessed).
D. Hydrological features and groundwater including water quality (which will be assessed in 2019).
E. Water supply assessment (which will be assessed in 2019).

CalEnergy will provide the Planning Department with updated schedules for completion of these studies, when contractors for the work are issued.

Additional information to be submitted: *Updated schedules for completion of environmental studies.*

6.4. Project Timeline

CalEnergy will require the use of Cell 4 by 2025 and wishes to commence initial permitting via the California Environmental Quality Act (CEQA) review process as soon as possible. The project milestones anticipated are shown in Table F-2.

7. Conclusion

Based on the review and preliminary site work conducted thus far, no environmental impacts have been identified to indicate that the expansion of the monofill will alter the significance of environmental aspects or impacts associated with the operation of the facility. In contrast, the expansion of the facility will allow the continued employment of the less than 10 personnel on site, and the more than 200 employees currently employed at CalEnergy's geothermal plants, since without a location for the disposal of waste continued operation of the geothermal plants will be hindered. An interruption in the operation of the geothermal plants would also affect the renewable energy available for sale within the state at a time when California (via Senate Bill 100) has established a goal of having 100 percent of electricity supplied by eligible renewable energy resources by 2045.

It is noted herein that studies required by the California Environmental Quality Act (CEQA) have not yet been completed to finalize the significance of the expansion and that the design and design related information (such as water supply for the construction project) have not yet been identified. This information will be provided as updates/supplements to this application, and to the CEQA permit process, as soon as the information is available.

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Table F-2, Estimated Project Schedule & Status

Activity		Lead	Start, estimated	End, estimated	Status
1	Phase I Siting: Desktop geologic, biologic constraints & cultural field surveys of known sites	Fugro (CalEnergy's Consultant)	11/1/17	8/16/18	Completed
2	Phase II Siting: Target areas for further study and conduct field investigations	Fugro (CalEnergy's Consultant)	4/25/18	Dec 2018	In progress
3	CEQA Draft EIR & Environmental Impact Studies	Imperial County Planning and Development Services, with input from all agencies	Oct 2018	Apr 2020	Initiated
3a	Phase III Siting: Site characterization & Geotechnical Investigation	CalEnergy's consultant	Jan 2019	Mar 2019	
3b	Cell 4 Design (following Step 3a)	CalEnergy's consultant	Mar 2019	May 2019	
3c	Completion of biological, cultural, hydrological, and water supply studies	CalEnergy's consultant	Jan 2019	To be determined	Some studies in progress
4	CEQA Public Review, Final EIR & Notice of Determination (following Step 3)	Imperial County Planning and Development Services, with input from all agencies	Apr 2020	Apr 2021	
5	Permitting – CUP	Imperial County Planning and Development Services	Aug 2018	Oct 2022	Initiated
5a	Permitting – Solid waste, air, waste discharge, stormwater, building and other permits.	All agencies	May 2021	Oct 2022	
6	Construct DVC Cell 4	CalEnergy	Dec 2022	Nov 2024	

ATTACHMENT A - APPLICATION FORM

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Desert Valley Company		EMAIL ADDRESS Lenie.Sarion@calenergy.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road		ZIP CODE 92233	PHONE NUMBER 760-348-4200
3. APPLICANT'S NAME CalEnergy Operating Corporation		EMAIL ADDRESS Lenie.Sarion@calenergy.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road		ZIP CODE 92233	PHONE NUMBER 760-348-4200
4. ENGINEER'S NAME N/A	CA. LICENSE NO.	EMAIL ADDRESS N/A	
5. MAILING ADDRESS (Street / P O Box, City, State) N/A		ZIP CODE N/A	PHONE NUMBER N/A

6. ASSESSOR'S PARCEL NO. Section 33, NW Quad 019-100- 004 Section 27, SW Quad 019-110- 012	SIZE OF PROPERTY (in acres or square foot) N/A	ZONING (existing) A-2/S-2
7. PROPERTY (site) ADDRESS 3301 West Highway 86		
8. GENERAL LOCATION (i.e. city, town, cross street) Section 33, NW Quad 019-100-004 or Section 27, SW Quad 019-110-012		
9. LEGAL DESCRIPTION Township 12 South, Range 11 East, Southwest ¼ of Southwest ¼ of Section 27, APN 019-110-012 and Township 12 South, Range 11 East, Northwest ¼ of ¼ of Section 33, APN 019-100-004		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)
Construction of Cell IV expanding current Class II, Solid Waste Facility

11. DESCRIBE CURRENT USE OF PROPERTY: Vacant

12. DESCRIBE PROPOSED SEWER SYSTEM: Existing

13. DESCRIBE PROPOSED WATER SYSTEM: Existing

14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM: Existing

15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 8 Employees

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT

Digitally signed by Lenie A. Sarion
Date: 2018.08.20 13:05:56 -07'00'

Print Name _____ Date _____

Signature _____

Print Name _____ Date _____

Signature _____

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE _____
C. OTHER _____
D. OTHER _____

APPLICATION RECEIVED BY: _____ DATE _____

APPLICATION DEEMED COMPLETE BY: _____ DATE _____

APPLICATION REJECTED BY: _____ DATE _____

TENTATIVE HEARING BY: _____ DATE _____

FINAL ACTION: ☐ APPROVED ☐ DENIED DATE _____

REVIEW / APPROVAL BY OTHER DEPT'S required.
☐ P. W.
☐ E. H. S.
☐ A. P. C. D.
☐ O. E. S.
☐ _____
☐ _____

CUP # _____

Site Plan Checklist

ICPD Guidance on Site Plan	DVC Cell 4 Information Response
a. Be drawn to scale upon substantial paper, 11" x 14" (min.) - (20 copies must be submitted.)	See figures referenced in this table. *The final site plan will be provided following final site selection.* Copies will be provided electronically, in addition to 2 hard copies, in lieu of providing 20 electronic copies.
b. Show name of owner, legal description and Assessor's Parcel Number	• See Section 3.1 of this submittal
c. Show adjacent property uses and approximate distances to nearest structures c.	• See Figures A1 to A5 of the attachment • See Section 3.2 & 3.3 of this submittal
d. Show existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, etc.	• See Figures A.6 of the attachment • See Section 3.4 of this submittal
e. Show all existing and proposed structures (both above and below ground) location of sewer and water systems.	• See Figures A.6 series of this attachment • See Photos in Attachment C
f. Indicate name of person preparing site plan	The name of the persons preparing drawings are shown on the drawings. In instances where the company name is not shown the drawing has been prepared by CalEnergy Once the final location Cell 4 is determined the site maps will be updated by CalEnergy's contractor.
g. Show North orientation	(see figures)
h. Show sufficient dimensions and information for proper evaluation lo be done	(see figures)

Additional information to be submitted:
After the final location of Cell 4 is determined, the site map will be updated by CalEnergy's contractor.

FIGURE A-1A – SITE LOCATION, ACCESS ROADWAYS & SURROUNDING AREAS

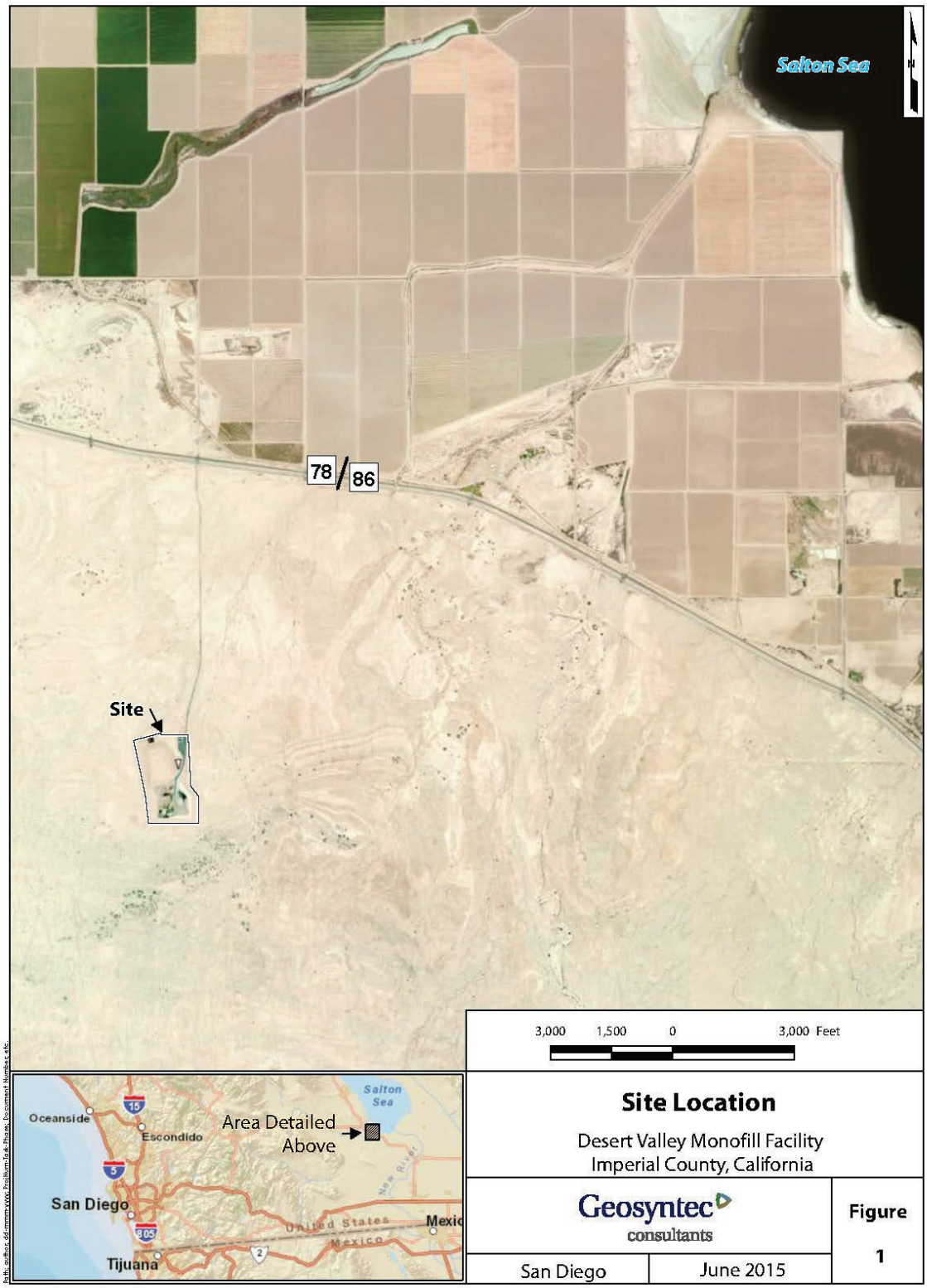


FIGURE A-1B – SITE LOCATION, ACCESS ROADWAYS & SURROUNDING AREAS

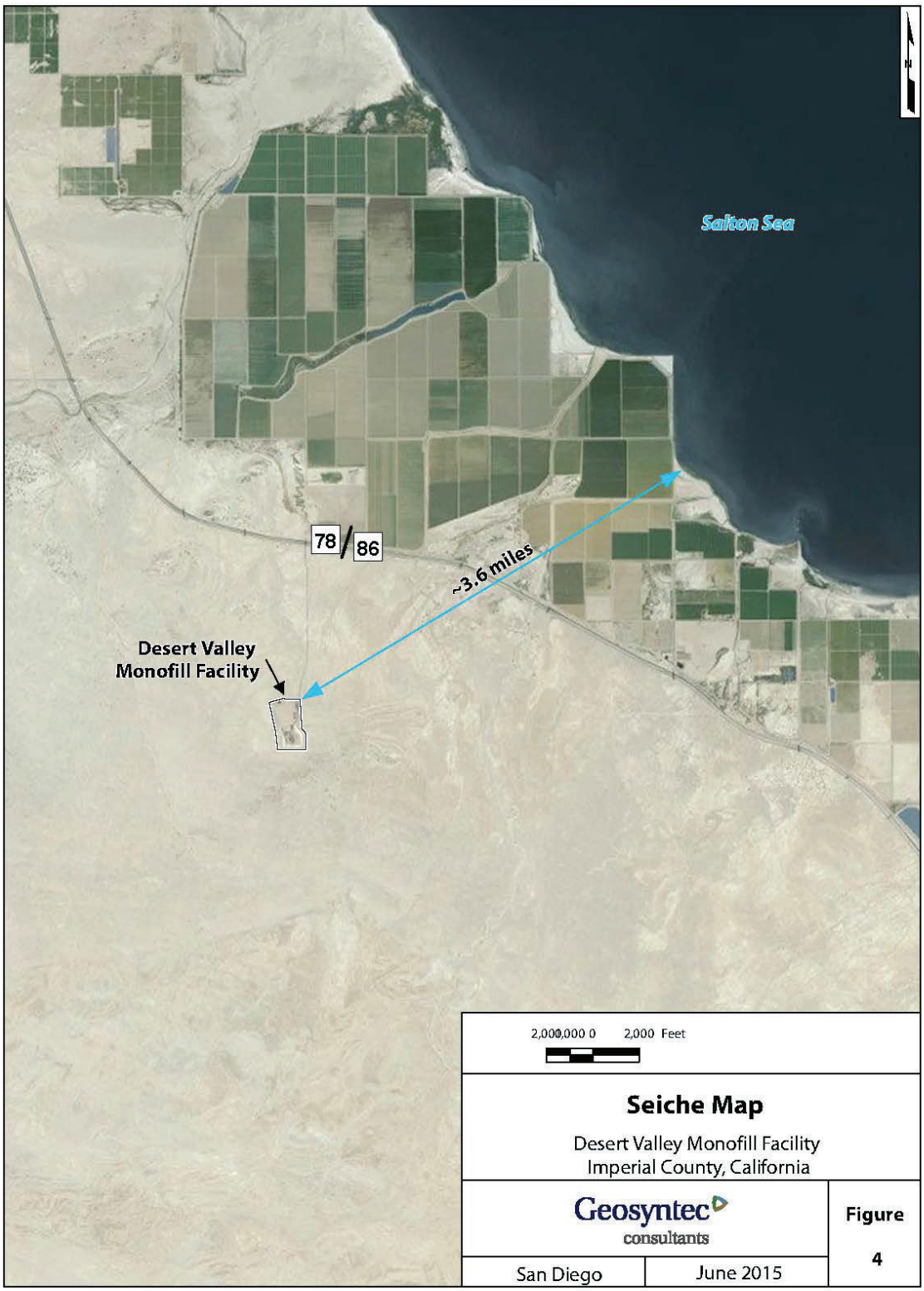


FIGURE A-1C –SITE LOCATION, TOPOGRAPHIC OVERVIEW

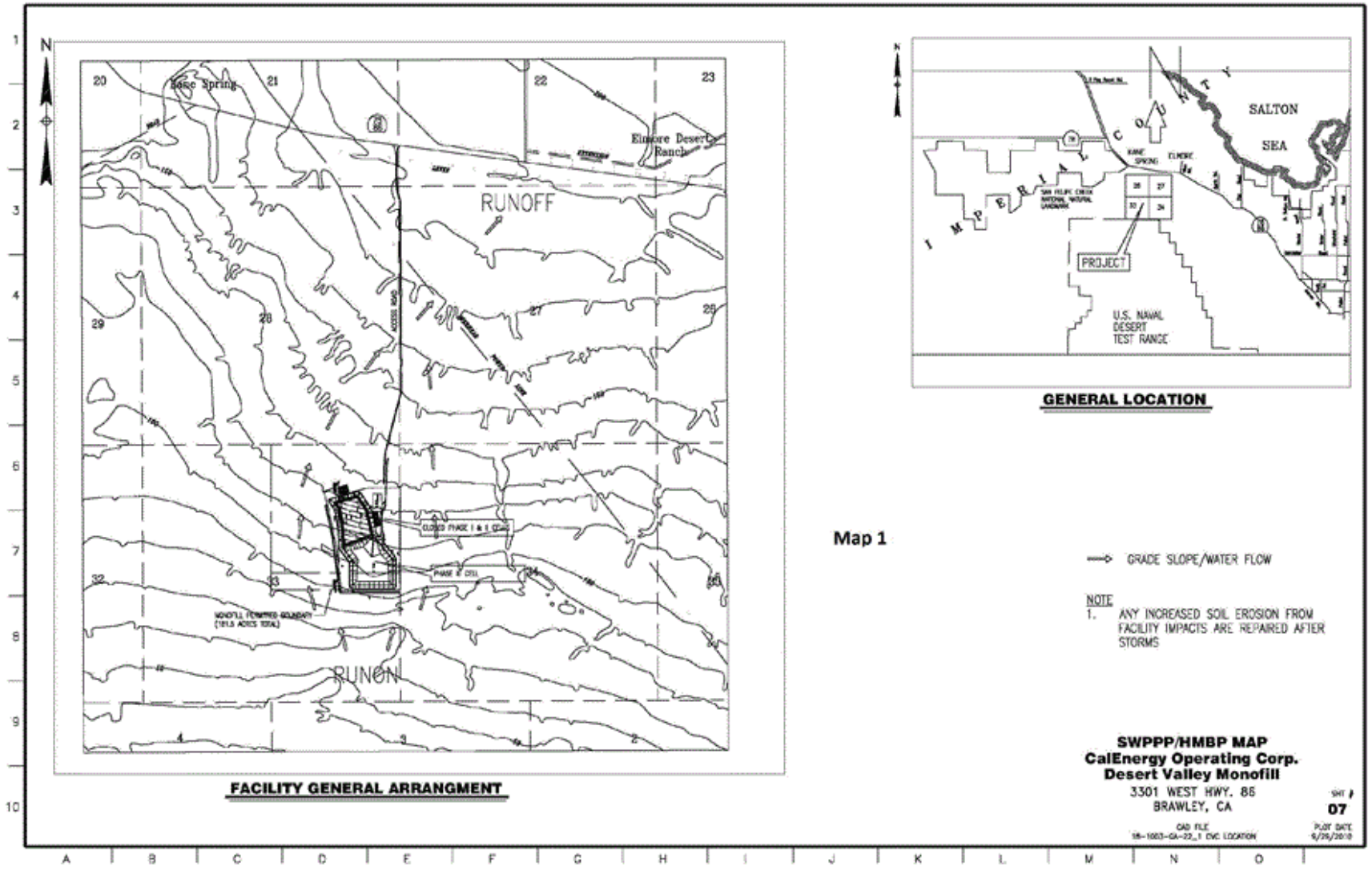


FIGURE A. 2 – SITE PLAN, DVC ACCESS ROAD

FIGURE A. 3 – SITE SURROUNDINGS, CANALS

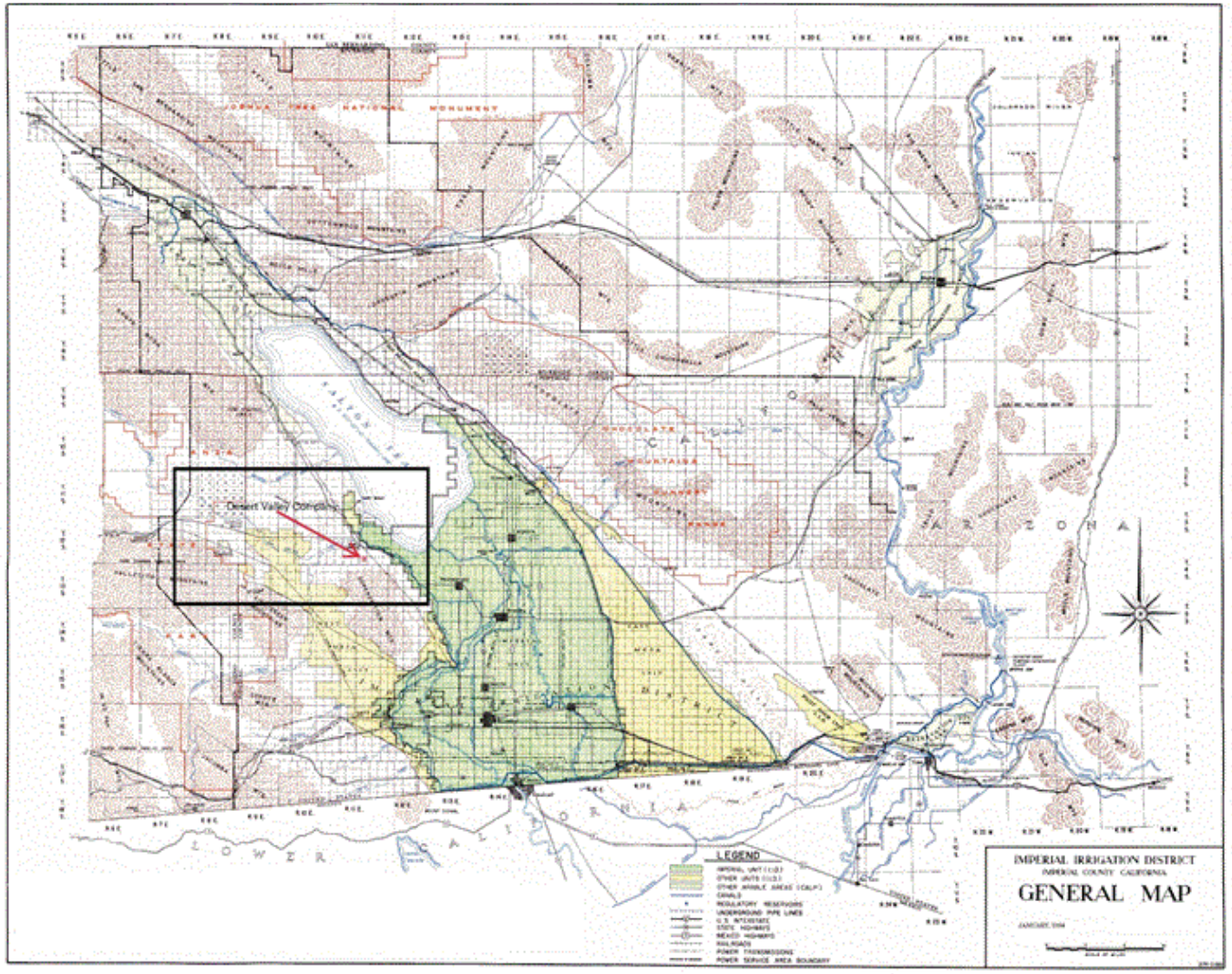
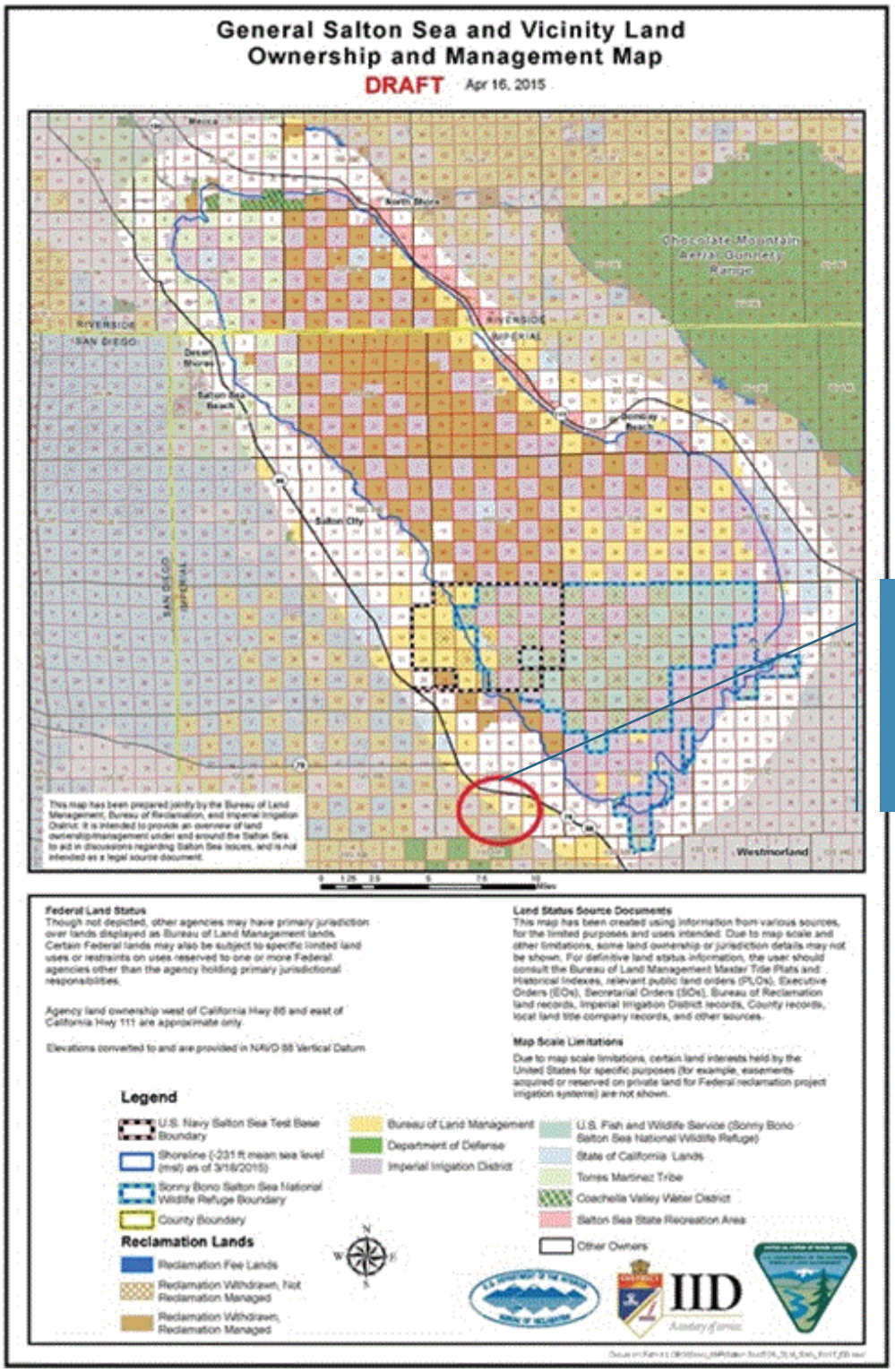
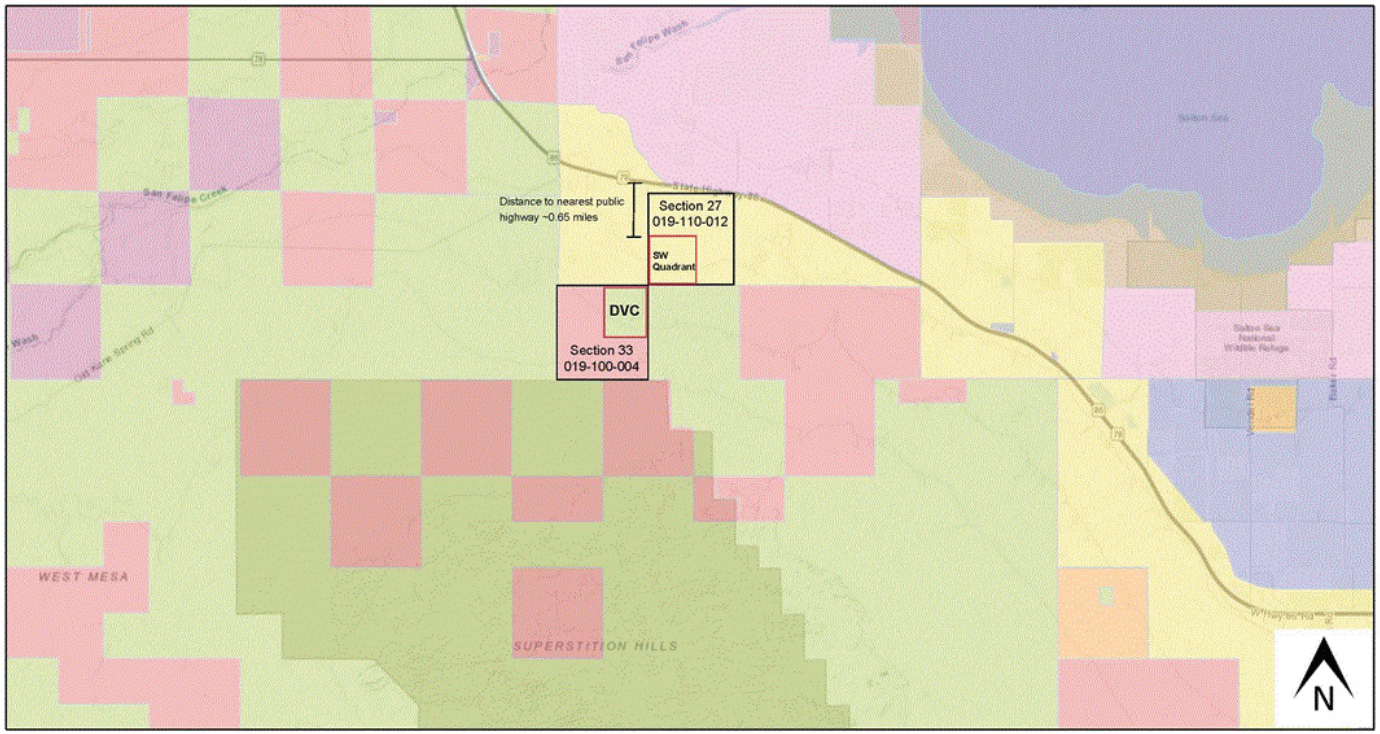


FIGURE A.4 – SITE SURROUNDINGS, ADJACENT LAND USE & OWNERSHIP



CalEnergy operates on Sections 33 and 27 and is adjacent to BLM and DOD undeveloped land

FIGURE A-5A – EXISTING ZONING DESIGNATIONS - FOR DESERT VALLEY COMPANY



September 10, 2018

Land Use Zoning: MILITARY, A-3, A-2, A-2-R, M-2, S-2, BLM, S-1, GS, STATE

1:72,224

0 0.75 1.5 3 mi
0 1 2 4 km

Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

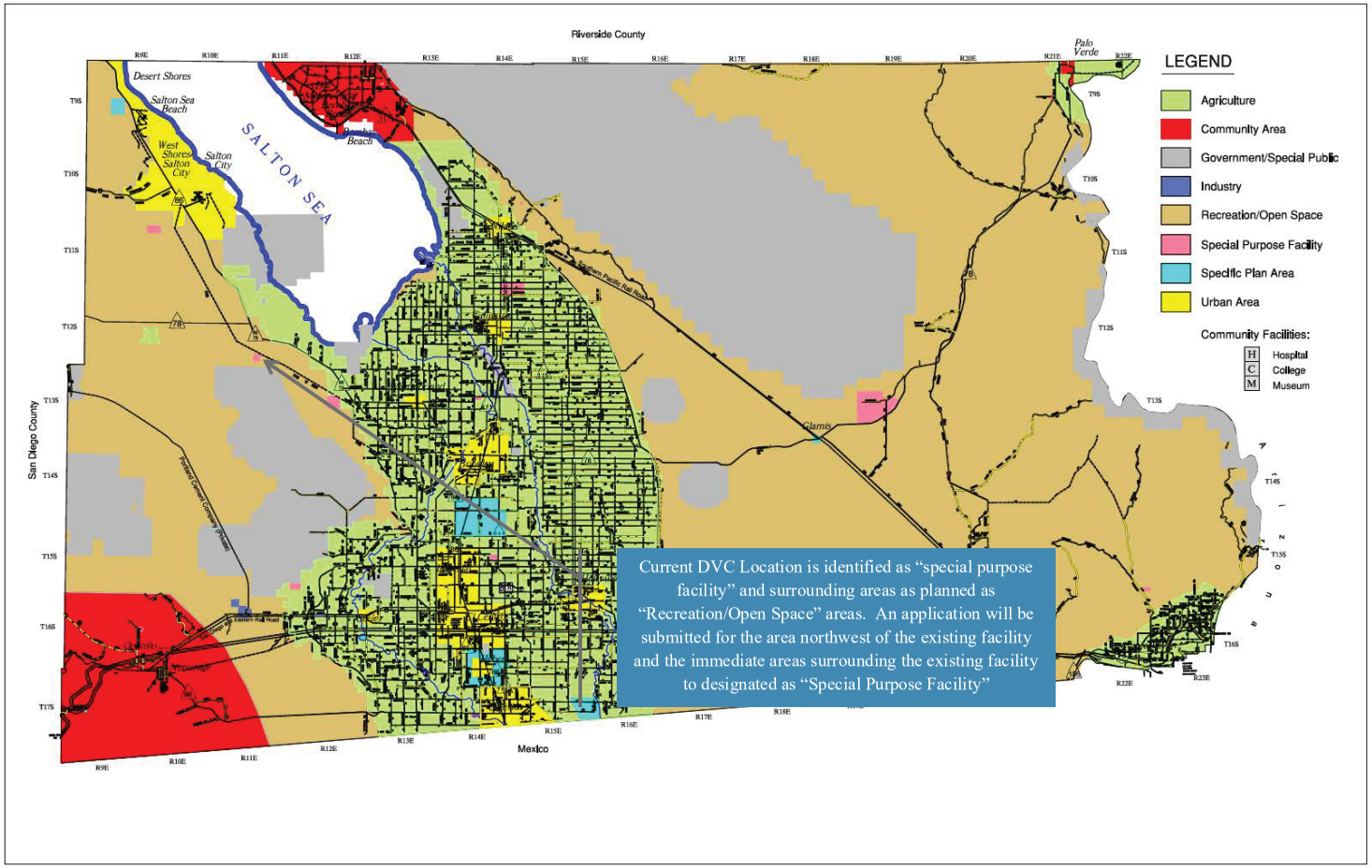
Legal Descriptions of Section 27 and 33 (Owned by Desert Valley Company)

1. Section 27: Township 12 South, Range 11 East, Southwest 1/4 of Section 27.
2. Section 33: Township 12 South, Range 11 East, Northeast 1/4 of Section 33.

Permitted Area of Disposal within Section 33, Northeast 1/4

DVC Active Disposal Site encompasses **28.9 acres**

FIGURE A-5B – EXISTING LAND USE DESIGNATIONS - FOR DESERT VALLEY COMPANY



Imperial County General Plan

Imperial County Land Use Plan

Updated: March 1, 2007 — Adopted November 9, 1993 by the Board of Supervisors through Minute Order # 18 D — Land Use Element

FIGURE A-6A – SITE LOCATION, ON-SITE FEATURES – GENERAL ARRANGEMENT

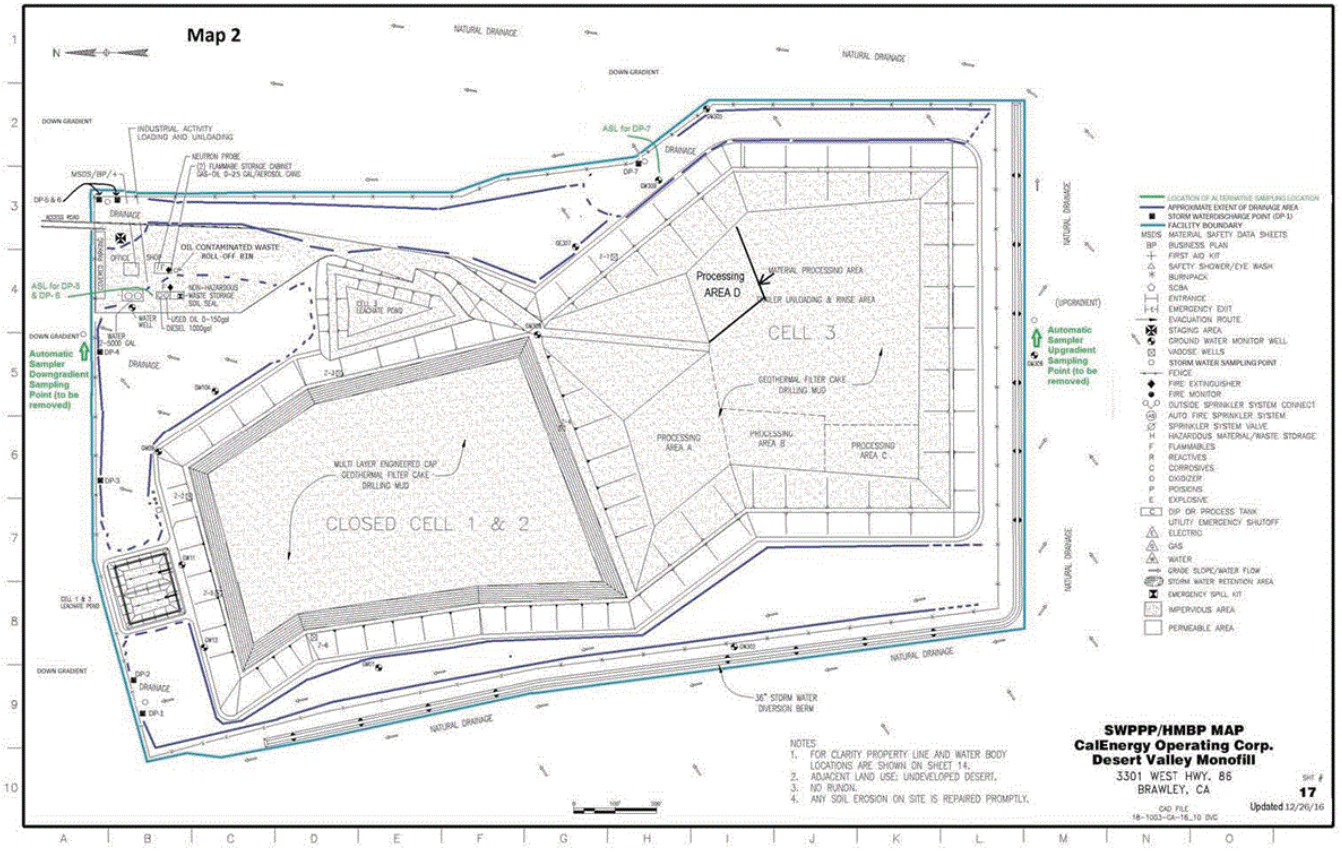


FIGURE A-6A – SITE LOCATION, ON-SITE FEATURES - Distances between Existing Features

Chemical Location	Chemical **Name**	**Maximum Daily Amount**	**Units**
Map B-4	Diesel Fuel No. 2	1000	gallons
Map B-4	Soil Seal Concentrate	1000	gallons
Map B-4	Unspecified Oil Contaminated Items	150	gallons
Map B-4	Lubricating oils, used	90	gallons
Map B-4	Gasoline	10	gallons
Map B-4	Oil	15	gallons
Map B-4	Misc Aerosols	24	cubic feet

FIGURE A-6C – SITE LOCATION, ON-SITE FEATURES -OFFICE AREA & AUXILIARY AREAS

Figure 6A: Initial Cell 4 Siting Study Areas – October 2018 contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

FIGURE A.6B: FUTURE CELL 4 SITING STUDY AREAS – OCTOBER 2018

Photograph of Section 27, Prior to Phase II Siting Study - September 13, 2018

Photograph of Section 33, Prior to Phase II Siting Study - September 13, 2018

ATTACHMENT B – CUP PERMIT MARKUP FOR CELL 4 ADDITION

Please refer to the computer disk provided by CalEnergy that accompanied the August 2018 submittal of this application for the markup of the permit or contact CalEnergy to request an electronic copy by e-mail.

ATTACHMENT C – PHOTOS OF DESERT VALLEY MONOFILL

DVC Monofill Front Entrance – Standing on Highway 86

Monofill waste is not readily visible to vehicles passing by to due raised soil/mound at along property boundary where sign is located.

(Below) Private Driveway between Highway 86 and Monofill area

(Below) Driveway Continues to Active Fenced Monofill Area

End of Private Roadway & Start of Waste Storage Cell 3

Front of Administration Office – Will continue to be used following Cell 4 Addition

Hazardous & Non-Hazardous Material Containment

SUPPLEMENT I – PERMITS & PLANS
(Provided as a separate transmittal)

SUPPLEMENT II – SUPPLEMENT REPORTS

(Provided as a separate transmittal)

SUPPLEMENT III – FUGRO'S PHASE I & PHASE II SITING REPORTS

(Provided as a separate transmittal)

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C-1a Supplement I – Permits & Plans

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Conditional Use Permit No. 05-0020

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When Recorded Return To:

Imperial County Planning & Dev. Services Dept.
801 Main Street
El Centro, California 92243

RECEIVED

DEC 02 2005

BY IMPERIAL COUNTY CLERK-RECORDER

AGREEMENT FOR CONDITIONAL USE PERMIT (CUP) #05-0020
(Superseding Conditional Use Permit #02-003)
FOR
A CLASS II SOLID WASTE MONOFILL FACILITY
(Desert Valley Company)

This Agreement is made and entered into on this 10th day of August 2005, by and between Desert Valley Company, (hereinafter referred to as "Permittee"), and the County of Imperial, a political subdivision of the State of California, (hereinafter referred to as "County").

CONDITIONAL USE PERMIT (CUP) DESCRIPTION:

WHEREAS, pursuant to the application, for Conditional Use Permit #05-0020, which supersedes Conditional Use Permit #-02-0003, the 1990 Final Environmental Impact Report dated May 1990, (SCH No. 89032206), together with the Negative Declaration for this 2005 Amendment, the County of Imperial, hereby issues to Desert Valley Company, and the Permittee hereby accepts, this Conditional Use Permit #05-0020 as amended and supersedes Conditional Use Permit #02-0003 for the development, operation, closure and post-closure of a California Class II non-hazardous solid waste landfill for geothermal, non-hazardous waste streams, in accordance with and subject to Title 9 and Title 14, Division 7, and Title 23 of the California Code of Regulations, and subject to all of the terms and conditions specified herein; and

WHEREAS, Permittee is the owner, lessee or successor-in-interest in certain land in Imperial County known as Section 33, Township 12 South, Range 11 East, identified as the Assessor's Parcel Number 019-100-04-01.

WHEREAS, Conditional Use Permit #05-0020 (Initial Study #05-0030) was heard by the Imperial County Environmental Evaluation Committee and given a Negative Declaration for the increase in water output from the existing well from 3.5 acre-feet annually to 8.5 acre-feet annually and was distributed for public review. All public comments were considered and included in preparing the conditions to Conditional Use Permit #05-0020.

WHEREAS, Permittee has applied to the County for Conditional Use Permit #05-0020 (superceding CUP #02-0003).

WHEREAS, County, after a noticed public hearing, agreed to issue Conditional Use Permit #05-0020 to Permittee, and/or their successor-in-interest subject to the following conditions:

(G) GENERAL CONDITIONS:

The "GENERAL CONDITIONS" are shown by the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use permits as "standardized" conditions and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is advised that the General Conditions are as applicable as the SITE SPECIFIC conditions!

G-1 ACQUISITION PERMITS/LICENSES AND COMPLIANCE WITH GENERAL LAWS:

Permittee shall obtain, comply with, and maintain all applicable County, State, and federal permits, licenses, and/or approvals, including, but not limited to those required by Imperial County Planning and Development Services Department, APCD, County Division of Environmental Health Services (EHS), and Public Works Department. Additionally, Permittee agrees to comply with all applicable laws, ordinances, and/or regulations promulgated by County, State, and Federal jurisdictions whether specified herein or not. Furthermore, Permittee shall submit a copy of such additional permit/license to the Planning and Development Services Department within thirty (30) days of receipt.

G-2 PERMITS/MONITORING-RELATED FEES:

The Permittee shall pay any and all amounts, as determined by County, to defray all costs for monitoring, review of reports, field investigations, or other activities related to the compliance and enforcement of this permit, during its active life, closure as well as any post -closure period.

G-3 REPORTS:

Permittee shall at a minimum be required to submit to the Planning and Development Services Department, the following reports;

1. An "Annual Compliance Report," which shall be filed with the Planning Director and describes Permittee's efforts to comply with the CUP, and other permits, and shall be in a format determined by the Planning Director. The Annual Compliance Report shall also contain Certificates of Insurance as required by Section G-11, a current Site Development Plan, which will include a recent (a new updated version every third year) aerial photo (scaled at 1:200 or 1:400) of the site and changes in any Site Closure Plan. The annual Compliance Report shall be submitted no later than May 1st of each year, and shall cover the preceding 12 month period ending December 31 of each year.

2. The Permittee shall provide a quarterly report for all waste received. The report shall include the total tonnage, the type of waste(s), the origin of waste and copy of other information requested by the Planning Director. The quarterly report shall be submitted within 100 days of the end of the preceding quarter.

3. The County may also request, in writing, "Special Monitoring Reports" containing such documents and information from Permittee, and at such intervals and containing such information as the Planning Director, Health Officer, and/or Air Pollution Control Officer (individually or collectively) deem necessary for monitoring the Site. Special Reports shall be submitted by Permittee no later than the date specified by the written request.

4. The County may also require special report(s)/studies to be prepared by an outside consultant retained by the County, and the cost of such report to be paid by Permittee.

G-4 VIOLATIONS OF REPORTING REQUIREMENTS:

Failure by Permittee to timely submit any report pursuant to Section G-3 (1 & 2) shall be a violation of this permit, which may be enforced pursuant to Section G-17 or at the discretion of the Planning Commission. The County shall also as a penalty impose a double cost charge for the review of such reports.

G-5 NUISANCE PER SE/NUISANCE:

As between the County and the Permittee, any violation of this permit is a "nuisance per se". The County may enforce the terms and conditions of this permit in accordance with its Codified Ordinances and/or State law. The provision of this paragraph shall not apply to any claim of nuisance per se brought by a third party.

In addition, Permittee shall not be permitted to maintain a "nuisance", which is anything which: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, and/or (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal, and/or (3) occurs during or as a result of the treatment, handling or disposal of any waste.

G-6 RESPONSIBLE AGENT:

All site operations shall be under the control of a responsible agent. The name of this agent and an alternate, along with their telephone number(s), so that either can be reached on a 24-hour basis, shall be provided to the County Planning and Development Services Department, the County Department of Health Services, Division of Environmental Health Service, the Public Works Department, the Air Pollution Control District, and the Office of Emergency Services Coordinator. All offices shall be kept immediately apprised of any change in the responsible agent(s).

G-7 ENCROACHMENT PERMIT:

Encroachment permit(s) for access to the site via Highway 86 or any other County or State highway shall be secured from the appropriate agency, prior to any new construction or change in operations. Improvements to any such highway shall meet the respective agency's standards and/or requirements.

G-8 CONSTRUCTION STANDARDS:

All structures, facilities, buildings, dikes, and monofill(s) at the Site shall be constructed in accordance with County ordinance(s) and the Uniform Codes, as adopted by the County, for Seismic Zone 4, and be in compliance with State and federal regulations. Permits from all agencies (electric, plumbing, grading, among others) shall be secured as required by applicable law for all facilities prior to any construction being commenced.

G-9 ARCHAEOLOGY:

A Culture Resource Technical Report and Plan to protect significant artifacts on-site, or to remove them for preservation shall be maintained. The appropriate portions of

the plan shall be implemented if at any time unusual specimens of stone, bone, or any other artifacts are encountered.

The 2002 Cultural Resources Investigation by URS Corporation, concluded that in order to mitigate the potential the north-south access road into the Monofill facility, the on-site operations complex should be located to the west side of the road would ensure that site CA-Imp-6146 would be avoided.

Further disturbances shall be halted until an archaeologist, approved by the County, is consulted. All mitigation measures required by the FEIR and recommended by the archaeologist shall be implemented prior to proceeding, and a Special Report shall be made to the County Planning and Development Services Department and IVC Museum of all actions taken, as appropriate. Mitigation shall be achieved through avoidance or through testing and data recovery specifically for sites CA-IMP-6141, CA-IMP-6145, and CA-IMP-6146.

G-10 TRAINING:

Permittee shall provide training to employees for all site operations as well as in handling emergency spills. Training shall be given annually, and shall be available to representatives of any enforcement agency that may require knowledge of specific training relating to spills, etc. An Employee Training Plan shall be available on-site, and on file with the Planning and Development Services Department.

New employees will be oriented as to the presence of NORMS; its radiological properties, hazards, symptoms, and all other health and safety related implications. Documentation of this training shall be included in the Annual Report and will also be included in periodic safety meetings.

G-11 INSURANCE AND INDEMNITY:

(a) Permittee shall, for the life of the site and any post closure period maintain adequate "general", "automotive", and "property damage" liability insurance to protect person(s) or property from injury or damage caused by the operation(s) of the facilities and/or Site.

(b) The Permittee shall secure and maintain Workers Compensation Insurance as required by the State of California. The Permittee shall also secure liability insurance and such other insurance as may be required by the State and/or Federal Law. A Certificate of Insurance is to be provided to the Planning and Development Services Department by the insurance carrier and said insurance and Certificate shall be kept current for the life of the project. Certificate(s) of Insurance shall be sent directly to the Planning and Development Services Department by the insurance carrier and shall name the Department as a recipient of both renewal and cancellation notices. Failure to maintain required insurance shall result in the immediate revocation of this permit.

(c) All insurance policies required shall name the County as either an additional insured or an additional loss payee. Certificates of Insurance shall be provided to the County Planning and Development Services Department annually in the Annual Compliance Report as defined in Section G-3, and such other times as may be requested.

(d) Notwithstanding the availability of any insurance coverage required herein, Permittee shall identify, defend, and save harmless the County, its Board of Supervisors, and all Officers, employees, and agents, (the "indemnities) against any and all claims, actions, liabilities related to the County's issuance of the permit or the Permittee's monitoring of this permit, or arising out of negligence, misconduct, or action by Permittee, Corporate Officers, its agents, or employees, in operation at the site or facility, and/or transportation of any waste material to the site, except that Permittee shall not be obligated to indemnify and save harmless, "indemnities" against such claims or actions or liabilities arising out of such indemnities own acts of negligence, or from the non-negligent performance of Permittee of some action ordered or directed by the indemnity. Prompt notification of any such claim, suit, action or cause of action shall be given to Permittee. The County agrees to cooperate in assisting Permittee in opposing or defending any third party claim, suit, or cause of action, which is, tendered pursuant this paragraph. Choice of legal counsel to defend any such action shall be Permittee's subject to the approval of the County Board of supervisors, which approval shall not be unreasonably withheld.

G-12 PROVISION RUN WITH LAND/PROJECT:

The provisions of this project are to run with the land/project and shall bind the current and future owner(s) successor(s) of interest, assignee(s) and/or transferee(s) of said project. Permittee shall not without prior notification to the Planning and Development Services Department assign, sell, or transfer, or grant control of project or any right or privilege therein. The Permittee shall provide a minimum of 60 days written notice prior to such proposed transfer becoming effective. In the event that the new owner or assignee or transferee has a history of non-compliance with environmental laws or is not of substantial equivalent or superior financial capability and/or responsibility or is not willing to or has not agreed to in writing to abide by the terms or conditions of this permit, the Planning and Development Services Department shall bring this matter to the Planning Commission for either revocation or modification to the permit.

G-13 ROUTES:

Permittee shall instruct all geothermal solid waste haulers of the recommended hauling routes within County and follow the identified routes to avoid urban areas. Trucks shall operate with headlights on at all times going to and from the site.

G-14 SEISMIC DETECTION:

Permittee shall establish and maintain a program satisfactory to the County Public Works Director for detecting ground disturbances, including new faulting or fault fractures. Upon approval by the Public Works Director, Permittee shall implement and carry out the approved plan or program.

G-15 APPEALS:

Any decision/determination by the Planning Director that is appealed by Permittee shall be appealed to the Planning Commission. Any Planning Commission determination provided for in this permit is subject to appeal in the same manner as other determinations of Conditional Use Permit application are appealable.

G-16 APPROVAL OF PLANS, PROGRAMS OR INTERPRETATIONS:

(a) Whenever Permittee is required to prepare and submit, for County approval, a Site Procedures Plan, Seismic Plan, Archaeologist Plan, or where Permittee requests a minor change or interpretation pursuant to Section G-21 below, and the Hazardous Material Committee (HMC) fails to approve or disapprove of such plans or procedures or minor change within 60 days from the date they are submitted, the plans or procedures or minor change shall be deemed denied.

(b) If the HMC disapproves any such plan, procedures, or minor change, Permittee may request a hearing to be conducted before the Planning Commission. After receipt of the request, including payment of fees, and upon reasonable public notice, the Planning Commission shall conduct a hearing and make a written determination approving or disapproving the plan or procedure or minor change. Any action on a plan or procedure or minor change, must be reasonable and must be based upon specific, enumerated concerns about human health, safety, or the environment. The Planning Commission may request specific advise form technical advisory committee(s) and/or consultants. Failure of the Commission to act within the required time period shall constitute an adoption of any staff determination.

G-17 ENFORCEMENT AND TERMINATION:

(a) If the Planning and Development Services Department finds and determines that the Permittee or successor-in-interest has not complied or cannot comply with the terms and conditions of the CUP, or the Planning and Development Services Department determines that the permitted activities constitute a nuisance, the Planning Director shall provide Permittee with notice and a reasonable opportunity to comply with the enforcement or abatement order.

(b) If after receipt of the order (1) Permittee fails to comply, and/or (2) Permittee cannot comply with the conditions set forth in the CUP, then the matter shall be referred to the Planning Commission for permit modification, suspension, or termination, or to the appropriate prosecuting authority.

(c) If the Planning Commission determines to proceed with modification, suspension or termination of the CUP, the Planning Commission shall give at least thirty (30) days notice to Permittee, and such other public notice as required by law, of its intention to do so.

The notice shall contain:

1. The time and place of the hearing;

2. A statement as to the reasons why the Planning Commission proposes to modify, suspend, or terminate the CUP;

3. Any proposed modification to the CUP; and other information which the Planning Commission considers necessary or desirable to inform Permittee or the public of the nature of the hearing.

(d) Any action by the Planning Commission shall be documented by written findings. In the event the Planning Commission chooses to suspend or revoke the CUP, the Commission must specifically find that such revocation is necessary because prior governmental efforts to get Permittee to comply with the terms and conditions of the permit have failed and Permittee has failed to demonstrate to the Planning Commission's satisfaction the willingness or ability to comply with the terms and conditions of the Conditional Use Permit, or to abate a nuisance, or to prevent an immediate threat to the public health or safety.

(e) After the hearing concerning enforcement, modification or termination of the CUP, the Planning Commission shall make its determination within seventy-five (75) days, unless Permittee and the Planning Director agree by mutual written consent to extend the time for decision.

G-18 INDUSTRIAL HYGIENE/HEALTH HAZARDS:

If the County Health Officer determines that a significant health hazard exists to the public or employee, the County Health Officer may require appropriate measures and Permittee shall implement such measure to mitigate the health hazard, subject to the procedure set forth in Section G-17 (a) above, for enforcement or abatement orders and their enforcement. Notwithstanding the above, if the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of the subject operations. However, within 45 days of any such suspension of operations, the measures imposed by the County Health Officer must be submitted to the Planning Commission for review and approval.

Nothing shall prohibit Permittee from requesting a special Planning Commission meeting, provided Permittee bears all costs.

G-19 ANNUAL CUP REVIEW:

Permittee shall assist the Planning Director to the extent requested in preparing an annual review/report of the Conditional Use Permit/project.

G-20 INVALID CONDITIONS:

If any section, subsection, sentence, clause, or phrase of the CUP is for any reason held to be invalid, by a Court of proper jurisdiction, the County may consider other similar conditions as it may deem necessary to address the negative impacts which were intended to be mitigated by any single condition which must be changed due to invalidity. If similar conditions cannot be imposed, then the Commission may seek revocation of this permit pursuant to the provisions of Section G-17 above.

G-21 MINOR CHANGES:

The HMC may approve minor changes to the design, construction, and/or operation of the facility which are generally procedural or technical. Minor changes shall be as determined by the Hazardous Material Committee and the decision of the HMC shall be final unless appealed to the Planning Commission, provided said minor changes do not conflict with other regulatory permits.

G-22 NOTICE OF REGULATORY ACTIVITIES:

Permittee shall provide to the Planning and Development Services Department copies of all notices and/or submissions to any State, Federal, or local regulatory authority initiated by Permittee concerning or relating to operations under this permit, concurrently with submission to these authorities.

G-23 DEFINITIONS:

In the event of a dispute, the meaning(s) or the intent of any word(s), phrase(s) and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time. See Section D for defined definitions.

G-24 SPECIFICITY:

The issuance of this permit does not authorizes the Permittee to construct or operate this project in violation of any state, federal, local law nor beyond the specified boundaries of the project as shown the application/project description/site plan/permit, nor shall this permit allow any accessory or ancillary use not specified

herein. This permit does not provide any prescriptive right or use to the Permittee for future additions or modifications to this project.

G-25 RECORDATION:

This permit shall not be effective until it is recorded at the Imperial County Recorders Office, and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months of the approval date, this permit shall be deemed null and void.

G-26 CONDITION PRIORITY:

This project shall be constructed/operated as described in the Conditional Use Permit application, the Environmental Assessment, the project description, and as specified in these conditions. Where a conflict occurs, the Conditional Use Permit conditions shall govern and take precedence.

(End of "G" Section)

(S) SPECIFIC PROJECT CONDITIONS:

PROJECT DESCRIPTION

The previous amendment was to add a third Cell to the existing Monofill facility and CUP #02-0003 permitted the Permittee to continue to operate the Class II Monofill facility, limiting it to only accepting non-hazardous waste streams generated by the Permittee's own Imperial County geothermal plants with no out-of-county waste allowed. The existing facility is comprised now of three Cells but with the increase in size of the facility, the Permittee requires more water in order to control future fugitive dust emissions and the reason for this CUP.

S-1. MAXIMUM ANNUAL TONNAGE:

The maximum annual average daily tonnage will be 750 tons per day (estimated 273,750 tons per year). The maximum permitted traffic is 38 vehicles per day to handle the 750 tons per day. Any increase must be approved by the Planning and Development Services Department.

S-2. HOURS AND DAYS OF OPERATION:

Operation at the site shall not exceed 6:00 AM to 6:00 PM, 12 hours per day, 7 days per week, except when prohibited by regulatory agencies.

S-3. REQUIRED WASTE ANALYSIS:

The Permittee shall prepare and submit to EHS, any changes to the Waste Handling Plan for their review and approval.

Pre-disposal and on-site analysis of wastes intended for disposal at the site shall be accomplished as set forth in the approved Waste/Storage Handling Plan. Pre-disposal and on-site procedures and analysis shall be readily available to all monitoring agencies. A material tracking and shipping system shall be used for the hauling and disposal of all filter cake, mud sump, and other non-hazardous geothermal materials; this system shall be approved by the County Environmental Health Services Division prior to operation.

The generator, hauler, and dispenser of filter cake, mud sump, and other non-hazardous geothermal materials shall certify compliance with requirements for documenting the proper handling of all materials to be stored/disposed of at the site. Certification shall be made to the Environmental Health Services Division with notification to the Planning and Development Services Department in writing.

S-4. VEHICLE/EQUIPMENT MAINTENANCE:

Permittee is authorized to perform vehicle/equipment maintenance directly related to equipment used for on-site operations. Any hazardous waste removed during maintenance shall be disposed of, as required by the latest Federal, State and County laws and/or regulations.

S-5. AIR QUALITY MONITORING:

Permittee shall install air quality monitoring systems of the type and at the locations as the APCD shall require to measure the amount of any air contaminant which is emitted from the site, or to ascertain the impact on ambient air.

Ambient Air Monitoring Plan as required by the Imperial County APCD for air monitoring requires that a radiological assessment be conducted each quarter. Appropriate action levels have been established for worker and public exposure in "California Radiation Protection Regulations" (California Code of Regulations, Title 17-30344). Title 17 establishes the following action levels for Ra226 and Ra228: worker exposure (Ra226 concentration of 5.00E-11 u ci/ml and Ra228 uCi/ml) and public exposure (Ra226 2.00E-12 Uci/ml and Ra228 1.00E-12 uCi/ml).

Radiological Monitoring Plan as required and enforced by the Environmental Health Services Division. Monitoring shall be conducted to ensure the expected minimal exposure/dose at and around the Monofill. It will consist of on site workers wearing film badge dosimeters which measure external radiation exposure. Workers shall not receive more than the occupational dose limit set by Title 17-30265 for whole body exposure of 1.25 REM per calendar quarter.

Installation of a weather station to record wind speed and direction.

Illumination of a light in the Monofill office whenever the wind speed exceeds 13 mph, signaling that all disposal operations must cease.

Daily use of Soil Seal or equivalent to minimize wind-blown particles.

Cessation of all earth moving activities whenever the wind speed exceeds 21 mph.

To document the effectiveness of the Wind Dispersal Prevention program, ambient air monitoring for total particulates shall be performed. This monitoring shall occur every six days on the same schedule that the Imperial County Air Pollution Control District performs its particulate sampling for the Imperial Valley.

The monitoring shall occur at three locations spaced along the perimeter of the Monofill. Locations to ensure that at least one monitor shall be upwind and one downwind of the Monofill shall be approved by APCD.

The monitoring program shall consist of High Volume Particulate Samplers that will collect total suspended particulates for a 24-hour period. The results of this monitoring shall be submitted to the Imperial County Air Pollution Control District on a monthly basis.

On a quarterly basis, the sample with the highest loading (greatest particulates) shall undergo radiological analysis. The sample shall be analyzed for Gross Alpha, Gross Beta, with a gamma spectroscopy performed. The results and evaluation as relates to health, safety and environment of this analysis shall be reported to the Imperial County Environmental Health Services Division and the Planning and Development Services Department in the monthly report following receipt of the analytical results.

This ambient air monitoring is subject to approval by the APCD and the County of Imperial Environmental Health Services Division. Should APCD and/or the County of Imperial Environmental Health Services Division require additional mitigation, any new measures shall be incorporated into the Wind Dispersal Prevention Program.

S-6. SITE OPERATIONS:

The site shall be constructed and maintained in accordance with all approved CUP conditions, and building/structure code requirements. Permittee shall maintain a Site Operations Plan complying with all County, State, and Federal regulations. A copy of all proposed changes to the approved plan shall be forwarded to the HMC for review each time a change is proposed as required in Section G-22. Copies of any proposed changes in the plan shall be submitted to the Planning and Development Services Department. In the event of conflict between the plan and this CUP, the CUP governs.

The emergency response/contingency plan shall be maintained throughout the entire operation of the Monofill facility. The plan shall be developed to minimize hazards to

human health and the environment from fires, explosions, or any sudden or non-sudden release of wastes or waste constituents to air, soil, or surface water at the Monofill facility. The plan shall be implemented whenever there is a real or suspected threat to human health or the environment.

(a) The Site Operations Plan shall contain a set of procedures and requirements which are directly related to the safety and health of employees and visitors to the site and concerning operations on-site and adjacent to the site. An Emergency Response Plan will be available on-site in case of emergency.

(b) In the event of a conflict between any regulatory plan or permit, the most stringent shall apply.

(c) DVC shall immediately notify OES, the Planning and Development Services Department and the Environmental Health Services Division (EHS) when an emergency occurs at the site.

S-7. SITE CLOSURE, FINANCIAL RESPONSIBILITY, AND POST-CLOSURE PLAN:

(a) Permittee shall maintain an applicable Site Closure Plan and a Post-Closure Plan, complying with all State and Federal laws and regulations. Said plan(s) shall contain detailed procedures for Closure and Post-Closure for the facility. A monitoring system, and a procedure for funding these plans for a minimum of 30 years subsequent to closure is required. Permittee shall advise the County of any changes pursuant to Section G-21, and include the status of any changes in the plan(s) in the Annual Compliance Report.

(b) Environmental Impairment Liability Insurance ("EIL"), including sudden/non-sudden pollution liability, transportation in vehicles and vessels, shall be maintained in compliance with State and Federal requirements or compliance schedules issued by those jurisdictions. A minimum of two million five hundred thousand dollars in a form acceptable to the County for Site Specific EIL coverage shall be maintained by Permittee. Permittee at its discretion or election may post such other financial assurance subject to acceptance by the Board of Supervisors.

S-8. DUST CONTROL:

The access road(s) shall be paved and shall be maintained in a dust-free manner and safe for vehicle access. Internal operations of the disposal site shall be maintained dust-free by water or other control measures as approved in the Site Operations Plan, including but not limited to, spraying the monofill materials at the end of each working day with a soil sealant polymer.

S-9. VEGETATION:

Any sensitive, rare or endangered vegetation found shall be appropriately relocated, if possible, to other areas prior to any construction, including dikes, and/or monofill(s) pursuant to appropriate state or federal requirements.

S-10. FLOOD WATERS:

Any water diversion dike(s), channel(s), and/or embankment(s) in Section 33, shall protect the site against a 100-year, 24 hour storm, and shall be designed by a Civil Engineer, reviewed, and approved by the Public Works Department.

S-11. LIGHTING:

Permittee is allowed to have security as well as operational lighting. Said lighting shall be shielded and direct to on site areas to minimize off site interference from unacceptable levels of light or glare.

Structures constructed on site shall be of earth tone coloration to minimize their potential visibility. If night lighting is required, directional lighting fixtures shall be used to reduce potential glare onto adjacent properties and to minimize night glare.

Although impacts to visual resources are not considered significant, the above mitigation measures have been provided. To ensure these measures are implemented properly during plan check, County staff shall inspect and approve a color sample of the structures to be constructed. A site visit shall be conducted by County staff to ensure the colors used match what was specified prior to the issuance of an occupancy permit. Potential glare impacts to adjacent properties shall be monitored through complaints made to the County. If complaints are received, the appropriate County regulatory agency shall conduct site visits to evaluate and develop measures that would remedy the problem.

S-12. WILDLIFE PROTECTION:

Effective measures shall be employed to prevent wildlife from entering any monofill(s). If mortality of birds and/or animals occurs, Permittee shall install mesh cover or other effective measures approved of by the California Department of Fish and Game to prevent entry by birds and/or animals, as applicable.

S-13. GROUNDWATER MONITORING/HYDROLOGIC DATA:

(a) In addition to the groundwater monitoring program described in any Site Operation Plan and/or required by RWQCB, quarterly monitoring reports shall be provided to the Planning and Development Services Department and EHS/Health. Additional groundwater monitoring may be required by the County Health Officer upon a determination that there is cause, and shall be performed by Permittee. When any groundwater samples are to be taken, the County Health Officer and

Planning and Development Services Department shall be advised in advance so that a representative of that office and/or Planning and Development Services Department may be present to verify procedures and to insure that a representative sample is taken. Test result(s) shall be submitted to both Departments within 10 days of receipt of lab results. Under no circumstances shall tests be submitted later than 180 days of obtaining samples. Any field perimeter tests shall be reported within 10 days.

(b) Data shall be included in the final project design will include (but not limited to) the following information:

- An evaluation of the water-bearing characteristics of the natural geologic materials, including determination of permeability, delineation of all groundwater zones, and the basic data used to determine the above.

- An evaluation of the in place permeability of soils immediately underlying the Class II waste management unit including presentation of the permeability data in tabular form, a map of the unit showing test locations where these permeability data were obtained, and an evaluation of the test procedures and rationale used to obtain these permeability data.

- An evaluation of the perennial direction(s) of groundwater movement within the uppermost groundwater zone within one mile of the waste management facility perimeter.

- Estimates of the height of the capillary fringe above the uppermost groundwater zone beneath and within one mile of the waste management facility perimeter, including an evaluation of all methods and the rationale used in their development.

- A map showing the location of all springs in the area proposed for the monofill and within one mile of its perimeter, as well as a tabulation of mineral quality and flow data for each spring.

- A water quality evaluation of the water know to exist under or within one mile of the monofill facility perimeter, including all data necessary to establish water quality protection standards.

- A tabulation of background water quality data for all applicable indicator parameters and waste constituents.

- Establishment of a water quality monitoring system pursuant to direction by RWQCB.

- An evaluation of runoff qualities and drainage patterns within the project site and vicinity, including an estimate of the PMP storm event.

- An evaluation of potential erosion impacts associated with the proposed project and the generation of appropriate mitigating measures. Such measures may include the use of protective facings, channelization of threatened drainages, or construction of energy dissipating or sedimentation facilities (e.g., detention basins).

S-14. RIGHT OF ENTRY:

The County reserves for itself and other enforcement, regulatory or monitoring agencies the right to enter the premises with the knowledge of Permittee and in accordance with Permittee's access procedures to make appropriate inspections and to determine if the conditions of this permit are being fulfilled. Permittee shall not deny or restrict access by enforcement agency personnel. Inspections may be at any time, day or night, and may include announced and unannounced inspections. Except for standard safety regulations and procedures, inspectors shall have unrestricted access to all portions of the site.

S-15. SITE WATER USAGE:

Permittee shall, if appropriate, secure any necessary future water rights from the IID. The Planning Director may grant extensions of time, not to exceed a total of one year, upon good cause shown by Permittee. No water for site usage after construction shall be taken from IID canals, laterals or reservoirs by pumpers, trucks or tankers. All water trucked on-site shall be stored in a dedicated 1,000 gallon or larger tank. A separate water well CUP has been issued for this project. Any future use of groundwater or IID water supplies and conveyance facilities shall receive prior approval from the appropriate responsible agency.

The Planning and Development Services Department will be kept apprised of any requests made to IID for on-site water usage beyond that water trucked on-site and stored, and groundwater well water usage.

S-16. INJECTION WELL(S):

Injection well(s) of any type or any use are strictly prohibited on this site.

S-17. PRIVATE ACCESS ROAD/LEVEES:

The access road will avoid the culture resource site (IMP-6141/MON-5-4) by moving road 100' west, or as the Final Grading Plan approved by BLM and Department of Public Works dictates. The access road shall be paved, and maintained in good repair with adequate off-road drainage.

All roads constructed shall have a gravel surface for internal traffic on or off levees. All traffic on levee roads shall travel less than fifteen (15) miles per hour.

The truck traffic generated by the proposed development will have a significant impact on the access connection to SR 86. Therefore, the applicant must maintain the pavement condition to the Department's standards during and at the conclusion of the operation of the Monofill.

The existing driveway connection to SR 86 must be improved to the Department's (Caltrans) standards as prescribed in the Highway Design Manual Section 205. Traffic control guidelines addressing short-term construction must also be submitted for our review;

Any work preformed within Caltran's right of way will require an encroachment permit. Road construction activities conducted on BLM land shall conform to all design specifications provided by that agency.

S-18. LIMITED USAGE:

The site shall only be used for the disposal/storage of waste generated by power plants and geothermal operations (all located in Imperial Valley) by wholly-owned subsidiaries of Magma Power Company or by one of its affiliates. In the event that Magma Power Company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley monofill, Magma Power will, in writing, assign the right to use Desert Valley for such facility (retaining for MPC the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission of Imperial County.

S-19. RECYCLING PROHIBITED:

This Conditional Use Permit does not permit the recycling of any of the waste disposed/stored on-site, other than the removal of the filter cake material from the site, to another site for processing. In the event that recycling of the waste is proposed, an amendment of this Permit shall be necessary prior to any recycling activities occurring on-site.

S-20. MINERAL EXTRACTION ACTIVITIES:

This Conditional Use Permit does not allow any mineral extraction activities for any of the waste disposed/stored on-site, other than the removal for processing. In the event that mineral extraction is to be commenced, an amendment of this Permit or a new conditional Use Permit shall first be secured.

S-21. PROJECT DESIGN/CONSTRUCTION:

(a) Project design (with specific regard to geology/seismicity) shall be in conformance with requirements for Class II waste management units listed in Title 23 of the California Code of Regulation (Subchapter 15).

(b) All structures constructed on-site shall be of earth tone coloration to reduce visual impacts.

(c) Final project design shall comply with all California Code of Regulations. title 24, Uniform Building Code, and RWQCB and the County of Imperial standards regarding the nature, location, and construction of proposed facilities.

(d) All construction work shall be confined to the designated project area. Construction staging areas should coincide with the project area.

(e) All vehicles shall remain on roads. No off-road vehicle travel should be authorized without prior approval by BLM or CDFG.

(f) Access to the project area shall be controlled by gating.

(g) Access roads shall be paved to eliminate the amount of time the flat-tailed horned lizard spend on roads and potentially reduce lizard mortality.

(h) Screening shall be put in the fence around the project site to reduce flat-tailed horned lizards entering the landfill area and potentially reducing lizard mortality.

(i) Project design shall incorporate peak ground acceleration loading values of 0.60 g unless modified recommendation are provided by the geotechnical consultant.

(j) Final project design shall incorporate all measures deemed appropriate by the geotechnical engineer on the basis of existing and future site-specific investigations. Additional analysis of the project site should be conducted to evaluate potential impacts associated with repeated high ground acceleration, localized liquefaction potential, expansive and reactive soils, and wind generated erosion. Mitigation measures derived from these analyses may include the following types of requirements:

- Over-excavation of unsuitable base materials and replacement with approved and properly compacted structural fill.

- Use of moisture, chemicals, engineering, and/or drainage methods to control expansive behavior of underlying clay soil, if appropriate.

- Use of non-steel or coated (usually polyethylene encasement) steel conduits, sulfate resistant cement, or other protective material in areas of corrosive soils.

- Appropriate design of fill slopes associated with berms, storage/disposal facilities, building pads, etc., to minimize facilities, building pads, etc., to minimized potential seismically induced landsliding.

- This may include measures such as establishing maximum slope grades and the use of stabilizing materials or buttressing.

- Proper design of surface and subsurface drainage devices.

- Initiation of settlement monitoring if appropriate.

- Appropriate design, location, and construction of erosion control methods and devices.

- Scarification of all compacted areas to reduce erosion potential.

- Identification of appropriate wind erosion mitigation measures (if necessary) such as the use of chemical or physical stabilizers, appropriate operating schedules, etc.

S-22. EROSION:

The project shall reduce erosional impacts to extent possible through use of protective facing, channelizing of threatened drainages, or construction of energy dissipating or sedimentation facilities, e.g. detention basins.

The project applicant must receive discretionary approval from Caltrans prior to making any modifications to Caltran's flood control levee.

S-23. GROUNDWATER:

Any impact of groundwater associated with the project shall require approval from the Regional Water Quality Control Board (RWQCB).

A detailed hydrological analysis of the project site and vicinity shall be conducted by a qualified hydrologist and this investigation must be conducted pursuant to requirements in Title 23 of the California Code of Regulations (Subchapter 15). This investigation must be incorporated into the final project design and approved by RWQCB.

S-24. FUGITIVE EMISSIONS:

All fugitive dust emissions as well as emissions of solid constituents of the filter cake and mud sump material shall be reduced to a level of non-significance from an uncontrolled level as determined by APCD. In addition, Imperial County Air Pollution Control District (APCD) will require such mitigation measures deemed necessary through a Wind Dispersal Prevention Program to insure that the proposed project will not significantly impact the local and regional air quality.

S-25. BIOLOGICAL RESOURCES:

A survey has been completed to determine potential impacts to the FTHL (Flat Tailed Horned Lizard). The final grading plan should be reviewed by a qualified biologist to ensure that no significant impact to the FTHL will occur, and that impacts to the Salton Milkvetch are minimized to the extent possible.

The FTHL Management Plan will be available on-site and be utilized prior to site excavations or grading taking place. The loss of FTHL habitat will be compensated commensurate with appropriate state and federal requirements.

S-26. DIKES(S), AND/OR MONOFILL(S) CONSTRUCTION:

All dike(s), and/or monofill(s), shall be designed and constructed under the supervision of a civil engineer registered in the State of California. The supervising engineer shall certify that the work will maintain its integrity after being subjected to a maximum credible earthquake. Construction of any dike(s) and/or monofill(s) shall comply with all applicable County, State and Federal permitting requirements and shall be fully inspected by the County prior to being placed in use. The County may require each construction to be inspected by a third party consultant, at discretion of the Planning Director with the Permittee paying all costs of each such consultant.

S-27. LOCAL EQUITY PAYMENT(S):

The Permittee shall pay to the County Executive Office an annual fee in the amount of 20% of the combined gross total of all monitoring costs incurred by County monitoring departments. This fee shall be in addition to the required monitoring cost fees to be paid by Permittee.

(End of 'S' Section)

(C) PROHIBITED WASTES/ALLOWED WASTE:

P- (1) PROHIBITED WASTES

The following waste (s) shall not be accepted and/or delivered to the Site for disposal or storage:

(a) Radioactive wastes (except for NORM's associated with the geothermal material approved for the site)

(b) Infectious wastes (including biological and chemical warfare agents)

(c) Water reactive wastes

(d) Air reactive wastes

(e) Strong oxidizers

(f) Compressed Gases

(g) Explosives

(h) PCB wastes (or any material containing any P.C.B.'s)

(i) Any waste designated as a hazardous waste by CCR, Title 22 and/or 23.

(j) Any waste that by State and/or Federal law is required to be disposed or treated at a Class I facility.

P- (2) ALLOWED WASTES

The following dry waste(s) shall be allowed to be stored and disposed on-site from plants and geothermal operations (all located in Imperial Valley) by wholly owned subsidiaries of Magma Power Company or by one of its affiliates:

(1) Those Drilling Muds Typical Analyses, Filter Cake Typical Analyses (Tables 1 and 2 of previous DVC Application), and soil contaminated with geothermal material which are non-hazardous.

(2) If upon analysis any load of drilling muds, cuttings, silica filter cake solids, and other geothermal materials are found to be "hazardous", it must be disposed of as required by the latest Federal, State, County laws and/or regulations.

(3) In the event that Magma Power Company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley

monofill, Magma Power will, in writing, assign the right to use Desert Valley for such facility (retaining for MPC the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission of Imperial County.

(4) Non-Hazardous waste streams generated at the applicant's Mineral Recovery Facility and lime and amorphous sulfur waste from the power plants to the approved list of waste steams accepted at the Monofill under this CUP.

(End of "C" Section)

(D) DEFINITION(s):

D-1 Adequate: shall mean satisfactory or acceptable to the Planning Commission.

D-2 C.E.Q.A.: CALIFORNIA ENVIRONMENTAL QUALITY ACT as found in the Public Resources Code 21000, et seq.

D-3 Considerable (Number of persons): shall mean as determined by the County Health Officer (usually meaning 3 or more people).

D-4 E.H.S.: Imperial County Department of Health Services, Division of Environmental Health Services.

D-5 Emergency Spills: a sudden accidental or unforeseen release of a material that results in environmental degradation.

D-6 Class II Waste Disposal Site: shall mean that portion of the northeast quarter of Section 33, Township 12 South, Range 11 East, being approximately 160 acres gross and does not include any other land owned, leased or otherwise controlled by DVC.

D-7 H.M.C.: shall mean the Imperial County Hazardous Materials Committee which consists of the Public Works Director, the Planning Director, the Health Officer, the Agricultural Commissioner and the Emergency Services Coordinator.

D-8 Lead Agency: as defined in CEQA - 1986 edition, in this case shall mean the Planning and Development Services Department.

D-9 Reasonable: shall mean satisfactory or acceptable to the Planning Commission.

D-10 Regulations: shall mean administrative rules which implement duly enacted legislation/laws.

D-11 Storage: means the retention of non-hazardous materials within the Class II facility, i. e. monofill(s).

D-12 Class II: is a designation of a waste facility type under CCR Title 23 and shall be limited to the definition in effect at time of issuance of this CUP.

D-13 Norm: Naturally-occurring radioactive material.

D-14 Emergency: "Emergency" shall mean an actual or threatened unauthorized release of materials which could cause exposure to the public or site workers.

D-15 Dry Waste: Meeting the "paint filter" test.

(End of "D" Section)

(E) MONITORING PROGRAM (Interagency Environmental compliance Program):

The Planning and Development Services Department is the primary agency for the issuance/monitoring of the CUP and shall monitor the site and the CUP conditions, as required and as such will at a minimum, but not limited to, perform the following activities:

(1) be the coordinating entity between Desert Valley Company (DVC) and County Departments involved in the control and monitoring of the site.

(2) provide routine status reports to the Board of Supervisors, Planning commission and all affected County Departments, as appropriate.

(3) shall review all written monthly reports from monitoring agencies or as requested with full backup data, of any changes, violations or any other activities pertaining to this CUP.

(4) shall be staff to the HMC, with other staff as required.

(5) shall monitor the CUP site by means of inspection of the Site, which may occur at any time of day or night - both announced and unannounced, independently or jointly with other monitoring agencies.

(6) shall review all data submitted by and to DVC, by and to other agencies or departments.

(7) shall examine the site, and any reports or documents on file at the site or other DVC offices, and will keep a photographic and written record of on-going operations, as necessary.

(8) shall review and analyze all Federal, State, and County laws and regulations pertaining to solid waste regulations, and shall review same with all County Departments, as appropriate.

(9) shall, with EHS, meet and confer with any special consultants involved in the preparation of studies, reports, or analysis of the site.

(10) may attend meetings/hearings held by other regulatory agencies or departments as necessary.

(11) may attend seminars, workshops, or other educational meetings to keep abreast of related laws activities.

(12) shall perform such other monitoring activities as directed by the Planning Director, Planning Commission, or the Board of Supervisors.

(13) shall review all reports, documents, plans, and/or procedures submitted or required to be submitted by DVC to the County, or other agencies, if requested, including an annual compliance report assessment to determine compliance with the CUP and/or Agreement.

(14) At least every year or as otherwise directed by the Planning Commission, the Planning Director shall review Permittee's compliance with the conditions of the CUP, and may make a report of the finding to the Planning Commission. This report may also contain information concerning new technology, new regulations, monitoring results, or other pertinent information that the Planning Director deems necessary.

(15) Monitoring is estimated to be approximately five to six (5-6) hours per week for the first year; see estimated cost for monitoring below.

Appendix "B" attached hereto also constitutes the "Monitoring Program" as required for this Project. Therefore for more details on the monitoring procedures and requirements for this Project, refer to Exhibit "B" attached.

Appendix "B" shall be part of the Conditional Use Permit and shall have the same force and effect as the Conditional Use Permit.

Planning & Dev. Services Department Monitoring Program
For
Desert Valley Company CUP

Salaries & Benefits (est. 5-6 Hours/Week)

PLANNER IV	51251.00 / year x 13% =	6,662.63
Retirement	10142.00 / year x 13% =	1,318.53
Insurance	6025.00 / year x 13% =	783.25
Re. Benefit		88.61
Social Security		96.61
Ins. Workmans Comp.		117.93
Ins. Unemployment		21.99
Ins. Dental/Vision		132.21
Overtime		783.53
Net Total		10,005.29
CLERK III	23358.00 / year x 7% =	1,635.06
Retirement	4623.00 / year x 7% =	323.58
Insurance	3423.00 / year x 7% =	239.61
Re. Benefit		21.75
Social Security		23.71
Ins. Workmans Comp.		28.94
Ins. Unemployment		5.40
Ins. Dental/Vision		47.86
Overtime		248.53
Net Total		2,574.45
TOTAL SALARY & BENEFITS		12,579.73
SERVICES & SUPPLIES		
Communiticans		864.24
Insurance Liability		1,085.76
Maintenance Euipment		390.00
Office Expense		3,511.56
Professional & Special Services		780.00
Travel In County		1,063.92
Travel Out of County		1,718.00
Net Total		9,411.48
NET TOTAL		21,991.21
Overhead/Supervisors		3,518.59

Note: This is the estimated annual cost for the first full monitoring year. Upon completion of one full year monitoring, the Planning and Development Services Department shall prepare an analysis of actual cost incurred and adjust the estimated cost for the following year. The Department shall notify

the Permittee of the actual/projected cost. If actual costs are les than estimated above Permittee shall only be responsible for actual costs.

(W) WATER WELL: CONDITIONAL USE PERMIT #05-0020 (Superseding CUP#02-0002) FOR A WATER WELL FOR THE DESERT VALLEY COMPANY, CLASS II FACILITY.

Note: These are changes to CUP #02-0003 relating to the original conditions for the water well and all conditions are applicable for the existing active water well.

WATER WELL CONDITIONS:

The use of the four (4") inch diameter water well shall be for non-potable use only, i.e. for dust control and sanitary purposes. The anticipated flow is estimated to be 5.269 gallons per minute by Permittee.

Site Specific Conditions:

S-1: The water shall be used for on-site use(s) only.

S-2: The groundwater from the well shall not be sold, exported, or transported off-site.

S-3: This Permit limits the amount of water to be utilized on-site from the well to approximately 8.5 acre-feet per year based on the estimated flow by Permittee of 5.269 gallons per minute.

S-4: A flow meter is to be installed and the Permittee shall submit well driller's logs to the Public Works and Planning and Development Services Department within ninety (90) days of drilling completion.

S-5: The Permittee shall file an annual report on the water used during the previous year to the Planning and Public Works Department. This report shall coincide or may be part of the Annual Report required under this CUP.

S-6: The water well shall be drilled by a California-licensed water well drilling contractor and the name and Contractor's licensed numbers must be submitted to the Planning and Development Services Department prior to the well being drilled.

S-7: If the well is found to be potable under California Standards, the same conditions shall apply.

S-8: If the County determines that the use of the well is creating an adverse impact to the groundwater basin, the County may order the Permittee to cease use of the well or limit the use of the well as deemed appropriate.

S-9: Water well shall be located within the property limits specified under this CUP.

S-10: Compliance with General Conditions:

This permit shall also include compliance with the following "General Conditions" as shown in CUP #05-0020 (Superseding CUP #02-0003), and the Permittee agrees to be bound by same; G-1, G-2, G-3, G-4, G-5, G-6, G-9, G-13, G-16, G-18, G-20, G-21, G-22, G-23, G-24, G-25, G-26, G-27.

NOW THEREFORE, County hereby issues Conditional Use Permit 05-0020 (Superseding CUP #02-0003) and Permittee hereby accepts such permit upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

Permittee

By _____
Representative of
Director
Desert Valley Company

Dated 9/13/05

COUNTY OF IMPERIAL, a political Subdivision of the STATE OF CALIFORNIA

By: _____
Jurg Heuberger, AICP, CEP, Planning

Dated 11-17-05

PERMITTEE'S NOTARIZATION

STATE OF CALIFORNIA

COUNTY OF IMPERIAL

On September 13, 2005 before me, Cathy Kilgore a Notary Public in and for said County and State, personally appeared Stephen Fausen, personally known to me (~~or proved to me on the basis of satisfactory evidence~~) to be the person(~~s~~) whose name(~~s~~) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

WITNESS my hand and official seal

Signature Cathy Kilgore

CATHY KILGORE
COMM. # 1544377
NOTARY PUBLIC-CALIFORNIA
IMPERIAL COUNTY
COMM. EXP. JAN. 14, 2009

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document _____
Number of Pages _____ Date of Document _____
Signer(s) Other Than Named Above _____

COUNTY NOTARIZATION

STATE OF CALIFORNIA

COUNTY OF IMPERIAL

On November 17, 2005 before me, Patricia Valenzuela, a Notary Public in and for said County and State, personally appeared Jurg Heuberger, personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Signature Patricia A Valenzuela

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document Conditional Use Permit

Number of Pages 29 Date of Document August 10, 2005

Signer(s) Other Than Named Above

JH/DG/RC/cer/S: APN 019/100/04 CUP05-0020Agreement

PATRICIA A. VALENZUELA
Notary Public - California
Imperial County
My Comm. Expires Oct 28, 2006

Conditions for Authority to Construct and Permit to Operate #2120B-3

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150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

CONDITIONS FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE #2120B-3

I.H.

CALENERGY OPERATING CORPORATION
7030 GENTRY ROAD
CALIPATRIA, CA 92233

LOCATION: 3301 WEST HIGHWAY 86, BRAWLEY, CA

A. GENERAL CONDITIONS

1. This Permit to Operate with Conditions is applicable to the Desert Valley Company Landfill facility and supersedes all other past permit emissions limitations.

2. The facility shall be constructed and operated in substantial compliance with the project description, and operating parameters of Application (FR#565898) dated February 26, 2008, and with earlier applications the Authority to Construct Permit and supporting documents, except as may be modified by more stringent requirements of law or these conditions.

3. Operation of the Landfill shall be in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

4. Operation of the Landfill shall be in compliance with applicable APCD Rules and Regulations.

5. This permit does not authorize the emissions of air contaminants in excess of those allowed by the USEPA (title 40 of the Code of Federal Regulation), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

6. This permit cannot be considered permission to violate applicable existing laws, regulations, rules or statues of other governmental agencies.

7. No air contaminant shall be released into the atmosphere which causes a public nuisance (Rule 407).

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

8. Disturbances of soil related to any construction, demolition, excavation, or other earthmoving activities shall comply with the requirements for fugitive dust control (Rule 801).

9. Any unpaved and paved road, and open areas subject to be disturbed by vehicles traffic shall comply with the requirements for fugitive dust control (Rule 805).

10. The permittee shall prevent or cleanup any carry-out or track-out (Rule803).

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann Chart 1 or 20% opacity (Rule 401).

B. Disposal Wastes Permitted

1. The annual total geothermal waste delivered to the site shall not exceed 750 tons per day average.

2. Wastes disposed in the Monofill (landfill) shall be confined to geothermal drilling mud and cuttings; geothermal filter cake; Solids contaminated with geothermal material; and Incidental plastic sheeting (truck bed liner)/materials.

C. Waste Condition

1. Geothermal wastes shall contain adequate moisture, sealant, or a combination thereof to prevent any visible dust emissions beyond the Monofill when wastes are unloaded, piled, leveled and compacted.

D. Mitigation of Fugitive Emissions

1. Traveled roadways on and approaching the site will be paved or covered with gravel. Unpaved areas on site will be sprayed with water and/or sealant. Construction, earth moving, and similar operations shall not be conducted when the wind speed reaches 21 MPH or greater.

2. All incoming geothermal waste trucks shall be covered.

3. Disposal activities shall cease when wind speed reaches 13 MPH or greater.

4. Geothermal filter cake solids shall be spray misted with sealant during unloading as necessary.

5. All working geothermal waste shall be covered with sealant after each working day.

6. Opacity of fugitive emissions shall not exceed 20% at any point for a period or periods aggregating more than three (3) minutes in any one hour. (Rule 401).

E. Monitoring Equipment

1. DVC shall install and maintain a continuous on-line meteorological station capable of measuring wind speed, direction, humidity, and temperature.

2. DVC shall install, maintain, and operate three (3) high volume air samplers upon commencing waste disposal. Site location for samplers shall be approved by the APCD.

3. DVC shall install, maintain and operate one (1) high volume air sampler for background ambient air concentration measurement. Site location shall be approved by the APCD.

F. Monitoring

1. DVC shall measure ambient particulate concentrations for 24 hours, on a six day interval. The particulate filter loading from the high volume air sampler, the highest concentration measured for the quarter, shall be analyzed for gross radionuclides (Ra 226 and 228) and speciated for heavy metal concentrations (Pb, Zn, Cd, Cu, As). The heavy metal speciation shall be conducted quarterly the first year and twice yearly thereafter.

2. DVC shall measure every (3) three years for Radon gas emissions commencing one (1) year after closure of a cell.

3. The APCD may collect at least (1) particulate sample quarterly for analysis or any other analysis it may require.

4. DVC shall incur all costs for the APCD particulate filter and or gas analysis including, travel, and administration costs above annual Permit to Operate fees.

5. DVC shall maintain proper calibration of monitoring equipment for precision and accuracy of all data submitted to APCD.

G. Reporting

DVC shall quarterly and thereafter;

1. Submit total ambient concentrations of particulates (micrograms/cubic meter/24 hours) measured from hi-volume air samplers and heavy metal speciation concentrations and gross radionuclides including, the method procedures for heavy metal and radionuclides analysis. In addition, DVC shall submit an annual gas speciation analysis.

2. Report the total wastes received at the Monofill site. The report shall include the total tonnage, the type of waste(s), and origin of wastes.

3. Report the quarterly film badge radiological exposure for Monofill workers, and truck drivers.

H. Right to Entry

The APCD or any authorized representative shall be permitted to:

1. Enter the DVC site during regular business hours with or without advance notice for purposes of site inspection.

2. Obtain samples of wastes from trucks, cells or elsewhere on or about the site.

3. Review record of all disposed wastes.

4. Witness calibration of monitoring equipment.

I. Equipment List

181.5 Acres
Two (2) Front Loaders
One (1) Water Truck,
One (1) Vibratory Compactor
One (1) Motor Grader
Thirty Eight (38) Hauling Trucks in and out

Conditions for Authority to Construct and Permit to Operate #2120B-3

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	**April 1, 2014**
This Order shall become effective on:	**July 1, 2015**
This Order shall expire on:	**June 30, 2020**

IT IS HEREBY ORDERED that as of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order, including its fact sheet, attachments, and appendices is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on April 1, 2014.

AYE:	Chair Felicia Marcus Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore
NAY:	None
ABSENT:	Board Member Dorene D'Adamo
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

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I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The Federal Clean Water Act (Clean Water Act) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (33 U.S.C. §§ 1311, 1342 (also referred to as Clean Water Act §§ 301, 402).) The United States Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the Clean Water Act's mandate to control pollutants in storm water discharges. (40 C.F.R. § 122, et seq.) The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges (NSWDs). The NPDES permit must also include additional requirements necessary to implement applicable water quality objectives or water quality standards (water quality standards, collectively).

2. On November 16, 1990, U.S. EPA promulgated Phase I storm water regulations in compliance with section 402(p) of the Clean Water Act. (55 Fed. Reg. 47990, codified at 40 C.F.R. § 122.26.) These regulations require operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges), to obtain an NPDES permit. Section 402(p)(3)(A) of the Clean Water Act also requires that permits for discharges associated with industrial activity include requirements necessary to meet water quality standards.

3. Phase II storm water regulations[1] require permitting for storm water discharges from facilities owned and operated by a municipality with a population of less than 100,000. The previous exemption from the Phase I permitting requirements under section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 was eliminated.

4. This Order (General Permit) is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act and shall take effect on July 1, 2015, provided that the Regional Administrator of U.S. EPA has no objection. If the U.S. EPA Regional Administrator has an objection, this General Permit will not become effective until the objection is withdrawn.

5. This action to adopt an NPDES General Permit is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) in accordance with section 13389 of the Water Code. (See *County of*

[1] U.S. EPA. Final NPDES Phase II Rule. <http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm>. [as of February 4, 2014]

Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985.)

6. State Water Board Order 97-03-DWQ is rescinded as of the effective date of this General Permit (July 1, 2015) except for Order 97-03-DWQ's requirement that annual reports be submitted by July1, 2015 and except for enforcement purposes.

7. Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.

8. This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.

9. Industrial activities covered under this General Permit are described in Attachment A.

10. The Fact Sheet for this Order is incorporated as findings of this General Permit.

11. Acronyms are defined in Attachment B and terms used in this General Permit are defined in Attachment C.

12. This General Permit regulates industrial storm water discharges and authorized NSWDs from specific categories of industrial facilities identified in Attachment A hereto, and industrial storm water discharges and authorized NSWDs from facilities designated by the Regional Water Boards to obtain coverage under this General Permit. This General Permit does not apply to industrial storm water discharges and NSWDs that are regulated by other individual or general NPDES permits

13. This General Permit does not preempt or supersede the authority of municipal agencies to prohibit, restrict, or control industrial storm water discharges and authorized NSWDs that may discharge to storm water conveyance systems or other watercourses within their jurisdictions as allowed by state and federal law.

14. All terms defined in the Clean Water Act, U.S. EPA regulations, and the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq.) will have the same definition in this General Permit unless otherwise stated.

15. Pursuant to 40 Code of Federal Regulations section 131.12 and State Water Board Resolution 68-16, which incorporates the requirements of 40 Code of Federal Regulations section 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses. Any degradation of water quality from existing high quality water to a level that achieves water quality objectives and

protects beneficial uses is appropriate to support economic development. This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges, and are therefore consistent with those provisions.

16. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable permits.

17. This General Permit requires that the Discharger certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) and No Exposure Certification (NEC) coverage via the State Water Board's Storm Water Multiple Application and Report Tracking System (SMARTS) website. (See Attachment D for an example of the information required to be submitted in the PRDs via SMARTS.) All other documents required by this General Permit to be electronically certified and submitted via SMARTS can be submitted by the Discharger or by a designated Duly Authorized Representative on behalf of the Discharger. Electronic reporting is required to reduce the state's reliance on paper, to improve efficiency, and to make such General Permit documents more easily accessible to the public and the Water Boards.

18. All information provided to the Water Boards shall comply with the Homeland Security Act and all other federal law that concerns security in the United States, as applicable.

B. Industrial Activities Not Covered Under this General Permit

19. Discharges of storm water from areas on tribal lands are not covered under this General Permit. Storm water discharges from industrial facilities on tribal lands are regulated by a separate NPDES permit issued by U.S. EPA.

20. Discharges of storm water regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board are not covered under this General Permit, including the State Water Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

21. Storm water discharges to combined sewer systems are not covered under this General Permit. These discharges must be covered by an individual permit. (40 C.F.R. § 122.26(a)(7).)

22. Conveyances that discharge storm water runoff combined with municipal sewage are not covered under this General Permit.

23. Discharges of storm water identified in Clean Water Act section 402(l) (33 U.S.C. § 1342(l)) are not covered under this General Permit.

24. Facilities otherwise subject to this General Permit but for which a valid Notice of Non-Applicability (NONA) has been certified and submitted via SMARTS, by the Entity are not covered under this General Permit. Entities (See Section XX.C.1 of this General Permit) who are claiming "No Discharge"

through the NONA shall meet the eligibility requirements and provide a No Discharge Technical Report in accordance with Section XX.C.

25. This General Permit does not authorize discharges of dredged or fill material regulated by the US Army Corps of Engineers under section 404 of the Clean Water Act and does not constitute a water quality certification under section 401 of the Clean Water Act.

C. Discharge Prohibitions

26. Pursuant to section 13243 of the Water Code, the State Water Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, is prohibited.

27. With the exception of certain authorized NSWDs as defined in Section IV, this General Permit prohibits NSWDs. The State Water Board recognizes that certain NSWDs should be authorized because they are not generated by industrial activity, are not significant sources of pollutants when managed appropriately, and are generally unavoidable because they are related to safety or would occur regardless of industrial activity. Prohibited NSWDs may be authorized under other individual or general NPDES permits, or waste discharge requirements issued by the Water Boards.

28. Prohibited NSWDs are referred to as unauthorized NSWDs in this General Permit. Unauthorized NSWDs shall be either eliminated or permitted by a separate NPDES permit. Unauthorized NSWDs may contribute significant pollutant loads to receiving waters. Measures to control sources of unauthorized NSWDs such as spills, leakage, and dumping, must be addressed through the implementation of Best Management Practices (BMPs).

29. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the Water Boards.

30. Direct discharges of waste, including industrial storm water discharges, to Areas of Special Biological Significance (ASBS) are prohibited unless the Discharger has applied for and the State Water Board has granted an exception to the State Water Board's 2009 Water Quality Control Plan for Ocean Waters of California as amended by State Water Board Resolution 2012-0056 (California Ocean Plan)[2] allowing the discharge.

[2] State Water Resources Control Board. Ocean Standards Web Page. <http://www.waterboards.ca.gov/water_issues/programs/ocean/>. [as of February 4, 2014].
State Water Resources Control Board. Water Quality Control Plan for Ocean Waters of California 2009. <http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/2009_cop_adoptedeffective_usepa.pdf>. [as of February 4, 2014].
State Water Resources Control Board. Resolution 2012-0056. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0056.pdf>. [as of February 4, 2014].

D. Effluent Limitations

31. Section 301(b) of the Clean Water Act and 40 Code of Federal Regulations section require NPDES permits to include technology-based requirements at a minimum, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards. Clean Water Act section 402(p)(3)(A) requires that discharges of storm water runoff from industrial facilities comply with Clean Water Act section 301.

32. This General Permit requires control of pollutant discharges using BAT and BCT to reduce and prevent discharges of pollutants, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards.

33. It is not feasible for the State Water Board to establish numeric technology based effluent limitations for discharges authorized by this General Permit at this time. The rationale for this determination is discussed in detail in the Fact Sheet of this General Permit. Therefore, this General Permit requires Dischargers to implement minimum BMPs and applicable advanced BMPs as defined in Section X.H (collectively, BMPs) to comply with the requirements of this General Permit. This approach is consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP).

34. 40 Code of Federal Regulations section 122.44(d) requires that NPDES permits include Water Quality Based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality standards for receiving waters.

35. Where numeric water quality criteria have not been established, 40 Code of Federal Regulations section 122.44(d)(1)(vi) provides that WQBELs may be established using U.S. EPA criteria guidance under section 304(a) of the Clean Water Act, a proposed state criteria or policy interpreting narrative criteria supplemented with other relevant information, and/or an indicator parameter.

36. This General Permit requires Dischargers to implement BMPs when necessary, in order to support attainment of water quality standards. The use of BMPs to control or abate the discharge of pollutants is authorized by 40 Code of Federal Regulations section 122.44(k)(3) because numeric effluent limitations are infeasible and implementation of BMPs is reasonably necessary to achieve effluent limitations and water quality standards, and to carry out the purposes and intent of the Clean Water Act. (40 C.F.R. § 122.44(k)(4).)

E. Receiving Water Limitations

37. This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges and authorized NSWDs not

cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics. If any Discharger's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures in order to attain compliance with the receiving water limitation. Compliance with water quality standards may, in some cases, require Dischargers to implement controls that are more protective than controls implemented solely to comply with the technology-based requirements in this General Permit.

F. Total Maximum Daily Loads (TMDLs)

38. TMDLs relate to the maximum amount of a pollutant that a water body can receive and still attain water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2(i).) Discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7. (40 C.F.R. § 122.44 (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. Many TMDLs contained in water quality control plans include implementation requirements in addition to waste load allocations. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include requirements, including waste load allocations, for Dischargers covered by this General Permit.

39. The State Water Board recognizes that it is appropriate to develop TMDL-specific permit requirements derived from each TMDL's waste load allocation and implementation requirements, in order to provide clarity to Dischargers regarding their responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to public noticing requirements and a corresponding public comment period. Due to the number and variety of Dischargers subject to a wide range of TMDLs, development of TMDL-specific permit requirements for each TMDL listed in Attachment E will severely delay the reissuance of this General Permit. Because most of the TMDLs were established by the Regional Water Boards, and because some of the waste load allocations and/or implementation requirements may be shared by multiple Dischargers, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level.

40. State and Regional Water Board staff will develop proposed TMDL-specific permit requirements (including monitoring and reporting requirements) for each of the TMDLs listed in Attachment E. After conducting a 30-day public comment period, the Regional Water Boards will submit to the State Water Board proposed TMDL-specific permit requirements for adoption by the State Water Board into this General Permit by July 1, 2016. The Regional Water Boards may also include proposed TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Consistent with the 2008 MSGP, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements, unless notified otherwise by a Regional Water Board.

41. The Regional Water Boards shall submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

    a. Proposed TMDL-specific permit, monitoring and reporting requirements applicable to industrial storm water discharges and NSWDs authorized under this General Permit, including compliance schedules and deliverables consistent with the TMDLs. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards;

    b. An explanation of how the proposed TMDL-specific permit requirements, compliance schedules, and deliverables are consistent with the assumptions and requirements of any applicable waste load allocation and implement each TMDL; and,

    c. Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations.

42. Upon receipt of the information described in Finding 40, and no later than July 1, 2016, the State Water Board will issue a public notice and conduct a public comment period for the reopening of this General Permit to amend Attachment E, the Fact Sheet, and other provisions as necessary for incorporation of TMDL-specific permit requirements into this General Permit. Attachment E may also be subsequently reopened during the term of this General Permit to incorporate additional TMDL-specific permit requirements.

G. Discharges Subject to the California Ocean Plan

43. On October 16, 2012 the State Water Board amended the California Ocean Plan. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the

California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances. The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

44. This General Permit requires Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers that have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 (the effective date of this General Permit), or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

45. The California Ocean Plan prohibits the direct discharge of waste to ASBS. ASBS are defined in California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."

46. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

47. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 which contains exceptions to the California Ocean Plan for specific discharges of storm water and non-point sources. This resolution also contains the special protections that are to be implemented for those discharges to ASBS.

48. This General Permit requires Dischargers who have been granted an exception to the Ocean Plan authorizing the discharges to ASBS by the State Water Board to comply with the requirements contained in Section VIII.B of this General Permit.

H. Training

49. To improve compliance and maintain consistent implementation of this General Permit, Dischargers are required to designate a Qualified Industrial Storm Water Practitioner (QISP) for each facility the Discharger operates that has entered Level 1 status in the Exceedance Response Action (ERA) process as described in Section XII of this General Permit. A QISP may be assigned to more than one facility. In order to qualify as a QISP, a State

Water Board-sponsored or approved training course must be completed. A competency exam may be required by the State Water Board to demonstrate sufficient knowledge of the QISP course material.

50. A QISP must assist the Discharger in completing the Level 1 status and Level 2 status ERA requirements as specified in Section XII of this General Permit. A QISP is also responsible for assisting New Dischargers that will be discharging to an impaired water body with a 303(d) listed impairment, demonstrate eligibility for coverage through preparing the data and/or information required in Section VII.B.

51. A Compliance Group Leader, as defined in Section XIV of this General Order must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

52. All engineering work subject to the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq.) and required by this General Permit shall be performed by a California licensed professional engineer.

53. California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG.

I. Storm Water Pollution Prevention Plan (SWPPP) Requirements

54. This General Permit requires the development of a site-specific SWPPP in accordance with Section X of this General Permit. The SWPPP must include the information needed to demonstrate compliance with the requirements of this General Permit. The SWPPP must be submitted electronically via SMARTS, and a copy be kept at the facility. SWPPP revisions shall be completed in accordance with Section X.B of this General Permit

J. Sampling, Visual Observations, Reporting and Record Keeping

55. This General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Under this General Permit, Dischargers are required to: (a) conduct an Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation) to identify areas of the facility contributing pollutants to industrial storm water discharges, (b) evaluate whether measures to reduce or prevent industrial pollutant loads identified in the Discharger's SWPPP are adequate and properly implemented in accordance with the terms of this

General Permit, and (c) determine whether additional control measures are needed.

56. This General Permit contains monitoring requirements that are necessary to determine whether pollutants are being discharged, and whether response actions are necessary. Data and information resulting from the monitoring will assist in Dischargers' evaluations of BMP effectiveness and compliance with this General Permit. Visual observations are one form of monitoring. This General Permit requires Dischargers to perform a variety of visual observations designed to identify pollutants in industrial storm water discharges and their sources. To comply with this General Permit Dischargers shall: (1) electronically self-report any violations via SMARTS, (2) comply with the Level 1 status and Level 2 status ERA requirements, when applicable, and (3) adequately address and respond to any Regional Water Board comments on the Discharger's compliance reports.

57. Dischargers that meet the requirements of the No Exposure Certification (NEC) Conditional Exclusion set forth in Section XVII of this General Permit are exempt from the SWPPP requirements, sampling requirements, and visual observation requirements in this General Permit.

K. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

58. U.S. EPA regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) establish technology-based Effluent Limitation Guidelines and New Source Performance Standards (ELGs) for industrial storm water discharges from facilities in specific industrial categories. For these facilities, compliance with the BAT/BCT and ELG requirements constitutes compliance with technology-based requirements of this General Permit.

59. 40 Code of Federal Regulations section 122.44(i)(3) and (4) require storm water permits to require at least one Annual Evaluation and any monitoring requirements for applicable ELGs in Subchapter N. This General Permit requires Dischargers to comply with all applicable ELG requirements found in Subchapter N.

L. Sampling and Analysis Reduction

60. This General Permit reduces the number of qualifying sampling events required to be sampled each year when the Discharger demonstrates: (1) consistent compliance with this General Permit,(2) consistent effluent water quality sampling, and (3) analysis results that do not exceed numerical action levels.

M. Role of Numeric Action Levels (NALs) and Exceedance Response Actions (ERAs)

61. This General Permit incorporates a multiple objective performance measurement system that includes NALs, new comprehensive training requirements, Level 1 ERA Reports, Level 2 ERA Technical Reports, and Level 2 ERA Action Plans. Two objectives of the performance measurement system are to inform Dischargers, the public and the Water Boards on: (1) the overall pollutant control performance at any given facility, and (2) the overall performance of the industrial statewide storm water program. Additionally, the State Water Board expects that this information and assessment process will provide information necessary to determine the feasibility of numeric effluent limitations for industrial dischargers in the next reissuance of this General Permit, consistent with the State Water Board Storm Water Panel of Experts' June 2006 Recommendations.[3]

62. This General Permit contains annual and instantaneous maximum NALs. The annual NALs are established as the 2008 MSGP benchmark values, and are applicable for all parameters listed in Table 2. The instantaneous maximum NALs are calculated from a Water Board dataset, and are only applicable for Total Suspended Solids (TSS), Oil and Grease (O&G), and pH. An NAL exceedance is determined as follows:

    a. For annual NALs, an exceedance occurs when the average of all analytical results from all samples taken at a facility during a reporting year for a given parameter exceeds an annual NAL value listed in Table 2 of this General Permit; or,

    b. For the instantaneous maximum NALs, an exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for Total Suspended Solids, and Oil and Grease), or are outside of the instantaneous maximum NAL range (for pH) listed in Table 2 of this General Permit. For the purposes of this General Permit, the reporting year is July 1 through June 30.

63. The NALs are not intended to serve as technology-based or water quality-based numeric effluent limitations. The NALs are not derived directly from either BAT/BCT requirements or receiving water objectives. NAL exceedances defined in this General Permit are not, in and of themselves, violations of this General Permit. A Discharger that does not fully comply with the Level 1 status and/or Level 2 status ERA requirements, when required by the terms of this General Permit, is in violation of this General Permit.

64. ERAs are designed to assist Dischargers in complying with this General Permit. Dischargers subject to ERAs must evaluate the effectiveness of their

[3] State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006) <http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of February 4, 2014].

BMPs being implemented to ensure they are adequate to achieve compliance with this General Permit.

65. U.S. EPA regulations at Subchapter N establish ELGs for storm water discharges from facilities in 11 industrial categories. Dischargers subject to these ELGs are required to comply with the applicable requirements.

66. Exceedances of the NALs that are attributable solely to pollutants originating from non-industrial pollutant sources (such as run-on from adjacent facilities, non-industrial portions of the Discharger's property, or aerial deposition) are not a violation of this General Permit because the NALs are designed to provide feedback on industrial sources of pollutants. Dischargers may submit a Non-Industrial Source Pollutant Demonstration as part of their Level 2 ERA Technical Report to demonstrate that the presence of a pollutant causing an NAL exceedance is attributable solely to pollutants originating from non-industrial pollutant sources.

67. A Discharger who has designed, installed, and implemented BMPs to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit may submit an Industrial Activity BMPs Demonstration, as part of their Level 2 ERA Technical Report.

68. This General Permit establishes design storm standards for all treatment control BMPs. These design standards are directly based on the standards in State Water Board Order 2000-0011 regarding Standard Urban Storm Water Mitigation Plans (SUSMPs). These design standards are generally expected to be consistent with BAT/BCT, to be protective of water quality, and to be effective for most pollutants. The standards are intended to eliminate the need for most Dischargers to further treat/control industrial storm water discharges that are unlikely to contain pollutant loadings that exceed the NALs set forth in this General Permit.

N. Compliance Groups

69. Compliance Groups are groups of Dischargers (Compliance Group Participants) that share common types of pollutant sources and industrial activity characteristics. Compliance Groups provide an opportunity for the Compliance Group Participants to combine resources and develop consolidated Level 1 ERA Reports for Level 1 NAL exceedances and appropriate BMPs for implementation in response to Level 2 status ERA requirements that are representative of the entire Compliance Group. Compliance Groups also provide the Water Boards and the public with valuable information as to how industrial storm water discharges are affected by non-industrial background pollutant sources (including natural background) and geographic locations. When developing the next reissuance of this General Permit, the State Water Board expects to have a better understanding of the feasibility and benefits of sector-specific and watershed-based permitting alternatives, which may include technology- or water quality-based numeric effluent limitations. The effluent data, BMP performance data

and other information provided from Compliance Groups' consolidated reporting will further assist the State Water Board in addressing sector-specific and watershed-based permitting alternatives.

O. Conditional Exclusion – No Exposure Certification (NEC)

70. Pursuant to U.S. EPA Phase II regulations, all Dischargers subject to this General Permit may qualify for a conditional exclusion from specific requirements if they submit a NEC demonstrating that their facilities have no exposure of industrial activities and materials to storm water discharges.

71. This General Permit requires Dischargers who seek the NEC conditional exclusion to obtain coverage in accordance with Section XVII of this General Permit. Dischargers that meet the requirements of the NEC are exempt from the SWPPP, sampling requirements, and monitoring requirements in this General Permit.

72. Dischargers seeking NEC coverage are required to certify and submit the applicable permit registration documents. Annual inspections, re-certifications, and fees are required in subsequent years. Light industry facility Dischargers excluded from coverage under the previous permit (Order 97-03-DWQ) must obtain the appropriate coverage under this General Permit. Failure to comply with the Conditional Exclusion conditions listed in this General Permit may lead to enforcement for discharging without a permit pursuant to sections 13385 or 13399.25, et seq., of the Water Code. A Discharger with NEC coverage that anticipates a change (or changes) in circumstances that would lead to exposure should register for permit coverage prior to the anticipated changes.

P. Special Requirements for Facilities Handling Plastic Materials

73. Section 13367 of the Water Code requires facilities handling preproduction plastic to implement specific BMPs aimed at minimizing discharges of such materials. The definition of Plastic Materials for the purposes of this General Permit includes the following types of sources of Plastic Materials: virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other types of preproduction plastics with the potential to discharge or migrate off-site.

Q. Regional Water Board Authorities

74. Regional Water Boards are primarily responsible for enforcement of this General Permit. This General Permit recognizes that Regional Water Boards have the authority to protect the beneficial uses of receiving waters and prevent degradation of water quality in their region. As such, Regional Water Boards may modify monitoring requirements and review, comment, approve or disapprove certain Discharger submittals required under this General Permit.

IT IS HEREBY ORDERED that all Dischargers subject to this General Permit shall comply with the following conditions and requirements.

II. RECEIVING GENERAL PERMIT COVERAGE

A. Certification

1. For Storm Water Multiple Application and Report Tracking System (SMARTS) electronic account management and security reasons, as well as enforceability of this General Permit, the Discharger's Legally Responsible Person (LRP) of an industrial facility seeking coverage under this General Permit shall certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) or No Exposure Certification (NEC) coverage. All other documents shall be certified and submitted via SMARTS by the Discharger's (LRP) or by their Duly Authorized Representative in accordance with the Electronic Signature and Certification Requirements in Section XXI.K. All documents required by this General Permit that are certified and submitted via SMARTS shall be in accordance with Section XXI.K.

2. Hereinafter references to certifications and submittals by the Discharger refer to the Discharger's LRP and their Duly Authorized Representative.

B. Coverages

This General Permit includes requirements for two (2) types of permit coverage, NOI coverage and NEC coverage. State Water Board Order 97-03-DWQ (previous permit) remains in effect until July 1, 2015. When PRDs are certified and submitted and the annual fee is received, the State Water Board will assign the Discharger a Waste Discharger Identification (WDID) number.

1. General Permit Coverage (NOI Coverage)

   a. Dischargers that discharge storm water associated with industrial activity to waters of the United States are required to meet all applicable requirements of this General Permit.

   b. The Discharger shall register for coverage under this General Permit by certifying and submitting PRDs via SMARTS (http://smarts.waterboards.ca.gov), which consist of:

      i. A completed NOI and signed certification statement;

      ii. A copy of a current Site Map from the Storm Water Pollution Prevention Plan (SWPPP) in Section X.E;

      iii. A SWPPP (see Section X); and,

c. The Discharger shall pay the appropriate Annual Fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[4]

2. General Permit Coverage (NEC Coverage)

a. Dischargers that certify their facility has no exposure of industrial activities or materials to storm water in accordance with Section XVII qualify for NEC coverage and are not required to comply with the SWPPP or monitoring requirements of this General Permit.

b. Dischargers who qualify for NEC coverage shall conduct one Annual Facility Comprehensive Compliance Evaluation (Annual Evaluation) as described in Section XV, pay an annual fee, and certify annually that their facilities continue to meet the NEC requirements.

c. The Discharger shall submit the following PRDs on or before October 1, 2015 for NEC coverage via SMARTS:

i. A completed NEC Form (Section XVII.F.1) and signed certification statement (Section XVII.H);

ii. A completed NEC Checklist (Section XVII.F.2); and

iii. A current Site Map consistent with requirements in Section X.E.;

d. The Discharger shall pay the appropriate annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[5]

3. General PRD Requirements

a. Site Maps

Dischargers registering for NOI or NEC coverage shall prepare a site map(s) as part of their PRDs in accordance with Section X.E. A separate copy of the site map(s) is required to be in the SWPPP. If there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.) a revision to the site map is required and shall be certified and submitted via SMARTS.

b. A Discharger shall submit a single set of PRDs for coverage under this General Permit for multiple industrial activities occurring at the same facility.

c. Any information provided to the Water Boards by the Discharger shall comply with the Homeland Security Act and other federal law that

[4] Annual fees must be mailed or sent electronically using the State Water Boards' Electronic Funds Transfer (EFT) system in SMARTS.
[5] See footnote 4.

addresses security in the United States; any information that does not comply should not be submitted in the PRDs. The Discharger must provide justification to the Regional Water Board regarding redacted information within any submittal.

d. Dischargers may redact trade secrets from information that is submitted via SMARTS. Dischargers who certify and submit redacted information via SMARTS must include a general description of the redacted information and the basis for the redaction in the version that is submitted via SMARTS. Dischargers must submit complete and un-redacted versions of the information that are clearly labeled "CONFIDENTIAL" to the Regional Water Board within 30 days of the submittal of the redacted information. All information labeled "CONFIDENTIAL" will be maintained by the Water Boards in a separate, confidential file.

4. Schedule for Submitting PRDs - Existing Dischargers Under the Previous Permit.

a. Existing Dischargers[6] with coverage under the previous permit shall continue coverage under the previous permit until July 1, 2015. All waste discharge requirements and conditions of the previous permit are in effect until July 1, 2015.

b. Existing Dischargers with coverage under the previous permit shall register for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015. Existing Dischargers previously listed in Category 10 (Light Industry) of the previous permit, and continue to have no exposure to industrial activities and materials, have until October 1, 2015 to register for NEC coverage.

c. Existing Dischargers with coverage under the previous permit, that do not register for NOI coverage by July 1, 2015, may have their permit coverage administratively terminated as soon as July 1, 2015.

d. Existing Dischargers with coverage under the previous permit that are eligible for NEC coverage but do not register for NEC coverage by October 1, 2015 may have their permit coverage administratively terminated as soon as October 1, 2015.

e. Existing Dischargers shall continue to comply with the SWPPP requirements in State Water Board Order 97-03-DWQ up to, but no later than, June 30, 2015.

[6] Existing Dischargers are Dischargers with an active Notice of Intent (permit coverage) under the previous permit (97-03-DWQ) prior to the effective date of this General Permit.

f. Existing Dischargers shall implement an updated SWPPP in accordance with Section X by July 1, 2015.

g. Existing Dischargers that submit a Notice of Termination (NOT) under the previous permit prior to July 1, 2015 and that receive NOT approval from the Regional Water Board are not subject to this General Permit unless they subsequently submitted new PRDs.

5. Schedule for Submitting PRDs - New Dischargers Obtaining Coverage On or After July 1, 2015

   New Dischargers registering for NOI coverage on or after July 1, 2015 shall certify and submit PRDs via SMARTS at least seven (7) days prior to commencement of industrial activities or on July 1, 2015, whichever comes later.

   a. New Dischargers registering for NEC coverage shall electronically certify and submit PRDs via SMARTS by October 1, 2015, or at least seven (7) days prior to commencement of industrial activities, whichever is later.

C. Termination and Changes to General Permit Coverage

1. Dischargers with NOI or NEC coverage shall request termination of coverage under this General Permit when either (a) operation of the facility has been transferred to another entity, (b) the facility has ceased operations, completed closure activities, and removed all industrial related pollutants, or (c) the facility's operations have changed and are no longer subject to the General Permit. Dischargers shall certify and submit a Notice of Termination via SMARTS. Until a valid NOT is received, the Discharger remains responsible for compliance with this General Permit and payment of accrued annual fees.

2. Whenever there is a change to the facility location, the Discharger shall certify and submit new PRDs via SMARTS. When ownership changes, the prior Discharger (seller) must inform the new Discharger (buyer) of the General Permit applications and regulatory coverage requirements. The new Discharger must certify and submit new PRDs via SMARTS to obtain coverage under this General Permit.

3. Dischargers with NOI coverage where the facility qualifies for NEC coverage in accordance with Section XVII of this General Permit, may register for NEC coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NOI coverage.

4. Dischargers with NEC coverage, where changes in the facility and/or facility operations occur, which result in NOI coverage instead of NEC coverage, shall register for NOI coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NEC coverage.

5. Dischargers shall provide additional information supporting an NOT, or revise their PRDs via SMARTS, upon request by the Regional Water Board.

6. Dischargers that are denied approval of a submitted NOT or registration for NEC coverage by the Regional Water Board, shall continue compliance with this General Permit under their existing NOI coverage.

7. New Dischargers (Dischargers with no previous NOI or NEC coverage) shall register for NOI coverage if the Regional Water Board denies NEC coverage.

D. Preparation Requirements

1. The following documents shall be certified and submitted by the Discharger via SMARTS:

   a. Annual Reports (Section XVI) and SWPPPs (Section X);

   b. NOTs;

   c. Sampling Frequency Reduction Certification (Section XI.C.7);

   d. Level 1 ERA Reports (Section XII.C) prepared by a QISP;

   e. Level 2 ERA Technical Reports and Level 2 ERA Action Plans (Sections XII.D.1-2) prepared by a QISP; and,

   f. SWPPPs for inactive mining operations as described in Section XIII, signed (wet signature and license number) by a California licensed professional engineer.

2. The following documents shall be signed (wet signature and license number) by a California licensed professional engineer:

   a. Calculations for Dischargers subject to Subchapter N in accordance with Section XI.D;

   b. Notice of Non-Applicability (NONA) Technical Reports described in Section XX.C for facilities that are engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website;

   c. NONA Technical Reports described in Section XX.C for facilities located in basins or other physical locations that are not tributaries or hydrologically connected to waters of the United States; and,

   d. SWPPPs for inactive mines described in Section XIII.

III. DISCHARGE PROHIBITIONS

A. All discharges of storm water to waters of the United States are prohibited except as specifically authorized by this General Permit or another NPDES permit.

B. Except for non-storm water discharges (NSWDs) authorized in Section IV, discharges of liquids or materials other than storm water, either directly or indirectly to waters of the United States, are prohibited unless authorized by another NPDES permit. Unauthorized NSWDs must be either eliminated or authorized by a separate NPDES permit.

C. Industrial storm water discharges and authorized NSWDs that contain pollutants that cause or threaten to cause pollution, contamination, or nuisance as defined in section 13050 of the Water Code, are prohibited.

D. Discharges that violate any discharge prohibitions contained in applicable Regional Water Board Water Quality Control Plans (Basin Plans), or statewide water quality control plans and policies are prohibited.

E. Discharges to ASBS are prohibited in accordance with the California Ocean Plan, unless granted an exception by the State Water Board and in compliance with the Special Protections contained in Resolution 2012-0012.

F. Industrial storm water discharges and NSWDs authorized by this General Permit that contain hazardous substances equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations sections 110.6, 117.21, or 302.6 are prohibited.

IV. AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

A. The following NSWDs are authorized provided they meet the conditions of Section IV.B:

1. Fire-hydrant and fire prevention or response system flushing;

2. Potable water sources including potable water related to the operation, maintenance, or testing of potable water systems;

3. Drinking fountain water and atmospheric condensate including refrigeration, air conditioning, and compressor condensate;

4. Irrigation drainage and landscape watering provided all pesticides, herbicides and fertilizers have been applied in accordance with the manufacturer's label;

5. Uncontaminated natural springs, groundwater, foundation drainage, footing drainage;

6. Seawater infiltration where the seawater is discharged back into the source: and,

7. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).

B. The NSWDs identified in Section IV.A are authorized by this General Permit if the following conditions are met:

1. The authorized NSWDs are not in violation of any Regional Water Board Water Quality Control Plans (Basin Plans) or other requirements, or statewide water quality control plans or policies requirement;

2. The authorized NSWDs are not in violation of any municipal agency ordinance or requirements;

3. BMPs are included in the SWPPP and implemented to:

   a. Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;

   b. Reduce, to the extent practicable, the flow or volume of authorized NSWDs;

   c. Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards; and,

   d. Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

4. The Discharger conducts monthly visual observations (Section XI.A.1) of NSWDs and sources to ensure adequate BMP implementation and effectiveness; and,

5. The Discharger reports and describes all authorized NSWDs in the Annual Report.

C. Firefighting related discharges are not subject to this General Permit and are not subject to the conditions of Section IV.B. These discharges, however, may be subject to Regional Water Board enforcement actions under other sections of the Water Code. Firefighting related discharges that are contained and are later discharged may be subject to municipal agency ordinances and/or Regional Water Board requirements.

V. EFFLUENT LIMITATIONS

A. Dischargers shall implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

B. Industrial storm water discharges from facilities subject to storm water ELGs in Subchapter N shall not exceed those storm water ELGs. The ELGs for industrial storm water discharges subject to Subchapter N are in Attachment F of this General Permit.

C. Dischargers located within a watershed for which a Total Maximum Daily Load (TMDL) has been approved by U.S. EPA, shall comply with any applicable TMDL-specific permit requirements that have been incorporated into this General Permit in accordance with Section VII.A. Attachment E contains a reference list of potential TMDLs that may apply to Dischargers subject to this General Permit.

VI. RECEIVING WATER LIMITATIONS

A. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not cause or contribute to an exceedance of any applicable water quality standards in any affected receiving water.

B. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not adversely affect human health or the environment.

C. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

VII. TOTAL MAXIMUM DAILY LOADS (TMDLs)

A. Implementation

1. The State Water Board shall reopen and amend this General Permit, including Attachment E, the Fact Sheet and other applicable Permit provisions as necessary, in order to incorporate TMDL-specific permit requirements, as described in Findings 38 through 42. Once this General Permit is amended, Dischargers shall comply with the incorporated TMDL-specific permit requirements in accordance with any specified compliance schedule(s). TMDL-specific compliance dates that exceed the term of this General Permit may be included for reference, and are enforceable in the event that this General Permit is administratively extended or reissued.

2. The State Water Board may, at its discretion, reopen this General Permit to add TMDL-specific permit requirements to Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

B. New Dischargers applying for NOI coverage under this General Permit that will be discharging to a water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that:

1. The Discharger has eliminated all exposure to storm water of the pollutant(s) for which the water body is impaired, has documented the procedures taken to prevent exposure onsite, and has retained such documentation with the SWPPP at the facility;

2. The pollutant for which the water body is impaired is not present at the Discharger's facility, and the Discharger has retained documentation of this finding with the SWPPP at the facility; or,

3. The discharge of any listed pollutant will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

VIII. DISCHARGES SUBJECT TO THE CALIFORNIA OCEAN PLAN

A. Discharges to Ocean Waters

1. Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan shall develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015, or seven (7) days prior to commencing of operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Dischargers are ineligible for the methods and exceptions provided in Section XI.C of this General permit for any of the outfalls discharging to ocean waters subject to the model monitoring provisions of the California Ocean Plan.

B. Discharge Granted an Exceptions for Areas of Special Biological Significance (ASBS)

Dischargers who were granted an exception to the California Ocean Plan prohibition against direct discharges of waste to an ASBS pursuant to Resolution 2012-0012[7] amended by Resolution 2012-0031[8] shall comply with the conditions and requirements set forth in Attachment G of this General Permit. Any Discharger that applies for and is granted an exception to the California Ocean Plan prohibition after July 1, 2013 shall comply with the conditions and requirements set forth in the granted exception.

IX. TRAINING QUALIFICATIONS

A. General

1. A Qualified Industrial Storm Water Practitioner (QISP) is a person (either the Discharger or a person designated by the Discharger) who has completed a State Water Board-sponsored or approved QISP training course[9], and has registered as a QISP via SMARTS. Upon completed registration the State Water Board will issue a QISP identification number.

2. The Executive Director of the State Water Board or an Executive Officer of a Regional Water Board may rescind any QISP's registration if it is found that the QISP has repeatedly demonstrated an inadequate level of performance in completing the QISP requirements in this General Permit. An individual whose QISP registration has been rescinded may request that the State Water Board review the rescission. Any request for review must be received by the State Water Board no later than 30 days of the date that the individual received written notice of the rescission.

3. Dischargers with Level 1 status shall:

   a. Designate a person to be the facility's QISP and ensure that this person has attended and satisfactorily completed the State Water Board-sponsored or approved QISP training course.

   b. Ensure that the facility's designated QISP provides sufficient training to the appropriate team members assigned to perform activities required by this General Permit.

[7] State Water Resources Control Board. Resolution 2012-0012. <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf>. [as of February 4, 2014].
[8] State Water Resources Control Board. Resolution 2012-0031. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0031.pdf>. [as of February 4, 2014].
[9] A specialized self-guided State Water Board-sponsored registration and training program will be available as an option for CPBELSG licensed professional civil, mechanical, industrial, and chemical engineers and professional geologists by the effective date of this General Permit.

X. Storm Water Pollution Prevention Plan (SWPPP)

A. SWPPP Elements

Dischargers shall develop and implement a site-specific SWPPP for each industrial facility covered by this General Permit that shall contain the following elements, as described further in this Section[10]:

1. Facility Name and Contact Information;
2. Site Map;
3. List of Industrial Materials;
4. Description of Potential Pollution Sources;
5. Assessment of Potential Pollutant Sources;
6. Minimum BMPs;
7. Advanced BMPs, if applicable;
8. Monitoring Implementation Plan;
9. Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation); and,
10. Date that SWPPP was Initially Prepared and the Date of Each SWPPP Amendment, if Applicable.

B. SWPPP Implementation and Revisions

All Dischargers are required to implement their SWPPP by July 1, 2015 or upon commencement of industrial activity. The Discharger shall:

1. Revise their on-site SWPPP whenever necessary;
2. Certify and submit via SMARTS their SWPPP within 30 days whenever the SWPPP contains significant revision(s); and,
3. With the exception of significant revisions, the Discharger is not required to certify and submit via SMARTS their SWPPP revisions more than once every three (3) months in the reporting year.

[10] Appendix 1 (SWPPP Checklist) of this General Permit is provided to assist the Discharger in including information required in the SWPPP. This checklist is not required to be used.

C. SWPPP Performance Standards

1. The Discharger shall ensure a SWPPP is prepared to:

   a. Identify and evaluate all sources of pollutants that may affect the quality of industrial storm water discharges and authorized NSWDs;

   b. Identify and describe the minimum BMPs (Section X.H.1) and any advanced BMPs (Section X.H.2) implemented to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs. BMPs shall be selected to achieve compliance with this General Permit; and,

   c. Identify and describe conditions or circumstances which may require future revisions to be made to the SWPPP.

2. The Discharger shall prepare a SWPPP in accordance with all applicable SWPPP requirements of this Section. A copy of the SWPPP shall be maintained at the facility.

D. Planning and Organization

1. Pollution Prevention Team

   Each facility must have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in this General Permit. The Discharger shall include in the SWPPP detailed information about its Pollution Prevention Team including:

   a. The positions within the facility organization (collectively, team members) who assist in implementing the SWPPP and conducting all monitoring requirements in this General Permit;

   b. The responsibilities, duties, and activities of each of the team members; and,

   c. The procedures to identify alternate team members to implement the SWPPP and conduct required monitoring when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, or other absences).

2. Other Requirements and Existing Facility Plans

   a. The Discharger shall ensure its SWPPP is developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, and federal requirements that pertain to the requirements in this General Permit.

   b. The Discharger may include in their SWPPP the specific elements of existing plans, procedures, or regulatory compliance documents that

contain storm water-related BMPs or otherwise relate to the requirements of this General Permit.

c. The Discharger shall properly reference the original sources for any elements of existing plans, procedures, or regulatory compliance documents included as part of their SWPPP and shall maintain a copy of the documents at the facility as part of the SWPPP.

d. The Discharger shall document in their SWPPP the facility's scheduled operating hours as defined in Attachment C. Scheduled facility operating hours that would be considered irregular (temporary, intermittent, seasonal, weather dependent, etc.) shall also be documented in the SWPPP.

E. Site Map

1. The Discharger shall prepare a site map that includes notes, legends, a north arrow, and other data as appropriate to ensure the map is clear, legible and understandable.

2. The Discharger may provide the required information on multiple site maps.

3. The Discharger shall include the following information on the site map:

   a. The facility boundary, storm water drainage areas within the facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area, on-facility surface water bodies, areas of soil erosion, and location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;

   b. Locations of storm water collection and conveyance systems, associated discharge locations, and direction of flow. Include any sample locations if different than the identified discharge locations;

   c. Locations and descriptions of structural control measures[11] that affect industrial storm water discharges, authorized NSWDs, and/or run-on;

   d. Identification of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

[11] Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

e. Locations where materials are directly exposed to precipitation and the locations where identified significant spills or leaks (Section X.G.1.d) have occurred; and

f. Areas of industrial activity subject to this General Permit. Identify all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

F. List of Industrial Materials

The Discharger shall ensure the SWPPP includes a list of industrial materials handled at the facility, and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequency.

G. Potential Pollutant Sources

1. Description of Potential Pollutant Sources

   a. Industrial Processes

      The Discharger shall ensure the SWPPP describes each industrial process including: manufacturing, cleaning, maintenance, recycling, disposal, and any other activities related to the process. The type, characteristics, and approximate quantity of industrial materials used in or resulting from the process shall be included. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

   b. Material Handling and Storage Areas

      The Discharger shall ensure the SWPPP describes each material handling and storage area, including: the type, characteristics, and quantity of industrial materials handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and the corresponding containment capacity.

   c. Dust and Particulate Generating Activities

      The Discharger shall ensure the SWPPP describes all industrial activities that generate a significant amount of dust or particulate that may be deposited within the facility boundaries. The SWPPP shall describe such industrial activities, including the discharge locations, the source type, and the characteristics of the dust or particulate pollutant.

d. Significant Spills and Leaks

The Discharger shall:

i. Evaluate the facility for areas where spills and leaks can likely occur;

ii. Ensure the SWPPP includes:

a) A list of any industrial materials that have spilled or leaked in significant quantities and have discharged from the facility's storm water conveyance system within the previous five-year period;

b) A list of any toxic chemicals identified in 40 Code of Federal Regulations section 302 that have been discharged from the facilities' storm water conveyance system as reported on U.S. EPA Form R, as well as oil and hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) that have discharged from the facility's storm water conveyance system within the previous five-year period;

c) A list of any industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's storm water conveyance system within the previous five-year period; and,

iii. Ensure that for each discharge or potential discharge listed above the SWPPP includes the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged from the facility's storm water conveyance system; the cleanup or remedial actions that have occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure spills or leaks of the material do not reoccur.

e. NSWDs

The Discharger shall:

i. Ensure the SWPPP includes an evaluation of the facility that identifies all NSWDs, sources, and drainage areas;

ii. Ensure the SWPPP includes an evaluation of all drains (inlets and outlets) that identifies connections to the storm water conveyance system;

iii. Ensure the SWPPP includes a description of how all unauthorized NSWDs have been eliminated; and,

iv. Ensure all NSWDs are described in the SWPPP. This description shall include the source, quantity, frequency, and characteristics of the NSWDs, associated drainage area, and whether it is an authorized or unauthorized NSWD in accordance with Section IV.

f. Erodible Surfaces

The Discharger shall ensure the SWPPP includes a description of the facility locations where soil erosion may be caused by industrial activity, contact with storm water, authorized and unauthorized NSWDs, or run-on from areas surrounding the facility.

2. Assessment of Potential Pollutant Sources

a. The Discharger shall ensure that the SWPPP includes a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include:

i. The areas of the facility with likely sources of pollutants in industrial storm water discharges and authorized NSWDs;

ii. The pollutants likely to be present in industrial storm water discharges and authorized NSWDs;

iii. The approximate quantity, physical characteristics (e.g., liquid, powder, solid, etc.), and locations of each industrial material handled, produced, stored, recycled, or disposed;

iv. The degree to which the pollutants associated with those materials may be exposed to, and mobilized by contact with, storm water;

v. The direct and indirect pathways by which pollutants may be exposed to storm water or authorized NSWDs;

vi. All sampling, visual observation, and inspection records;

vii. The effectiveness of existing BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs;

viii. The estimated effectiveness of implementing, to the extent feasible, minimum BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs; and,

ix. The identification of the industrial pollutants related to the receiving waters with 303(d) listed impairments identified in Appendix 3 or approved TMDLs that may be causing or contributing to an exceedance of a water quality standard in the receiving waters.

b. Based upon the assessment above, Dischargers shall identify in the SWPPP any areas of the facility where the minimum BMPs described in

subsection H.1 below will not adequately reduce or prevent pollutants in storm water discharges in compliance with Section V.A. Dischargers shall identify any advanced BMPs, as described in subsection H.2 below, for those areas.

c. Based upon the assessment above, Dischargers shall identify any drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

d. Based upon the assessment above, Dischargers shall identify any additional parameters, beyond the required parameters in Section XI.B.6 that indicate the presence of pollutants in industrial storm water discharges.

H. Best Management Practices (BMPs)

1. Minimum BMPs

The Discharger shall, to the extent feasible, implement and maintain all of the following minimum BMPs to reduce or prevent pollutants in industrial storm water discharges.[12]

a. Good Housekeeping

The Discharger shall:

i. Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly;

ii. Minimize or prevent material tracking;

iii. Minimize dust generated from industrial materials or activities;

iv. Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible;

v. Cover all stored industrial materials that can be readily mobilized by contact with storm water;

[12] For the purposes of this General Permit, the requirement to implement BMPs "to the extent feasible" requires Dischargers to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

vi. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

vii. Prevent disposal of any rinse/wash waters or industrial materials into the storm water conveyance system;

viii. Minimize storm water discharges from non-industrial areas (e.g., storm water flows from employee parking area) that contact industrial areas of the facility; and,

ix. Minimize authorized NSWDs from non-industrial areas (e.g., potable water, fire hydrant testing, etc.) that contact industrial areas of the facility.

b. Preventive Maintenance

The Discharger shall:

i. Identify all equipment and systems used outdoors that may spill or leak pollutants;

ii. Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks;

iii. Establish an appropriate schedule for maintenance of identified equipment and systems; and,

iv. Establish procedures for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills or leaks.

c. Spill and Leak Prevention and Response

The Discharger shall:

i. Establish procedures and/or controls to minimize spills and leaks;

ii. Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly;

iii. Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and,

iv. Identify and train appropriate spill and leak response personnel.

d. Material Handling and Waste Management

The Discharger shall:

i. Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;

ii. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

iii. Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use;

iv. Divert run-on and storm water generated from within the facility away from all stockpiled materials;

v. Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures (Section X.H.1.c); and,

vi. Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.

e. Erosion and Sediment Controls

For each erodible surface facility location identified in the SWPPP (Section X.G.1.f), the Discharger shall:

i. Implement effective wind erosion controls;

ii. Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event;

iii. Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site;

iv. Divert run-on and storm water generated from within the facility away from all erodible materials; and,

v. If sediment basins are implemented, ensure compliance with the design storm standards in Section X.H.6.

f. Employee Training Program

The Discharger shall:

i. Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations,

and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP;

ii. Prepare or acquire appropriate training manuals or training materials;

iii. Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;

iv. Provide a training schedule; and,

v. Maintain documentation of all completed training classes and the personnel that received training in the SWPPP.

g. Quality Assurance and Record Keeping

The Discharger shall:

i. Develop and implement management procedures to ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan;

ii. Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP; and

iii. Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years (Section XXI.J.4).

2. Advanced BMPs

a. In addition to the minimum BMPs described in Section X.H.1, the Discharger shall, to the extent feasible, implement and maintain any advanced BMPs identified in Section X.G.2.b, necessary to reduce or prevent discharges of pollutants in its storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

b. Advanced BMPs may include one or more of the following BMPs:

i. Exposure Minimization BMPs

These include storm resistant shelters (either permanent or temporary) that prevent the contact of storm water with the identified industrial materials or area(s) of industrial activity.

ii. Storm Water Containment and Discharge Reduction BMPs

These include BMPs that divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff. Dischargers are

encouraged to utilize BMPs that infiltrate or reuse storm water where feasible.

iii. Treatment Control BMPs

This is the implementation of one or more mechanical, chemical, biologic, or any other treatment technology that will meet the treatment design standard.

iv. Other Advanced BMPs

Any additional BMPs not described in subsections b.i through iii above that are necessary to meet the effluent limitations of this General Permit.

3. Temporary Suspension of Industrial Activities

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

a. Perform monthly visual observations (Section XI.A.1.a.); or,

b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

a. SWPPP revisions specifically addressing the facility stabilization BMPs;

b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities;

c. The date the facility is fully stabilized for temporary suspension of industrial activities; and,

d. The projected date that industrial activities will resume at the facility.

Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit.

The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

4. BMP Descriptions

   a. The Discharger shall ensure that the SWPPP identifies each BMP being implemented at the facility, including:

      i. The pollutant(s) that the BMP is designed to reduce or prevent in industrial storm water discharges;

      ii. The frequency, time(s) of day, or conditions when the BMP is scheduled for implementation;

      iii. The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;

      iv. The individual and/or position responsible for implementing the BMP;

      v. The procedures, including maintenance procedures, and/or instructions to implement the BMP effectively;

      vi. The equipment and tools necessary to implement the BMP effectively; and,

      vii. The BMPs that may require more frequent visual observations beyond the monthly visual observations as described in Section XI.A.1.

   b. The Discharger shall ensure that the SWPPP identifies and justifies each minimum BMP or applicable advanced BMP not being implemented at the facility because they do not reflect best industry practice considering technological availability and economic practicability and achievability.

   c. The Discharger shall identify any BMPs described in subsection a above that are implemented in lieu of any of the minimum or applicable advanced BMPs.

5. BMP Summary Table

   The Discharger shall prepare a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

6. Design Storm Standards for Treatment Control BMPs

All new treatment control BMPs employed by the Discharger to comply with Section X.H.2 Advanced BMPs and new sediment basins installed after the effective date of this order shall be designed to comply with design storm standards in this Section, except as provided in an Industrial Activity BMP Demonstration (Section XII.D.2.a). A Factor of Safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

a. Volume-based BMPs: The Discharger, at a minimum, shall calculate[13] the volume to be treated using one of the following methods:

   i. The volume of runoff produced from an 85th percentile 24-hour storm event, as determined from local, historical rainfall records;

   ii. The volume of runoff produced by the 85th percentile 24-hour storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's Manual of Practice;[14] or,

   iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of California Stormwater Best Management Practices Handbook[15], using local, historical rainfall records.

b. Flow-based BMPs: The Discharger shall calculate the flow needed to be treated using one of the following methods:

   i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;

   ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,

   iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

[13] All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

[14] Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, cited in chapter 5 (1998 Edition) and Cited in Chapter 3 (2012 Edition) .

[15] California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. < http://www.casqa.org/ >. [as of July 3, 2013].

I. MONITORING IMPLEMENTATION PLAN

The Discharger shall prepare a Monitoring Implementation Plan in accordance with the requirements of this General Permit. The Monitoring Implementation Plan shall be included in the SWPPP and shall include the following items:

1. An identification of team members assigned to conduct the monitoring requirements;

2. A description of the following in accordance with Attachment H:

   a. Discharge locations;

   b. Visual observation procedures; and,

   c. Visual observation response procedures related to monthly visual observations and sampling event visual observations.

3. Justifications for any of the following that are applicable to the facility:

   a. Alternative discharge locations in accordance with Section XI.C.3;

   b. Representative Sampling Reduction in accordance with Section XI.C.4; or,

   c. Qualified Combined Samples in accordance with Section XI.C.5.

4. Procedures for field instrument calibration instructions, including calibration intervals specified by the manufacturer; and,

5. An example Chain of Custody form used when handling and shipping water quality samples to the lab.

XI. MONITORING

A. Visual Observations

1. Monthly Visual Observations

   a. At least once per calendar month, the Discharger shall visually observe each drainage area for the following:

      i. The presence or indications of prior, current, or potential unauthorized NSWDs and their sources;

      ii. Authorized NSWDs, sources, and associated BMPs to ensure compliance with Section IV.B.3; and,

iii. Outdoor industrial equipment and storage areas, outdoor industrial activities areas, BMPs, and all other potential source of industrial pollutants.

b. The monthly visual observations shall be conducted during daylight hours of scheduled facility operating hours and on days without precipitation.

c. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

2. Sampling Event Visual Observations

Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

a. The Discharger shall ensure that visual observations of storm water discharged from containment sources (e.g. secondary containment or storage ponds) are conducted at the time that the discharge is sampled.

b. Any Discharger employing volume-based or flow-based treatment BMPs shall sample any bypass that occurs while the visual observations and sampling of storm water discharges are conducted.

c. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.

d. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

e. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

3. Visual Observation Records

The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, presence and probable source of any observed pollutants, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

4. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

B. Sampling and Analysis

1. A Qualifying Storm Event (QSE) is a precipitation event that:

   a. Produces a discharge for at least one drainage area; and,

   b. Is preceded by 48 hours with no discharge from any drainage area.

2. The Discharger shall collect and analyze storm water samples from two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30).

3. Compliance Group Participants are only required to collect and analyze storm water samples from one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of the reporting year (January 1 to June 30).

4. Except as provided in Section XI.C.4 (Representative Sampling Reduction), samples shall be collected from each drainage area at all discharge locations. The samples must be:

   a. Representative of storm water associated with industrial activities and any commingled authorized NSWDs; or,

   b. Associated with the discharge of contained storm water.

5. Samples from each discharge location shall be collected within four (4) hours of:

   a. The start of the discharge; or,

   b. The start of facility operations if the QSE occurs within the previous 12-hour period (e.g., for storms with discharges that begin during the night for facilities with day-time operating hours). Sample collection is required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii.

6. The Discharger shall analyze all collected samples for the following parameters:

   a. Total suspended solids (TSS) and oil and grease (O&G);

   b. pH (see Section XI.C.2);

c. Additional parameters identified by the Discharger on a facility-specific basis that serve as indicators of the presence of all industrial pollutants identified in the pollutant source assessment (Section X.G.2). These additional parameters may be modified (added or removed) in accordance with any updated SWPPP pollutant source assessment;

d. Additional applicable parameters listed in Table 1 below. These parameters are dependent on the facility Standard Industrial Classification (SIC) code(s);

e. Additional applicable industrial parameters related to receiving waters with 303(d) listed impairments or approved TMDLs based on the assessment in Section X.G.2.a.ix. Test methods with lower detection limits may be necessary when discharging to receiving waters with 303(d) listed impairments or TMDLs;

f. Additional parameters required by the Regional Water Board. The Discharger shall contact its Regional Water Board to determine appropriate analytical test methods for parameters not listed in Table 2 below. These analytical test methods will be added to SMARTS; and

g. For discharges subject to Subchapter N, additional parameters specifically required by Subchapter N. If the discharge is subject to ELGs, the Dischargers shall contact the Regional Water Board to determine appropriate analytical methods for parameters not listed in Table 2 below.

7. The Discharger shall select corresponding NALs, analytical test methods,, and reporting units from the list provided in Table 2 below. SMARTS will be updated over time to add additional acceptable analytical test methods. Dischargers may propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, the analytical test method will be added to SMARTS.

8. The Discharger shall ensure that the collection, preservation and handling of all storm water samples are in accordance with Attachment H, Storm Water Sample Collection and Handling Instructions.

9. Samples from different discharge locations shall not be combined or composited except as allowed in Section XI.C.5 (Qualified Combined Samples).

10. The Discharger shall ensure that all laboratory analyses are conducted according to test procedures under 40 Code of Federal Regulations part 136, including the observation of holding times, unless other test procedures have been specified in this General Permit or by the Regional Water Board.

11. Sampling Analysis Reporting

a. The Discharger shall submit all sampling and analytical results for all individual or Qualified Combined Samples via SMARTS within 30 days of obtaining all results for each sampling event.

b. The Discharger shall provide the method detection limit when an analytical result from samples taken is reported by the laboratory as a "non-detect" or less than the method detection limit. A value of zero shall not be reported.

c. The Discharger shall provide the analytical result from samples taken that is reported by the laboratory as below the minimum level (often referred to as the reporting limit) but above the method detection limit.

Reported analytical results will be averaged automatically by SMARTS. For any calculations required by this General Permit, SMARTS will assign a value of zero (0) for all results less than the minimum level as reported by the laboratory.

TABLE 1: Additional Analytical Parameters

SIC code	SIC code Description	Parameters*
102X	Copper Ores	COD; N+N
12XX	Coal Mines	Al; Fe
144X	Sand and Gravel	N+N
207X	Fats and Oils	BOD; COD; N+N
2421	Sawmills & Planning Mills	COD; Zn
2426	Hardwood Dimension	COD
2429	Special Product Sawmills	COD
243X	Millwork, Veneer, Plywood	COD
244X	Wood Containers	COD
245X	Wood Buildings & Mobile Homes	COD
2491	Wood Preserving	As; Cu
2493	Reconstituted Wood Products	COD
263X	Paperboard Mills	COD
281X	Industrial Inorganic Chemicals	Al; Fe; N+N
282X	Plastic Materials, Synthetics	Zn
284X	Soaps, Detergents, Cosmetics	N+N; Zn
287X	Fertilizers, Pesticides, etc.	Fe; N+N; Pb; Zn; P
301X	Tires, Inner Tubes	Zn
302X	Rubber and Plastic Footwear	Zn
305X	Rubber & Plastic Sealers & Hoses	Zn
306X	Misc. Fabricated Rubber Products	Zn
325X	Structural Clay Products	Al
326X	Pottery & Related Products	Al
3297	Non-Clay Refractories	Al
327X	Concrete, Gypsum, Plaster Products (Except 3274)	Fe
3295	Minerals & Earths	Fe
331X	Steel Works, Blast Furnaces, Rolling and Finishing Mills	Al; Zn
332X	Iron and Steel Foundries	Al; Cu; Fe; Zn
335X	Metal Rolling, Drawing, Extruding	Cu; Zn

336X	Nonferrous Foundries (Castings)	Cu; Zn
34XX	Fabricated Metal Products (Except 3479)	Zn; N+N; Fe; Al
3479	Coating and Engraving	Zn; N+N
4953	Hazardous Waste Facilities	NH3; Mg; COD; As; Cn; Pb; HG; Se; Ag
44XX	Water Transportation	Al; Fe; Pb; Zn
45XX	Air Transportation Facilities[16]	BOD; COD; NH3
4911	Steam Electric Power Generating Facilities	Fe
4953	Landfills and Land Application Facilities	Fe
5015	Dismantling or Wrecking Yards	Fe; Pb; Al
5093	Scrap and Waste Materials (not including source-separated recycling)	Fe; Pb; Al; Zn; COD

***Table 1 Parameter Reference**	
Ag – Silver	**Mg** – Magnesium
Al – Aluminum	**N+N** - Nitrate & Nitrite Nitrogen
As – Arsenic	**NH** – Ammonia
BOD – Biochemical Oxygen Demand	**Ni** – Nickel
Cd - Cadmium	**P** – Phosphorus
Cn – Cyanide	**Se** – Selenium
COD – Chemical Oxygen Demand	**TSS** – Total Suspended Solids
Cu – Copper	**Zn** – Zinc
Fe – Iron	**Pb** – Lead
Hg – Mercury	

[16] Only airports (SIC 4512-4581) where a single Discharger, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, are required to monitor these parameters for those outfalls that collect runoff from areas where deicing activities occur.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2	pH units	N/A	Less than 6.0 Greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500–CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/l	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
EPA – U.S. EPA test methods
(H) – Hardness dependent
* Minimum parameters required by this General Permit
**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

C. Methods and Exceptions

1. The Discharger shall comply with the monitoring methods in this General Permit and Attachment H.

2. pH Methods

   a. Dischargers that are not subject to Subchapter N ELGs mandating pH analysis related to acidic or alkaline sources and have never entered Level 1 status for pH, are eligible to screen for pH using wide range litmus pH paper or other equivalent pH test kits. The pH screen shall be performed as soon as practicable, but no later than 15 minutes after the sample is collected.

   b. Dischargers subject to Subchapter N ELGs shall either analyze samples for pH using methods in accordance with 40 Code of Federal Regulations 136 for testing storm water or use a calibrated portable instrument for pH.

   c. Dischargers that enter Level 1 status (see Section XII.C) for pH shall, in the subsequent reporting years, analyze for pH using methods in accordance with 40 Code of Federal Regulations 136 or use a calibrated portable instrument for pH.

   d. Dischargers using a calibrated portable instrument for pH shall ensure that all field measurements are conducted in accordance with the accompanying manufacturer's instructions.

3. Alternative Discharge Locations

   a. The Discharger is required to identify, when practicable, alternative discharge locations for any discharge locations identified in accordance with Section XI.B.4 if the facility's discharge locations are:

      i. Affected by storm water run-on from surrounding areas that cannot be controlled; and/or,

      ii. Difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

   b. The Discharger shall submit and certify via SMARTS any alternative discharge location or revisions to the alternative discharge locations in the Monitoring Implementation Plan.

4. Representative Sampling Reduction

   a. The Discharger may reduce the number of locations to be sampled in each drainage area (e.g., roofs with multiple downspouts, loading/unloading areas with multiple storm drains) if the industrial

activities, BMPs, and physical characteristics (grade, surface materials, etc.) of the drainage area for each location to be sampled are substantially similar to one another. To qualify for the Representative Sampling Reduction, the Discharger shall provide a Representative Sampling Reduction justification in the Monitoring Implementation Plan section of the SWPPP.

b. The Representative Sampling Reduction justification shall include:

   i. Identification and description of each drainage area and corresponding discharge location(s);

   ii. A description of the industrial activities that occur throughout the drainage area;

   iii. A description of the BMPs implemented in the drainage area;

   iv. A description of the physical characteristics of the drainage area;

   v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar; and,

   vi. An identification of the discharge location(s) selected for representative sampling, and rationale demonstrating that the selected location(s) to be sampled are representative of the discharge from the entire drainage area.

c. A Discharger that satisfies the conditions of subsection 4.b.i through v above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Representative Sampling Reduction justification.

d. Upon submittal of the Representative Sampling Reduction justification, the Discharger may reduce the number of locations to be sampled in accordance with the Representative Sampling Reduction justification. The Regional Water Board may reject the Representative Sampling Reduction justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Representative Sampling Reduction until the Regional Water Board approves the Representative Sampling Reduction justification.

5. Qualified Combined Samples

   a. The Discharger may authorize an analytical laboratory to combine samples of equal volume from as many as four (4) discharge locations if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) within each of the drainage areas are substantially similar to one another.

b. The Qualified Combined Samples justification shall include:

i. Identification and description of each drainage area and corresponding discharge locations;

ii. A description of the BMPs implemented in the drainage area;

iii. A description of the industrial activities that occur throughout the drainage area;

iv. A description of the physical characteristics of the drainage area; and,

v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar.

c. A Discharger that satisfies the conditions of subsection 5.b.i through iv above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Qualified Combined Samples justification.

d. Upon submittal of the Qualified Combined Samples justification revisions in the Monitoring Implementation Plan, the Discharger may authorize the lab to combine samples of equal volume from as many as four (4) drainage areas. The Regional Water Board may reject the Qualified Combined Samples justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Qualified Combined Samples justification until the Regional Water Board approves the Qualified Combined Samples justification.

e. Regional Water Board approval is necessary to combine samples from more than four (4) discharge locations.

6. Sample Collection and Visual Observation Exceptions

a. Sample collection and visual observations are not required under the following conditions:

i. During dangerous weather conditions such as flooding or electrical storms; or,

ii. Outside of scheduled facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operating hours.

b. In the event that samples are not collected, or visual observations are not conducted in accordance with Section XI.B.5 due to these exceptions, an explanation shall be included in the Annual Report.

c. Sample collection is not required for drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

7. Sampling Frequency Reduction Certification
   a. Dischargers are eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:

      i. Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs as defined in Section XII.A; and

      ii. The Discharger is in full compliance with the requirements of this General Permit and has updated, certified and submitted via SMARTS all documents, data, and reports required by this General Permit during the time period in which samples were collected.

   b. The Regional Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.

   c. An eligible Discharger shall certify via SMARTS that it meets the conditions in subsection 7.a above.

   d. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

   e. Dischargers who participate in a Compliance Group and certify a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year.

   f. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the Regional Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the Regional Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted via SMARTS by the Discharger.

   g. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs (Section XII.A).

D. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

1. In addition to the other requirements in this General Permit, Dischargers with facilities subject to storm water ELGs in Subchapter N shall:

   a. Collect and analyze samples from QSEs for each regulated pollutant specified in the appropriate category in Subchapter N as specified in Section XI.B;

   b. For Dischargers with facilities subject to 40 Code of Federal Regulations parts 419[17] and 443[18], estimate or calculate the volume of industrial storm water discharges from each drainage area subject to the ELGs and the mass of each regulated pollutant as defined in parts 419 and 443; and,

   c. Ensure that the volume/mass estimates or calculations required in subsection b are completed by a California licensed professional engineer.

2. Dischargers subject to Subchapter N shall submit the information in Section XI.D.1.a through c in their Annual Report.

3. Dischargers with facilities subject to storm water ELGs in Subchapter N are ineligible for the Representative Sampling Reduction in Section XI.C.4.

XII. EXCEEDANCE RESPONSE ACTIONS (ERAs)

A. NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this General Permit and shall compare the results to the two types of NAL values in Table 2 to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in Table 2. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA's NPDES Storm Water

[17] Part 419 - Petroleum refining point source category
[18] Part 443 - Effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category

Sampling Guidance Document.[19] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized by XI.C.5) to the corresponding instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

B. Baseline Status

At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

C. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.[20]

1. Level 1 ERA Evaluation

    a. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

    b. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,

    c. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

2. Level 1 ERA Report

[19] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf >. [as of February 4, 2014]

[20] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported.

a. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :

i. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;

ii. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:

1) A summary of the Level 1 ERA Evaluation required in subsection C.1 above; and,

2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.

iii. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).

b. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

3. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.

Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS.

D. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.[21]

1. Level 2 ERA Action Plan

[21] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

a. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection D.2.a through c the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.

b. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.

c. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.

d. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.

e. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section D.2.a through c.

2. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

a. Industrial Activity BMPs Demonstration

This shall include the following requirements, as applicable:

i. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);

ii. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);

iii. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve

compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

iv. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:

1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;

2) Estimated costs of the additional BMPs evaluated; and,

3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

v. The description and analysis of BMPs required in subsection a.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

vi. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

b. Non-Industrial Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

ii. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;

iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;

iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;

v. A summary of all existing BMPs for that parameter; and,

vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

c. Natural Background Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

ii. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;

iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;

iv. Map showing the reference site location in relation to facility along with available land cover information;

v. Reference site and test site elevation;

vi. Available geology and soil information for reference and test sites;

vii. Photographs showing site vegetation;

viii. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,

ix. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

3. Level 2 ERA Technical Report Submittal

a. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report described in Section D.2 above.

b. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.

c. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances in accordance with Section XII.D.2.a.ii), facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

d. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

4. Eligibility for Returning to Baseline Status

a. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection 2.a.i through iii above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section D.3.c.

b. Dischargers are ineligible to return to baseline status if they submit any of the following:

   i. A industrial activity BMP demonstration in accordance with subsection 2.a.iv above;

   ii. An non-industrial pollutant source demonstration; or,

   iii. A natural background pollutant source demonstration.

5. Level 2 ERA Implementation Extension

   a. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:

      i. Reasons for the time extension;

      ii. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and

      iii. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.

   b. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

XIII. INACTIVE MINING OPERATION CERTIFICATION

A. Inactive mining operations are defined in Part 3 of Attachment A of this General Permit. The Discharger may, in lieu of complying with the General Permit requirements described in subsection B below, certify and submit via SMARTS that their inactive mining operation meets the following conditions:

1. The Discharger has determined and justified in the SWPPP that it is impracticable to implement the monitoring requirements in this General Permit for the inactive mining operation;

2. A SWPPP has been signed (wet signature and license number) by a California licensed professional engineer and is being implemented in accordance with the requirements of this General Permit; and,

3. The facility is in compliance with this General Permit, except as provided in subsection B below.

B. The Discharger who has certified and submitted that they meet the conditions in subsection A above, are not subject to the following General Permit requirements:

1. Monitoring Implementation Plan in Section X.I;

2. Monitoring Requirements in Section XI;

3. Exceedance Response Actions (ERAs) in Section XII; and,

4. Annual Report Requirements in Section XVI.

C. Inactive Mining Operation Certification Submittal Schedule

1. The Discharger shall certify and submit via SMARTS NOI coverage PRDs listed in Section II.B.1 and meet the conditions in subsection A above.

2. The Discharger shall annually inspect the inactive mining site and certify via SMARTS no later than July 15th of each reporting year, that their inactive mining operation continues to meet the conditions in subsection A above.

3. The Discharger shall have a California licensed professional engineer review and update the SWPPP if there are changes to their inactive mining operation or additional BMPs are needed to comply with this General Permit. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer.

4. The Discharger shall certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s).

XIV. COMPLIANCE GROUPS AND COMPLIANCE GROUP LEADERS

A. Compliance Group Qualification Requirements

1. Any group of Dischargers of the same industry type or any QISP representing Dischargers of the same industry type may form a Compliance Group. A Compliance Group shall consist of Dischargers that operate facilities with similar types of industrial activities, pollutant sources, and pollutant characteristics (e.g., scrap metals recyclers would join a different group than paper recyclers, truck vehicle maintenance facilities would join a different group than airplane vehicle maintenance facilities, etc.). A Discharger participating in a Compliance Group is termed a Compliance Group Participant. Participation in a Compliance Group is not required. Compliance Groups may be formed at any time.

2. Each Compliance Group shall have a Compliance Group Leader.

3. To establish a Compliance Group, the Compliance Group Leader shall register as a Compliance Group Leader via SMARTS. The registration shall include documentation demonstrating compliance with the Compliance Group qualification requirements above and a list of the Compliance Group Participants.

4. Each Compliance Group Participant shall register as a member of an established Compliance Group via SMARTS.

5. The Executive Director of the State Water Board may review Compliance Group registrations and/or activities for compliance with the requirements of this General Permit. The Executive Director may reject the Compliance Group, the Compliance Group Leader, or individual Compliance Group Participants within the Compliance Group.

B. Compliance Group Leader Responsibilities

1. A Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

2. The Compliance Group Leader shall assist Compliance Group Participants with all compliance activities required by this General Permit.

3. A Compliance Group Leader shall prepare a Consolidated Level 1 ERA Report for all Compliance Group Participants with Level 1 status for the same parameter. Compliance Group Participants who certify and submit these Consolidated Level 1 ERA Reports are subject to the same provisions as individual Dischargers with Level 1 status, as described in Section XII.C. A Consolidated Level 1 ERA Report is equivalent to a Level 1 ERA Report.

4. The Compliance Group Leader shall update the Consolidated Level 1 ERA Report as needed to address additional Compliance Group Participants with ERA Level 1 status.

5. A Compliance Group Leader shall prepare a Level 2 ERA Action Plan specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Action Plans are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

6. A Compliance Group Leader shall prepare a Level 2 ERA Technical Report specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Technical Reports are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

7. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants that have entered Level 2 status prior to preparing the individual Level 2 ERA Technical Report.

8. The Compliance Group Leader shall revise the Consolidated Level 1 ERA Report, individual Level 2 ERA Action Plans, or individual Level 2 Technical Reports in accordance with any comments received from the Water Boards.

9. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants at a minimum of once per reporting year (July 1 to June 30).

C. Compliance Group Participant Responsibilities

1. Each Compliance Group Participant is responsible for permit compliance for the Compliance Group Participant's facility and for ensuring that the Compliance Group Leader's activities related to the Compliance Group Participant's facility comply with this General Permit.

2. Compliance Group Participants with Level 1 status shall certify and submit via SMARTS the Consolidated Level 1 ERA Report. The Compliance Group Participants shall certify that they have reviewed the Consolidated Level 1 ERA Report and have implemented any required additional BMPs. Alternatively, the Compliance Group Participant may submit an individual Level 1 ERA Report in accordance with the provisions in Section XII.C.2.

3. Compliance Group Participants with Level 2 status shall certify and submit via SMARTS their individual Level 2 ERA Action Plan and Technical Report prepared by their Compliance Group Leader. Each Compliance Group Participant shall certify that they have reviewed the Level 2 ERA Action Plan and Technical Report and will implement any required additional BMPs.

4. Compliance Group Participants can at any time discontinue their participation in their associated Compliance Group via SMARTS. Upon discontinuation, the former Compliance Group Participant is immediately subject to the sampling and analysis requirements described in Section XI.B.2.

XV. ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Discharger shall conduct one Annual Evaluation for each reporting year (July 1 to June 30). If the Discharger conducts an Annual Evaluation fewer than eight (8) months, or more than sixteen (16) months, after it conducts the previous Annual Evaluation, it shall document the justification for doing so. The Discharger shall revise the SWPPP, as appropriate, and implement the revisions within 90 days of the Annual Evaluation. At a minimum, Annual Evaluations shall consist of:

A. A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;

B. An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;

C. An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII;

D. An inspection of equipment needed to implement the BMPs;

E. An inspection of any BMPs;

F. A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDs; and,

G. An assessment of any other factors needed to comply with the requirements in Section XVI.B.

XVI. ANNUAL REPORT

A. The Discharger shall certify and submit via SMARTS an Annual Report no later than July 15th following each reporting year using the standardized format and checklists in SMARTS.

B. The Discharger shall include in the Annual Report:

1. A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit;

2. An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;

3. An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and,

4. The date(s) of the Annual Evaluation.

XVII. CONDITIONAL EXCLUSION - NO EXPOSURE CERTIFICATION (NEC)

A. Discharges composed entirely of storm water that has not been exposed to industrial activity are not industrial storm water discharges. Dischargers are conditionally excluded from complying with the SWPPP and monitoring requirements of this General Permit if all of the following conditions are met:

1. There is no exposure of Industrial Materials and Activities to rain, snow, snowmelt, and/or runoff;

2. All unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV;

3. The Discharger has certified and submitted via SMARTS PRDs for NEC coverage pursuant to the instructions in Section II.B.2; and,

4. The Discharger has satisfied all other requirements of this Section.

B. NEC Specific Definitions

1. No Exposure - all Industrial Materials and Activities are protected by a Storm-Resistant Shelter to prevent all exposure to rain, snow, snowmelt, and/or runoff.

2. Industrial Materials and Activities - includes, but is not limited to, industrial material handling activities or equipment, machinery, raw materials, intermediate products, by-products, final products, and waste products.

3. Material Handling Activities - includes the storage, loading and unloading, transportation, or conveyance of any industrial raw material, intermediate product, final product, or waste product.

4. Sealed - banded or otherwise secured, and without operational taps or valves.

5. Storm-Resistant Shelters - includes completely roofed and walled buildings or structures. Also includes structures with only a top cover supported by permanent supports but with no side coverings, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), or track-out, and there is no storm water discharged from within the structure that comes into contact with any materials.

C. NEC Qualifications

To qualify for an NEC, a Discharger shall:

1. Except as provided in subsection D below, provide a Storm-Resistant Shelter to protect Industrial Materials and Activities from exposure to rain, snow, snowmelt, run-on, and runoff;

2. Inspect and evaluate the facility annually to determine that storm water exposed to industrial materials or equipment has not and will not be discharged to waters of the United States. Evaluation records shall be maintained for five (5) years in accordance with Section XXI.J.4;

3. Register for NEC coverage by certifying that there are no discharges of storm water contaminated by exposure to Industrial Materials and Activities from areas of the facility subject to this General Permit, and certify that all unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV (Authorized NSWDs). NEC coverage and annual renewal requires payment of an annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.; and,

4. Submit PRDs for NEC coverage shall be prepared and submitted in accordance with the:

   a. Certification requirements in Section XXI.K; and,

   b. Submittal schedule in accordance with Section II.B.2.

D. NEC Industrial Materials and Activities - Storm-Resistant Shelter Not Required

To qualify for NEC coverage, a Storm-Resistant Shelter is not required for the following:

1. Drums, barrels, tanks, and similar containers that are tightly Sealed, provided those containers are not deteriorated, do not contain residual industrial materials on the outside surfaces, and do not leak;

2. Adequately maintained vehicles used in material handling;

3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt);

4. Any Industrial Materials and Activities that are protected by a temporary shelter for a period of no more than ninety (90) days due to facility construction or remodeling; and,

5. Any Industrial Materials and Activities that are protected within a secondary containment structure that will not discharge storm water to waters of the United States.

E. NEC Limitations

1. NEC coverage is available on a facility-wide basis only, not for individual outfalls. If a facility has industrial storm water discharges from one or more drainage areas that require NOI coverage, Dischargers shall register for NOI coverage for the entire facility through SMARTS in accordance with Section II.B.2. Any drainage areas on that facility that would otherwise qualify for NEC coverage may be specially addressed in the facility SWPPP by including an NEC Checklist and a certification statement demonstrating that those drainage areas of the facility have been evaluated; and that none of the Industrial Materials or Activities listed in subsection C above are, or will be in the foreseeable future, exposed to precipitation.

2. If circumstances change and Industrial Materials and Activities become exposed to rain, snow, snowmelt, and/or runoff, the conditions for this exclusion shall no longer apply. In such cases, the Discharger may be subject to enforcement for discharging without a permit. A Discharger with NEC coverage that anticipates changes in circumstances should register for NOI coverage at least seven (7) days before anticipated exposure.

3. The Regional Water Board may deny NEC coverage and require NOI coverage upon determining that:

   a. Storm water is exposed to Industrial Materials and Activities; and/or

   b. The discharge has a reasonable potential to cause or contribute to an exceedance of an applicable water quality standards.

F. NEC Permit Registration Documents Required for Initial NEC Coverage

A Discharger shall submit via SMARTS the following PRDs for NEC coverage to document the applicability of the conditional exclusion:

1. The NEC form, which includes:

   a. The legal name, postal address, telephone number, and e-mail address of the Discharger;

   b. The facility business name and physical mailing address, the county name, and a description of the facility location if the facility does not have a physical mailing address; and,

   c. Certification by the Discharger that all PRDs submitted are correct and true and the conditions of no exposure have been met.

2. An NEC Checklist prepared by the Discharger demonstrating that the facility has been evaluated; and that none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

a. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;

b. Materials or residuals on the ground or in storm water inlets from spills/leaks;

c. Materials or products from past industrial activity;

d. Material handling equipment (except adequately maintained vehicles);

e. Materials or products during loading/unloading or transporting activities;

f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

j. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,

k. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. Site Map (see Section X.E).

G. Requirements for Annual NEC Coverage Recertification

By October 1 of each reporting year beginning in 2015, any Discharger who has previously registered for NEC coverage shall either submit and certify an NEC demonstrating that the facility has been evaluated, and that none of the Industrial Materials or Activities listed above are, or will be in the foreseeable future, exposed to precipitation, or apply for NOI coverage.

H. NEC Certification Statement

All NEC certifications and re-certifications shall include the following certification statement:

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of 'no exposure' and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities

or materials from the industrial facility identified in this document (except as allowed in subsection C above). I understand that I am obligated to submit a no exposure certification form annually to the State Water Board and, if requested, to the operator of the local Municipal Separate Storm Sewer System (MS4) into which this facility discharges (where applicable). I understand that I must allow the Water Board staff, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

XVIII. SPECIAL REQUIREMENTS - PLASTIC MATERIALS

A. Facilities covered under this General Permit that handle Plastic Materials are required to implement BMPs to eliminate discharges of plastic in storm water in addition to the other requirements of this General Permit that are applicable to all other Industrial Materials and Activities. Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site. Any Dischargers' facility handling Plastic Materials will be referred to as Plastics Facilities in this General Permit. Any Plastics Facility covered under this General Permit that manufactures, transports, stores, or consumes these materials shall submit information to the State Water Board in their PRDs, including the type and form of plastics, and which BMPs are implemented at the facility to prevent illicit discharges. Pursuant to Water Code section 13367, Plastics Facilities are subject to mandatory, minimum BMPs.

1. At a minimum, Plastics Facilities shall implement and include in the SWPPP:

   a. Containment systems at each on-site storm drain discharge location down gradient of areas containing plastic material. The containment system shall be designed to trap all particles retained by a 1mm mesh screen, with a treatment capacity of no less than the peak flow rate from a one-year, one-hour storm.

   b. When a containment system is infeasible, or poses the potential to cause an illicit discharge, the facility may propose a technically feasible

alternative BMP or suite of BMPs. The alternative BMPs shall be designed to achieve the same or better performance standard as a 1mm mesh screen with a treatment capacity of the peak flow rate from a one-year, one-hour storm. Alternative BMPs shall be submitted to the Regional Water Board for approval.

c. Plastics Facilities shall use durable sealed containers designed not to rupture under typical loading and unloading activities at all points of plastic transfer and storage.

d. Plastics Facilities shall use capture devices as a form of secondary containment during transfers, loading, or unloading Plastic Materials. Examples of capture devices for secondary containment include, but are not limited to catch pans, tarps, berms or any other device that collects errant material.

e. Plastics Facilities shall have a vacuum or vacuum-type system for quick cleanup of fugitive plastic material available for employees.

f. Pursuant to Water Code section 13367(e)(1), Plastics Facilities that handle Plastic Materials smaller than 1mm in size shall develop a containment system designed to trap the smallest plastic material handled at the facility with a treatment capacity of at least the peak flow rate from a one-year, one-hour storm, or develop a feasible alternative BMP or suite of BMPs that are designed to achieve a similar or better performance standard that shall be submitted to the Regional Water Board for approval.

2. Plastics Facilities are exempt from the Water Code requirement to install a containment system under section 13367 of the Water Code if they meet one of the following requirements that are determined to be equal to, or exceed the performance requirements of a containment system:

   a. The Discharger has certified and submitted via SMARTS a valid No Exposure Certification (NEC) in accordance with Section XVII; or

   b. Plastics Facilities are exempt from installing a containment system, if the following suite of eight (8) BMPs is implemented. This combination of BMPs is considered to reduce or prevent the discharge of plastics at a performance level equivalent to or better than the 1mm mesh and flow standard in Water Code section 13367(e)(1).

      i. Plastics Facilities shall annually train employees handling Plastic Materials. Training shall include environmental hazards of plastic discharges, employee responsibility for corrective actions to prevent errant Plastic Materials, and standard procedures for containing, cleaning, and disposing of errant Plastic Materials.

ii. Plastics Facilities shall immediately fix any Plastic Materials containers that are punctured or leaking and shall clean up any errant material in a timely manner.

iii. Plastics Facilities shall manage outdoor waste disposal of Plastic Materials in a manner that prevents the materials from leaking from waste disposal containers or during waste hauling.

iv. Plastics Facilities that operate outdoor conveyance systems for Plastic Materials shall maintain the system in good operating condition. The system shall be sealed or filtered in such a way as to prevent the escape of materials when in operation. When not in operation, all connection points shall be sealed, capped, or filtered so as to not allow material to escape. Employees operating the conveyance system shall be trained how to operate in a manner that prevents the loss of materials such as secondary containment, immediate spill response, and checks to ensure the system is empty during connection changes.

v. Plastics Facilities that maintain outdoor storage of Plastic Materials shall do so in a durable, permanent structure that prevents exposure to weather that could cause the material to migrate or discharge in storm water.

vi. Plastics Facilities shall maintain a schedule for regular housekeeping and routine inspection for errant Plastic Materials. The Plastics Facility shall ensure that their employees follow the schedule.

vii. PRDs shall include the housekeeping and routine inspection schedule, spill response and prevention procedures, and employee training materials regarding plastic material handling.

viii. Plastics Facilities shall correct any deficiencies in the employment of the above BMPs that result in errant Plastic Materials that may discharge or migrate off-site in a timely manner. Any Plastic Materials that are discharged or that migrate off-site constitute an illicit discharge in violation of this General Permit.

XIX. REGIONAL WATER BOARD AUTHORITIES

A. The Regional Water Boards may review a Discharger's PRDs for NOI or NEC coverage and administratively reject General Permit coverage if the PRDs are deemed incomplete. The Regional Water Boards may take actions that include rescinding General Permit coverage, requiring a Discharger to revise and re-submit their PRDs (certified and submitted by the Discharger) within a specified time period, requiring the Discharger to apply for different General Permit coverage or a different individual or general permit, or taking no action.

B. The Regional Water Boards have the authority to enforce the provisions and requirements of this General Permit. This includes, but is not limited to,

reviewing SWPPPs, Monitoring Implementation Plans, ERA Reports, and Annual Reports, conducting compliance inspections, and taking enforcement actions.

C. As appropriate, the Regional Water Boards may issue NPDES storm water general or individual permits to a Discharger, categories of Dischargers, or Dischargers within a watershed or geographic area. Upon issuance of such NPDES permits, this General Permit shall no longer regulate the affected Discharger(s).

D. The Regional Water Boards may require a Discharger to revise its SWPPP, ERA Reports, or monitoring programs to achieve compliance with this General Permit. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.

E. The Regional Water Boards may approve requests from a Discharger to include co-located, but discontiguous, industrial activities within the same facility under a single NOI or NEC coverage.

F. Consistent with 40 Code of Federal Regulations section 122.26(a)(9)(i)(D), the Regional Water Boards may require any discharge that is not regulated by this General Permit, that is determined to contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States, to be covered under this General Permit as appropriate. Upon designation, the Discharger responsible for the discharge shall obtain coverage under this General Permit.

G. The Regional Water Boards may review a Discharger's Inactive Mining Operation Certification and reject it at any time if the Regional Water Board determines that access to the facility for monitoring purposes is practicable or that the facility is not in compliance with the applicable requirements of this General Permit.

H. All Regional Water Board actions that modify a Discharger's obligations under this General Permit must be in writing and should also be submitted in SMARTS.

XX. SPECIAL CONDITIONS

A. Reopener Clause

This General Permit may be reopened and amended to incorporate TMDL-related provisions. This General Permit may also be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, water quality control plans or water quality control policies, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations sections 122.62, 122.63, 122.64, and 124.5.

B. Water Quality Based Corrective Actions

1. Upon determination by the Discharger or written notification by the Regional Water Board that industrial storm water discharges and/or authorized NSWDs contain pollutants that are in violation of Receiving Water Limitations (Section VI), the Discharger shall:

    a. Conduct a facility evaluation to identify pollutant source(s) within the facility that are associated with industrial activity and whether the BMPs described in the SWPPP have been properly implemented;

    b. Assess the facility's SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI); and,

    c. Certify and submit via SMARTS documentation based upon the above facility evaluation and assessment that:

        i. Additional BMPs and/or SWPPP implementation measures have been identified and included in the SWPPP to meet the Receiving Water Limitations (Section VI); or

        ii. No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI).

2. The Regional Water Board may reject the Dischargers water quality based corrective actions and/or request additional supporting documentation.

C. Requirements for Dischargers Claiming "No Discharge" through the Notice of Non-Applicability (NONA)

1. For the purpose of the NONA, the Entity (Entities) is referring to the person(s) defined in section 13399.30 of the Water Code.

2. Entities who are claiming "No Discharge" through the NONA shall meet the following eligibility requirements:

    a. The facility is engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website (or other nearby precipitation data available from other government agencies) so that there will be no discharge of industrial storm water to waters of the United States; or,

    b. The facility is located in basins or other physical locations that are not hydrologically connected to waters of the United States.

3. When claiming the "No Discharge" option, Entities shall submit and certify via SMARTS both the NONA and a No Discharge Technical Report. The No

Discharge Technical Report shall demonstrate the facility meets the eligibility requirements described above.

4. The No Discharge Technical Report shall be signed (wet signature and license number) by a California licensed professional engineer.

XXI. STANDARD CONDITIONS

A. Duty to Comply

Dischargers shall comply with all standard conditions in this General Permit. Permit noncompliance constitutes a violation of the Clean Water Act and the Water Code and is grounds for enforcement action and/or removal from General Permit coverage.

Dischargers shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions.

B. Duty to Reapply

Dischargers that wish to continue an activity regulated under this General Permit after the expiration date of this General Permit shall apply for and obtain authorization from the Water Boards as required by the new general permit once it is issued.

C. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. Submittal of a request by the Discharger for General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

2. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

D. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for a Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

E. Duty to Mitigate

Dischargers shall take all responsible steps to reduce or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Proper Operation and Maintenance

Dischargers shall at all times properly operate and maintain any facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a Discharger when necessary to achieve compliance with the conditions of this General Permit.

G. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges. It also does not authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of federal, state, or local laws and regulations.

H. Duty to Provide Information

Upon request by the relevant agency, Dischargers shall provide information to determine compliance with this General Permit to the Water Boards, U.S. EPA, or local Municipal Separate Storm Sewer System (MS4) within a reasonable time. Dischargers shall also furnish, upon request by the relevant agency, copies of records that are required to be kept by this General Permit.

I. Inspection and Entry

Dischargers shall allow the Water Boards, U.S. EPA, and local MS4 (including any authorized contractor acting as their representative), to:

1. Enter upon the premises at reasonable times where a regulated industrial activity is being conducted or where records are kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

3. Inspect the facility at reasonable times; and,

4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. If Dischargers monitor any pollutant more frequently than required, the results of such monitoring shall be included in the calculation and reporting of the data submitted.

3. Records of monitoring information shall include:

   a. The date, exact location, and time of sampling or measurement;

   b. The date(s) analyses were performed;

   c. The individual(s) that performed the analyses;

   d. The analytical techniques or methods used; and,

   e. The results of such analyses.

4. Dischargers shall retain, for a period of at least five (5) years, either a paper or electronic copy of all storm water monitoring information, records, data, and reports required by this General Permit. Copies shall be available for review by the Water Board's staff at the facility during scheduled facility operating hours.

5. Upon written request by U.S. EPA or the local MS4, Dischargers shall provide paper or electronic copies of Annual Reports or other requested records to the Water Boards, U.S. EPA, or local MS4 within ten (10) days from receipt of the request.

K. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) for NOI and NEC coverage shall be certified and submitted via SMARTS by the Discharger's Legally Responsible Person (LRP). All other documents may be certified and submitted via SMARTS by the LRP or by their designated Duly Authorized Representative.

2. When a new LRP or Duly Authorized Representative is designated, the Discharger shall ensure that the appropriate revisions are made via SMARTS. In unexpected or emergency situations, it may be necessary for the Discharger to directly contact the State Water Board's Storm Water Section to register for SMARTS account access in order to designate a new LRP.

3. Documents certified and submitted via SMARTS by an unauthorized or ineligible LRP or Duly Authorized Representative are invalid.

4. LRP eligibility is as follows:

    a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or

        ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;

    c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

5. Duly Authorized Representative eligibility is as follows:

    a. The Discharger must authorize via SMARTS any person designated as a Duly Authorized Representative;

    b. The authorization shall specify that a person designated as a Duly Authorized Representative has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company; and,

    c. The authorization must be current (it has been updated to reflect a different individual or position) prior to any report submittals, certifications, or records certified by the Duly Authorized Representative.

L. Certification

Any person signing, certifying, and submitting documents under Section XXI.K above shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

M. Anticipated Noncompliance

Dischargers shall give advance notice to the Regional Water Board and local MS4 of any planned changes in the industrial activity that may result in noncompliance with this General Permit.

N. Penalties for Falsification of Reports

Clean Water Act section 309(c)(4) provides that any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the initiation of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under section 311 of the Clean Water Act.

P. Severability

The provisions of this General Permit are severable; if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Penalties for Violations of Permit Conditions

1. Clean Water Act section 309 provides significant penalties for any person that violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing any such section in a permit issued under section 402. Any

person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500[22] per calendar day of such violation, as well as any other appropriate sanction provided by section 309 of the Clean Water Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which may be greater than penalties under the Clean Water Act.

R. Transfers

Coverage under this General Permit is non-transferrable. When operation of the facility has been transferred to another entity, or a facility is relocated, new PRDs for NOI and NEC coverage must be certified and submitted via SMARTS prior to the transfer, or at least seven (7) days prior to the first day of operations for a relocated facility.

S. Continuation of Expired General Permit

If this General Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 Code of Federal Regulations 122.6 and remain in full force and effect.

[22] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

Solid Waste Facility Permit 13-AA-0022

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SOLID WASTE FACILITY PERMIT

1. Facility/Permit Number: **13-AA-0022**

2. Name and Street Address of Facility:

Monofill Facility
3301 W. Highway 86
Brawley, CA 92227

3. Name and Mailing Address of Operator:

Desert Valley Company
7030 Gentry Road
Calipatria, CA 92233

4. Name and Mailing Address of Owner:

Desert Valley Company
7030 Gentry Road
Calipatria, CA 92233

5. Specifications:

a. Permitted Operations

- [ ] Composting Facility (mixed wastes)
- [ ] Composting Facility (yard Waste)
- [X] Landfill Disposal Site (Class II)
- [ ] Material Recovery Facility
- [ ] Processing Facility
- [ ] Transfer Station
- [ ] Transformation Facility
- [ ] Other:

b. Permitted Hours of operation: 6:00 A.M. to 6:00 P.M., Monday through Sunday *(refer to condition 17 hh)*

c. Permitted Tons per Operating Day: **750 tpd**

Non-Hazardous - General	N/A	Tons/Day
Non-Hazardous - Sludge	N/A	Tons/Day
Non-Hazardous - Separated or commingled recyclables	N/A	Tons/Day
Non-Hazardous - Other *(refer to condition 17s)*	**750**	Tons/Day
Designated (See Section 14 of Permit)	N/A	Tons/Day
Hazardous (See Section 14 of Permit)	N/A	Tons/Day

d. Permitted Traffic Volume:

Total:	**38**	Vehicles/Day
Incoming waste materials	38	Vehicles/Day
Outgoing waste materials (for disposal)	N/A	Vehicles/Day
Outgoing materials from material recovery operations	N/A	Vehicles/Day

e. Key Design Parameters

	Total	Disposal	Transfer	MRF	Composting	Transformation
Permitted Area (in acres)	181.5ac	28.9ac	N/A	N/A	N/A	N/A
Remaining Capacity		1,058,252cy	N/A	N/A	N/A	N/A
Max. Elevation (ft. MSL)		-59 ft				
Max. Depth (Ft. BGS)		39 ft				
Estimated Closure Date		January 2025				

This permit is granted solely to the operator named above, and is not transferable. Upon a change of operator, this permit is no longer valid. Further, upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The attached permit findings and conditions are integral parts of this permit and supercede the conditions of any previously issued solid waste facility permit.

6. Approval:

Approving Officer Signature

Jeff Lamoure, Deputy Director
Division of Environmental Health
Name/Title

7. Local Enforcement Agency Name and Address:

Imperial County Public Health Department,
Division of Environmental Health
797 West Main Street, Suite B
El Centro, California 92243

8. Received by CalRecycle: August 31, 2010

9. CalRecycle Concurrence Date: September 8, 2010

10. Permit Review Due Date: September 15, 2015

11. Permit Issued Date: September 14, 2010

11a. Next Permit Review Due Date: **September 28, 2020**

11b. Permit Transfer Date:

11c. Permit Review Date: September 28, 2015

SOLID WASTE FACILITY PERMIT

Facility/Permit Number
13-AA-0022

Legal Description of Facility: 3301 West Highway 86, Brawley, CA. Northeast ¼ of Section 33, Township 12 South, Range 11 East, San Bernardino Base and Meridian APN: 019-100-004-001. Latitude: 33.08472°, Longitude: -115.82444°.

13. Findings:

a. This permit is consistent with the Countywide Integrated Waste Management Plan (CIWMP). Public Resources Code, Section 50001. See pages 12 and 13 of CIWMP.

b. This permit is consistent with standards adopted by the California Department of Resources, Recovery and Recycling (CalRecycle). Public Resources Code, Section 44010.

c. The design and operation of the facility is in compliance with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the LEA.

d. The IMPERIAL COUNTY FIRE DISTRICT has determined that the facility is in conformance with applicable fire standards as required in Public Resources Code, Section 44151.

e. A Notice of Determination for the Environmental Impact Report (EIR) was filed with the State Clearinghouse (SCH No. 1990102236) on June 13, 1990. A Notice of Determination for a Mitigated Negative Declaration (SCH No. 2002121138) was filed with the County Recorder's Office on January 29, 2003. A technical addendum to the Final EIR was filed on September 24, 2009. The LEA finds the proposed permit in compliance with CEQA.

f. The following authorized agent has made a determination that the facility is consistent with, and designated in, the applicable General Plan: Jurg Heuberger, Planning Department. Public Resources Code, Section 50000.5(a).

g. The Imperial County Board of Supervisors has made a written finding on September 3, 1996 that surrounding land use is compatible with the facility operation. On November 5, 2002 the County Board of Supervisors made a written finding that the change of zone and general plan amendment for the expansion is consistent with the County's General Plan and Land Use Element as required in Public Resources Code, Section 50000.5(b).

14. Prohibitions:

The permittee is prohibited from accepting any liquid waste, sludge, non-hazardous waste requiring special handling, designated waste, or hazardous waste unless such waste is specifically listed in Condition 17(s), and unless the acceptance of such waste is authorized by all applicable permits.

The permittee is additionally prohibited from the following items and activities: Accepting waste for which the facility is not approved, such as hazardous waste, medical waste, municipal refuse, or any other waste not specifically allowed. Accepting waste beyond the capacity of the facility. Recycling or mineral extraction other than removal of waste filter cake to a pre-approved site. Accepting solids containing free liquids. Allowing standing rainwater to remain within the cells. Disposal of waste when wind velocity reaches 13 mph or greater. Construction, earthmoving and similar operations shall terminate when wind velocity reaches or exceeds 21 mph.

15. The following documents also describe and/or restrict the operation of this facility (Insert document date in spaces):

	Date:		Date:
[X] Report of Facility Information	05/10	[X] Contract Agreements	N/A
[X] Conditional Use Permit #02-0003	02/03	[X] Waste Discharge Requirements WDR# R7-2003-0075	09/03/03
[X] Air Pollution Permit to Operate #2120B	01/03	[X] County Ordinances	Various
[X] Environmental Impact Report (EIR) **(SCH No. 1989032206)**	7/18/89	[X] Final Closure/Post-Closure Maintenance Plan **(Cells I and II Closed May 2008)**	05/02
• Final EIR Technical Addendum	09/24/09	• As Amended	07/09
[X] Mitigated Negative Declaration **(SCH No. 2002121138)**	1/29/03	[X] Closure Financial Responsibility Documents	02/03/10
[X] Preliminary Closure/Post-Closure Maintenance Plan **(Cell III)**	06/02		
• As Amended	07/09		

SOLID WASTE FACILITY PERMIT

Facility/Permit Number
13-AA-0022

16. Self-Monitoring:

a. Results of all self-monitoring programs as described in the Report of Facility Information to be reported as follows:

Program:	Reporting Frequency:	Agency Reported To:
• Daily tonnage received at facility by waste type shall be recorded daily. Include date of receipt and non-hazardous waste record number	Monthly within 15 days of the following month	LEA
• Number of waste delivery vehicles entering the facility	Monthly within 15 days of the following month	LEA
• A logbook of special occurrences	Within 24 hours of notification	LEA
• Analytical Results of waste streams listed in LEA Condition 17(s) except for soils contaminated with geothermal materials, incidental plastic sheeting/materials and drilling muds and cuttings.	Annually on or before January 15	LEA
• Soils contaminated with geothermal materials and drilling muds and cuttings shall be properly characterized prior to disposal	Due one month after analysis is received. Results may be submitted with monthly tonnage report.	LEA
• Load testing for free liquids using EPA test method #9095 of each load entering site	Each Occurrence	Available at site
• Radiological monitoring of dosimeter film badges of all personnel handling NORM associated materials	Quarterly	LEA, APCD, & Planning Dept.
• Vadose zone and groundwater monitoring	Semi-Annually (or as required by RWQCB)	RWQCB
• Maintenance of a record of all complaints registered against the facility	Within next working day	LEA
• Maintain weather station printout during operating hours	Available upon request	LEA
• Particulate sampling	Quarterly	LEA, APCD
• All operational records, monitoring reports results, of regulatory inspections, & summaries of any daily inspection reports	Available upon request	LEA & Imperial County Planning Department
• Print out of ground acceleration during seismic event	Available upon request	LEA

Note: The LEA is responsible to enforce only those monitoring provisions authorized by State statute or regulations pertaining to solid waste.

17. LEA Conditions:

a. The operator shall comply with State Minimum Standards for Solid Waste Handling and Disposal as specified in Title 27 California Code of Regulations (CCR). The Operator shall not operate this facility without possession of all required permits/regulatory approvals. The operator shall inspect the site at a frequency sufficient to ensure compliance with all applicable standards, conditions, mitigations, permits, and regulations.

b. The operator shall comply with all applicable federal, state, and local requirements and enactments, including all mitigation and monitoring measures and all administrative/enforcement orders of regulatory agencies with jurisdictional authority at this facility.

c. The operator shall maintain a complete copy of this Solid Waste Facility Permit (SWFP), inspection reports, and required regulatory permits at the facility or other LEA approved location readily accessible to facility personnel, LEA staff and other regulatory personnel.

d. Additional information concerning the design/operation of the facility shall be furnished upon request to the LEA and other regulatory personnel.

e. The operator shall notify the LEA in writing of any proposed change in the routine facility operation or changes in facility design during the planning stages. In no case shall the operator undertake any significant changes unless the operator first submits to the LEA a notice of said changes at least 180 days before said changes are undertaken. Any significant changes as determined by the LEA would require a revision of this permit.

f. The LEA reserves the right to suspend and/or modify waste receiving and handling operations including the terms and conditions of this permit at this facility when deemed necessary due to any emergency, potential health hazard, and/or public nuisance.

SOLID WASTE FACILITY PERMIT

Facility/Permit Number: **13-AA-0022**

17. LEA Conditions (Continued):

g. A log of special occurrences shall be maintained at the facility. The log shall contain at a minimum, but not limited to: fires, explosions, discharges, significant incidents of personnel injury, seismic events, accidents, and/or property damage. Days without incidents shall be noted in the log with an appropriate negative entry.

h. The operator shall comply with the requirements of all applicable laws pertaining to employee health and safety, including a current CAL-OSHA Injury Illness Prevention Plan (pursuant to Title 8, CCR). Adequate on-site first aid supplies shall be maintained at the facility. When personnel are at the facility they shall have immediate radio and/or telephone access to a 911 emergency dispatcher.

i. The operator shall apply "Soil Seal" as an alternative daily cover at the end of each operating day.

j. The fencing of the operational area shall be maintained and the gate locked when on-site operating personnel are absent and during non-operating hours.

k. This is a Class II facility that shall accept only drilling muds and cuttings from geothermal well construction/reconstruction of production and injection wells, geothermal filter cake resulting from filter press operations at geothermal power plants, soils contaminated with geothermal wastes, and incidental plastic sheeting/materials used in transfer vehicles.

l. The Monofill Facility is a disposal facility for the Desert Valley Company, its parent company's partnerships, holdings, or affiliates, which generate and dispose of only their designated wastes as agreed to by the owner/operator.

m. The Monofill Facility shall not receive more than 750 tons per day, nor shall it receive more than 273,750 tons annually.

n. Vehicles carrying waste exit off highway 86 and travel 1.25 miles south off the highway to the Monofill site. Truck travel to and from the facility shall only occur on approved routes. Truck lights are to remain on at all times while in motion.

o. The use of waste hauling vehicles supplied and/or operated by persons not under operation and control by the operator shall abide by the same rules, policies, and protective equipment, training/education supplied to company personnel. Vehicles shall be insured to the same extent as company vehicles.

p. This permit does not release the operator from its responsibility under any other existing laws, ordinances, regulations, or statutes of other governmental agencies.

q. No resource recovery or salvaging is permitted.

r. The current Joint Technical Document and Closure Plan, or as they may be amended, are a part of this permit by reference.

s. The Monofill Facility shall accept only the following non-hazardous waste streams as described in the Joint Technical Document:

- Geothermal drilling muds and cuttings;
- Geothermal filter cake;
- Soils contaminated with geothermal material; and
- Incidental plastic sheeting (truck bed liners)/materials

Upon proper waste characterization and approval of a permit revision other non-hazardous designated wastes may be accepted for disposal at this facility.

t. In the event of a conflict between any regulatory permit, the most stringent shall apply.

u. The filter cake contains Naturally Occurring Radioactive Material (NORM). The NORMs are currently below regulatory concern. Plastic sheeting/materials shall not be recycled due to potential NORM contamination.

v. Dosimeter badges shall be read and reported quarterly. Such radiological monitoring shall be conducted for all personnel, both on-site and off-site who normally handle radioactive materials.

w. Each vehicle entering the site shall have its load tested for free liquids using United States Environmental Protection Agency test method #9095.

x. Geothermal material contaminated soils shall be properly characterized prior to disposal at the Monofill Facility.

SOLID WASTE FACILITY PERMIT

Facility Permit Number: **13-AA-0022**

17. LEA Conditions (Continued):

y. Geothermal filter cake at each plant shall be analyzed on an annual basis or at a frequency determined by the LEA and whenever there is a significant operational or design change at the plant. Drilling sump muds shall be analyzed prior to disposal. Testing shall be conducted by a California certified laboratory. Waste streams shall be analyzed for the following:

- Corrosivity;
- Ignitability;
- Reactivity;
- CAM 17 Metals - for Total and Soluble Threshold Limit Concentration
- Volatile Organic Compound Analysis
- Hazardous Waste Bioassay
- NORM Analysis (gross alpha, gross beta and gamma spectroscopy)

z. If it is determined that the current analytical methodology and/or analysis does not properly characterize the waste stream, the LEA reserves the right to require all waste streams destined for disposal at the Monofill Facility to be analyzed by a California State-certified laboratory prior to disposal at the Monofill Facility.

aa. Upon LEA request, the operator shall appropriately sample and have analyzed by a State-certified laboratory any waste stream destined for disposal at the Monofill Facility. The operator shall provide the laboratory results to the LEA within five (5) working days following receipt of laboratory results.

bb. In the event that Desert Valley Company's parent company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley Company's Monofill Facility, Magma Power Company will, in writing, assign the right to use Desert Valley Company for such facility (retaining for Magma Power Company the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission and the LEA of Imperial County.

cc. The operator shall cease disposal of waste when wind velocity reaches 13 mph or greater. Construction, earthmoving and similar operations shall terminate when wind velocity reaches or exceeds 21 mph.

dd. The existing 1,000-gallon leachate collection tank shall be retained for use.

ee. In addition to other signs required to be posted, a sign at the entrance of the facility warning personnel of the nature of the materials disposed of at the site shall be posted.

ff. The operator shall maintain a record of the number of waste delivery vehicles entering the facility and submit a report to the LEA monthly within 15 days of the following month.

gg. The operator shall compile daily tonnage received at the facility and submit a report to the LEA monthly within 15 days of the following month.

hh. Operations shall occur during daylight hours. The operator, upon application and the submittal of an approved lighting plan, may operate during permitted hours of darkness.

ii. Operator shall submit an annual waste stream analysis on or before January 15th of each year.

END OF CONDTIONS

Waste Discharge Requirements Order R7-2016-0016

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER R7-2016-0016

WASTE DISCHARGE REQUIREMENTS
FOR
MAGMA POWER COMPANY, OWNER
DESERT VALLEY COMPANY, OWNER/OPERATOR
DESERT VALLEY MONOFILL
CLASS II SOLID WASTE MANAGEMENT FACILITY
Northwest of Westmorland – Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, (Colorado River Basin Water Board) finds that:

Discharger

1. The Desert Valley Monofill is a Class II Solid Waste Management Facility (Facility) used for the disposal of wastes from geothermal facilities in Imperial County. The Monofill is owned and operated by Desert Valley Company, a wholly owned subsidiary of Magma Power Company, 7030 Gentry Road, Calipatria, CA 92233. The Facility is located at 3301 W. Highway 86, Brawley, CA 92227, as shown on Attachment A, attached hereto and made a part of this Order by reference. Both companies, Desert Valley Company and Magma Power Company, are herein jointly referred to as the Discharger. The Facility is assigned the California Integrated Water Quality System (CIWQS) waste discharge identification (WDID) number 7A132197001 and Geotracker Global ID number L10003472657.

2. The California Code of Regulations (CCR), Title 27, Article 4, Section 21710(a) requires any persons proposing to discharge solid waste at a waste management unit that is subject to regulation by both the California Department of Resources Recycling and Recovery (CalRecycle) and the Regional Water Quality Control Board shall make all Report of Waste Discharge (ROWD) submittals (including updates to previously submitted ROWD) in the form of a Joint Technical Document (JTD).

3. On November 19, 2015, the Discharger submitted a Report of Waste Discharge to the Colorado River Basin Water Board for the purpose of updating the current Waste Discharge Requirements (WDRs).

Definitions

4. Terms used in this Order:

    a. Discharger –Any person who discharges waste that could affect the quality of the waters of the State, and includes any person who owns the land or waste management unit, or who is responsible for the operation of a waste management unit. Specifically, the terms “Discharger” or “Dischargers” in this Order refer to Magma Power Company and Desert Valley Company.

b. Waste Management Facility (WMF) – The entire parcel of property at which waste discharge operations are conducted. Such a facility may include one (1) or more waste management units.

c. Waste Management Unit (WMU) – An area of Land, or a portion of a Waste Management Facility at which waste is or was discharged. The term includes containment features, ancillary features for precipitation and drainage control and monitoring.

d. Landfill – A waste management unit at which waste is discharged in or on land for disposal. It does not include surface impoundments, waste piles, land and soil treatment.

e. Monofill - The Desert Valley Company Facility is a monofill that accepts only specific types of process materials.

f. Facility –The Desert Valley Monofill is a Class II Solid Waste Management Facility used for the disposal of wastes from geothermal facilities in Imperial County.

Facility

6. The WMF is located in the northeast ¼ of Section 33, Township 12 South, Range 11 East, San Bernardino Base Meridian (SBB&M) on Assessor's Parcel No. 019-100-004,. The latitude and longitude of the site are 32.105991º North and 115.822212º West, respectively.

7. Desert Valley Company was formed to handle product storage/solid waste disposal requirements of Magma's (CalEnergy) geothermal facilities in Imperial County. The Imperial County Conditional Use Permit allows for the Monofill to accept geothermal drilling mud, sump material, filter cake, plastic liners, and soil contaminated with geothermal materials.

8. The Facility currently consists of Cell 1, Cell 2, Cell 3, as shown in Attachment B and Attachment C; three leachate storage ponds; and office/shop buildings. The total permitted area for the Class II WMF is 181.5 acres, with 28.9 acres permitted for disposal operations. The permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday during daylight hours. The peak daily loading is 750 tons per day of non-hazardous wastes with a peak incoming truck volume of 38 vehicles per day.

9. Cell 1 of the Monofill was built in 1990, and Cell 2 was built in 1999. Cell 1, Cell 2 and the tie-in area were closed and capped in May, 2008. Construction of Cell 3 began in the summer of 2004 and was completed in June, 2005. Cell 3 is the only active cell receiving waste. The current estimated remaining capacity on 2010 for Cell 3 was approximately 1,058,252 cubic yards with an estimated closure date of January 2025. The site is not open for public and/or commercial use at any time.

10. The Monofill is currently classified as a Class II Waste Management Facility. Each cell has two (2) clay liners, two (2) synthetic liners, a leachate collection and removal system (LCRS), and a leak detection system.

11. The LCRS for the Monofill cells consists of a drain net that is placed on the top of the first synthetic liner. The purpose of the LCRS is to minimize accumulation of liquids on top of the main liner. The LCRS is inspected weekly and any liquid present is removed and stored in either an above ground storage tank or lined surface impoundment for evaporation. Quarterly inspections of the LCRS are required. The liquid removed is tested for field electrical conductance (EC) and pH.

12. The Leak Detection System (LDS) for Cell 3 of the Monofill consists of a drain net located between the two synthetic liners. The LDS is used to assist in determining that a leak may exist in the primary synthetic liner. The LDS of Cell 3 is monitored weekly and any liquid found is removed and stored in either an above ground storage tank or lined evaporation surface impoundment used for the LCRS liquids. Quarterly inspections of the LDS of Cells 1 and 2 are required. The liquid removed is tested for field electrical specific conductance (EC) and pH.

Site Specific Regulatory Background

13. The site was previously regulated by Board Orders 90-053 adopted September 19, 1990, 94-021 adopted May 17, 1994 and 98-024 adopted May 14, 1998. The WMF is currently regulated by WDRs Order R7-2003-075, adopted on September 3, 2003. Order R7-2003-075 is being updated to comply with current laws and regulations as set forth in the California Water Code and combined State Water Resources Control Board (SWRCB)/CalRecycle Regulations, Division 2, Title 27 (Title 27) and federal regulations under the Resource Conservation and Recovery Act (RCRA), also known as Subtitle D. and to document any changes to the Facility or operating procedures that could impact groundwater.

14. The maximum daily tonnage accepted at the Monofill is 750 tons.

15. The Discharger discharges into the Monofill geothermal wastes associated with geothermal development. The Discharger also has permits from the Imperial County Public Health Department and CalRecycle for its operations. Geothermal wastes, for the purpose of this Order, are defined as filter cake, drilling muds and cuttings materials, plastic liners used for transport, or soil contaminated with filter cake, drilling mud materials, or geothermal brines resulting from any geothermal operation in Imperial County, which is operated and/or owned in part by Magma Power Company or one of its affiliates or assignees.

16. Geothermal wastes generated by the Magma Power Company's geothermal facilities contain Naturally Occurring Radioactive Material (NORM). The exposure and health risk to the public and workers were evaluated and determined by the EIR to be an insignificant impact. NORM for the purpose of this Order, shall be defined as Material containing detectable amounts of Radium-226, Thorium-228, Thorium-232, Potassium-40, Gross Alpha and Gross Beta particles.

Groundwater and Monitoring

17. Groundwater in the area of the Monofill occurs at a depth of 50 to 100 feet below ground surface. The direction of flow for the uppermost groundwater is estimated to be northeastward, towards the Salton Sea. Based on the data tabulated below, the groundwater monitoring data needs additional evaluation due to different chloride, sulfate and TDS concentrations in upgradient and downgradient wells, although the data

in this table is consistent with data collected since 1989 at the Facility. Therefore, a groundwater constituent concentration trend analysis is required as specified in the Provisions section of this Board Order.

Constituent	Units	W-306 Background	W-12 Compliance	W-11 Compliance	W-09A Compliance
Elevation above msl [1]	feet	-148.62	-181.95	-182.08	-180.29
Chloride	mg/l	781.5	3437.5	3202.5	3110
Lead	mg/l	<0.0001	<0.0001	<0.0001	<0.0001
Sodium	mg/l	661.75	1635	1530	1460
pH		7.70	6.79	6.87	6.88
Specific Conductance	µS/cm	3,445	12,402.5	11,732.5	11,687.5
Sulfate	mg/l	309	2,007.5	2,105	2,132.5
Total Dissolved Solids	mg/l	2,046.25	8,923.75	8,353.75	8,566.25
Cadmium	mg/l	<0.0005	<0.0005	<0.0005	<0.0005

18. Appendix 25 *Geologic Investigations Report* of the December 2002 JTD , in section 5.4 Groundwater Quality (page 47) for the Desert Valley Monofill Cell III prepared by RTP Environmental Associates, Inc. 7752 Fay Ave., Suite C, La Jolla, CA 92037, it states:

"*Although there are substantial differences between wells, the water quality at each well has remained consistent over duration of the monitoring program, as demonstrated by the statistical analyses performed by Desert Valley Company (Appendix F) and the time-series plates in Graphs 7 through 18. These graphs show that the levels of TDS, chloride, sulfate, and sodium at each well have remained in the same range since monitoring began. Notably, there have been no progressive increases, such as would occur if waste constituents had been released to the groundwater.*

Wells W301, W302, W305, and W306, in the proposed Cell 3 area, have been sampled by Desert Valley Company since March 2000. (Piezometers W303 and W304 are used for water-level measurements are not sampled.) These wells show substantial differences in water quality that appear related to the differences in subsurface units, much as seen in the wells at Cells 1 and 2. In the northern part of the proposed Cell 3 area, wells W301, W302, and W305 show TDS of about 3,500 to 4,400 mg/L. These TDS levels are in about the same range as at nearby well W04 and former well W02. Wells W02, W04, W301, and W305 are completed in subsurface units that appear to be connected hydraulically: Units Qb4, Qb5 (sand facies) and Qb6. At the extreme south, well W306 showed a much lower TDS of about 2,000 mg/L. Well W306 is the only well completed in Unit Qb8."

Therefore this Board Order contains a special Provision to evaluate Well W306 as the background well for the WMF. Final designation of the background well(s) will be made after the analysis/report required in Provision C.3 is submitted to the Colorado River Basin Water Board.

19. Monitoring and Reporting Program R7-2016-0016 attached to and made a part of this Order by reference, and the requirement to maintain groundwater monitoring wells is necessary to determine compliance with WDRs and Facility's impacts, if any, to

receiving water. The State Water Board's electronic database, GeoTracker Information Systems, facilitates the submittal and review of monitoring and reporting documents.

20. Groundwater monitoring points of compliance are W01, W04, W09 (W09A), W10 (W10A), W11, W12, W301, W302, W303, W304, W305, W306, W307, W308, and W309. W04, W301, W303, and W304 were abandoned in 2004 when Cell 3 was constructed.

Geologic Conditions

21. The Desert Valley Monofill is located in the Imperial Valley. The valley slopes gently to the northeast on a very flat plain. General land elevation in the vicinity is between 20 and 45 feet below mean sea level.

22. During Quaternary times, from at least 13,000 years ago to as recently as several hundred years ago, the central parts of Imperial Valley, including the site, periodically lay beneath ephemeral lakes, such as ancient Lake Cahuilla. Lake Cahuilla resulted from periodic overflow and diversion of the Colorado River into the Salton Basin. Sediments from these ephemeral lakes consist primarily of silt and clay in the central portion of the basin. Below the alluvial cover of Imperial Valley lies an unexposed succession of Tertiary and Quaternary sedimentary rocks thought to be at least 20,000 feet thick.

23. The dominant geomorphic feature in the region is the Salton Trough, which occupies a broad lowland in the southern part of the Salton Trough geomorphic province. The Salton Trough is a structural, as well as a topographic, depression resulting from tectonic stresses associated with the San Andreas Fault. The Salton Trough is bounded by the San Andreas Fault zone on the north and east sides; the discontinuous San Jacinto Fault zone on the west; and the Elsinore Fault zone further west and southwest.

24. Active fault zones occur in the Imperial Valley. The principal fault zone is the San Andreas system, which runs parallel to the northeast margin of the Salton Trough. The Clark and Coyote Creek branches of the San Jacinto fault zone transect the southwest flank of the Salton Trough. The Brawley fault zone, including the seismic zone that marks its northward extension, and the Imperial, Superstition Hills and the Superstition Mountain faults are situated on or nearest the axis of the Trough. With the exception of the Brawley fault zone, all the above named faults display the surficial features characteristic of the San Andreas system through California: linearity, northwest-southwest trend, physiographic evidence of recent activity and right-lateral displacement.

Climate

25. The Facility is located in a desert environment in the. The climate is. Precipitation averages 2.5 to 3.0 inches per year, and surface evaporation averages 100 inches per year.

26. The climate of the region is warm and arid. The average annual rainfall for the northern part of the Imperial Valley is 3 inches. There is no typical wet or dry season – rain events occur throughout the year. The projected 24-hour, 100-year storm event is expected to yield approximately 3 inches as determined from historic data gathered by the National Oceanographic and Atmospheric Administration (NOAA).

27. The average temperature in the area is 73 degrees Fahrenheit (ºF) with hot summers and mild winters the mean daily high temperature in July being approximately 108ºF. The mean pan evaporation rate is 72 to 84 inches per year.

28. The prevailing winds in the area follow two general patterns:

    a. During late fall until early spring, the winds prevail from the west and northwest. Humidity is lowest under these conditions.

    b. Summer weather patterns are often dominated by an intense, heat-induced low-pressure area that forms over the interior desert, drawing air from the area to the south. Humidity is highest under the summer conditions.

Basin Plan and Other Regulatory Considerations

29. The Water Quality Control Plan for the Colorado River Basin Region (Basin Plan), which was adopted on November 17, 1993, and amended on November 13, 2012, designates beneficial uses and establishes water quality objectives for ground and surface waters in the Region, and contains implementation programs and policies to achieve objectives. In addition, State Water Board Resolution 88-63 requires that, with certain exceptions, the Colorado River Basin Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan.

30. The Facility is located in the Imperial Hydrologic Unit. The designated beneficial uses of the groundwaters in the Imperial Hydrologic Unit are:

    a. Municipal supply (MUN)
    b. Industrial supply (IND)

31. The Monofill is designed to withstand the probable maximum precipitation of a 100-year storm for this area. The discharger has taken measure to ensure that no rainfall creates runoff from the active Monofill cell (Cell 3). Cells 1 and 2 are capped and the surface of the cap is treated with an approved soil binder to protect against erosion from wind and precipitation.

32. The nearest surface water, the Westside Canal, is located one and one-half (1½) miles northeast of the Monofill. The Facility is within the Salton Sea surface water drainage.

33. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This area is serviced for its drinking water supply by Colorado River Water Rights and the Imperial Irrigation District which is designated the responsibility and authority to protect human health and ensure that drinking water is safe for domestic use.

Storm Water

34. Federal regulations for storm water discharges were promulgated by the United States Environmental Protection Agency (USEPA) on November 16, 1990 (40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities which discharge storm water associated with industrial activity to obtain National Pollutant Discharge Elimination System (NPDES) permits and to implement Best Conventional Pollutant

Technology (BCPT) to reduce or eliminate industrial storm water pollution. The Desert Valley Monofill WMF is subject to the federal requirements for regulation of storm water discharges associated with industrial activities as listed in 40 CFR 122.26(b)(14).

35. The Discharger is enrolled in the State Water Board's adopted Water Quality Order 2014-0057-DWQ (NPDES No. CAS000001), General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Storm Water Permit), which became effective on July 1, 2015. The Facility is assigned the SMART's (Storm Water Multiple Application and Reporting Tracking System) database ID number 713I005191. The Industrial General Storm Water Permit requires the implementation of Best Available Technology Economically Achievable (BAT) and BCT to achieve performance standards. The Industrial General Storm Water Permit also requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and monitoring plan, and requires the Discharger to submit a Notice of Intent (NOI) to obtain regulatory coverage.

Financial Assurance

36. Title 27, Sections 21820 and 22206 require that the Discharger provide financial assurance in the amounts of, a lump sum cost estimate for landfill closure and Sections 21840 and 22211 requires the Discharger provides a lump sum estimate of the landfill post-closure maintenance and monitoring. The Discharger is required to demonstrate financial assurances for landfill closure and post close maintenance to CalRecycle pursuant to Sections 22205(a) and 22210(a). This Board Order requires that the Discharger provide and maintain financial assurances to the CalRecycle in at least the amount of the corrective action cost estimate, as annually adjusted for inflation.

37. Title 27 requires operators of solid waste landfills to demonstrate financial responsibility to CalRecycle and to maintain appropriate financial assurance mechanisms to cover all expenses related to the following:

    a. Closure Activities (Section 22205) – in at least the amount of the current closure cost estimate;
    b. Post-closure Maintenance (Section 22210) – in at least the amount of the current post-closure cost estimate;
    c. Operating Liability (Section 22215) – to compensate third parties for bodily injury and property damage caused by any accidental occurrences; and
    d. Corrective Action (Section 22220) – for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill.

California Environmental Quality Act (CEQA)

38. In accordance with Section 15301, Article 19, Chapter 3, Division 6, Title 14 of the California Code of Regulations, the issuance of these WDRs, which govern the operation of an existing Facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et. seq.)

Public Participation

39. The Colorado River Basin Water Board has notified the Discharger and all known interested agencies and persons of its intent to update WDRs for this discharge and has

provided them with an opportunity for a public meeting and an opportunity to submit comments.

40. The Colorado River Basin Water Board, in a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order R7-2003-0075 is rescinded, except for enforcement purposes, and that in order to meet provisions contained in Division 7 of the California Water Code and regulations Order R7-2016-0016 is adopted, the Discharger shall comply with the following:

A. Specifications

1. The treatment or disposal of wastes at this Facility shall not cause pollution or nuisance as defined in Section 13050 of Division 7, of the California Water Code.

2. Waste materials shall be confined to the existing footprint of the WMF, as defined in Finding No. 8, and as shown on Attachment B.

3. Thirty days prior to introduction of a new waste stream into the monofill, the Discharger shall request approval from the Colorado River Basin Water Board's Executive Officer.
4. Waste materials shall not be discharged on any ground surface that is less than five (5) feet above the highest anticipated groundwater level.

5. The Discharger shall not cause degradation of any water supply.

6. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources, shall not contact or percolate through the wastes discharged at the WMF.

7. The exterior surfaces of the disposal area, including the intermediate and final Landfill covers, shall be graded and maintained to promote lateral runoff of precipitation and to prevent ponding.

8. The WMF shall be operated and maintained to prevent inundation, washout, or erosion of wastes or covering material, which could occur as a result of floods having a predicted frequency of once in 100 years.

9. The Discharger shall implement the attached Monitoring and Reporting Program R7-2016-0016 in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the WMF, or any unreasonable impairment of beneficial uses associated with (caused by) discharges of waste to the WMF.

10. The Discharger shall use the constituents, listed in Monitoring and Reporting Program No. R7-2016-0016, Part III Summary of Self-Monitoring and Reporting Programs B.1., as "Monitoring Parameters" and revisions thereto. These Monitoring Parameters are subject to the most appropriate statistical or non-statistical test under Monitoring and Reporting Program No. R7-2016-0016, Part III, and any revised Monitoring and Reporting Program approved by the Colorado River Basin Water Board's Executive Officer.

11. The discharge shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored

medium at any Monitoring Point assigned to Detection Monitoring pursuant to Part II.B.4. of attached Monitoring and Reporting Program No. R7-2016-0016.

12. The discharge shall not cause the release of pollutants, or waste constituents in a manner that could cause a condition of contamination, or pollution to occur, as indicated by the most appropriate statistical (or non-statistical) data analysis method and retest method listed in Part III of attached Monitoring and Reporting Program No. R7-2016-0016.

13. The Discharger shall remove and relocate any wastes that are discharged at this site in violation of these requirements.

14. The Discharger shall comply with the Water Quality Protection Standards (WQPS) for Detection Monitoring established by the Colorado River Basin Water Board in this Board Order pursuant to Section 20390, Title 27. The following are five (5) parts of the WQPS as established by the Colorado River Basin Water Board (the terms of art used in this Board Order regarding monitoring are defined in Part I.B. of attached Monitoring and Reporting Program No.R7-2016-0016, and revisions thereto, which is hereby incorporated by reference):

    a. The Discharger shall test for monitoring parameters and Constituents of Concern (COC) listed in the Monitoring and Reporting Program. R7-2016-0016 and revisions thereto.

    b. Concentration Limits - for each monitoring point, the concentration limit for each monitoring parameter and constituent of concern (as stated in Detection Monitoring Program RB-2016-16), shall be its background value as obtained during that reporting period.

    c. Monitoring Points and Background Monitoring Points for Detection Monitoring shall be those listed in attached Monitoring and Reporting Program R7-2016-0016, and any revised Monitoring and Reporting Program approved by the Colorado River Basin Water Board's Executive Officer. Monitoring Points and Background Monitoring Points are shown on Attachment B which is made a part of this Order by reference.

    d. Points of Compliance shall be those Monitoring Points listed in attached Monitoring and Reporting Program R7-2016-0016.

    e. Compliance Period - The estimated duration of the compliance period for this WMF is 30 years. Each time the Standard is not met (i.e. a release is discovered), the WMF begins a Compliance Period on the date the Colorado River Basin Water Board directs the Discharger to begin an Evaluation and Monitoring Program (EMP). If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the WMF has been in continuous compliance for at least three (3) consecutive years.

B. Prohibitions

1. The direct or indirect discharge of any waste to any surface waters or surface drainage courses is prohibited.

2. The discharge of waste to land not owned or controlled by Discharger is prohibited.

3. The discharge of hazardous waste as defined in Title 27 at this WMF is prohibited.

4. The discharge or deposit of designated waste as defined in Title 27 at this WMF is prohibited unless approved by the Colorado River Basin Water Board's Executive Officer.

5. The discharge of liquid or semi-solid waste (i.e., containing less than 50 percent solids) to the WMF is prohibited unless approved by the Colorado River Basin Water Board's Executive Officer.

6. The co-disposal of incompatible wastes is prohibited.

7. The discharge shall neither cause nor contribute to the contamination or pollution of groundwater via the release of waste constituents in either liquid or gaseous phase.

8. The Discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to Monitoring and Reporting Program R7-2016-0016.

C. Provisions

1. The Discharger shall comply with Monitoring and Reporting Program R7-2016-0016, and future revisions thereto, as specified by the Colorado River Basin Water Board's Executive Officer.

2. The Discharger shall not cause any increases in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil or other geologic materials outside the Landfill if such waste constituents could migrate to waters of the State in either the liquid or the gaseous phase, and cause conditions of contamination or pollution.

3. **Within 6 months** of adoption of this Board Order, the Discharger shall complete and submit a trend analysis for the groundwater data for all onsite groundwater monitoring wells; intra-well and inter-well. The trend analysis shall determine the significance of any increases in the concentration of waste constituents (such as chloride, sulfate and TDS) in groundwater beneath the site, over the footprint of the landfill and within each monitoring well over time. The analysis shall also demonstrate the suitability or lack thereof of designating W306 as the background well for the landfill. The Discharger shall submit professional recommendations based on the results of the analysis. Maps showing the direction of flow and gradient isopleths for COC's and an appropriate evaluation of the groundwater monitoring data shall be included with the analysis. The analysis/report shall be completed by a California Registered Professional Engineer or Professional Geologist.

4. The Discharger shall immediately notify the Colorado River Basin Water Board of any flooding, slope failure or other change in site conditions that could impair the integrity of waste containment facilities or of precipitation and drainage control structures.

5. The Discharger, within 48 hours of a significant earthquake event, shall inform the Colorado River Basin Water Board's Executive Officer by telephone of any physical damages to the containment features and groundwater monitoring facilities. Within 10 working days, the Discharger shall submit to the Colorado River Basin Water Board a detailed post-earthquake report describing any physical damages to the containment features and/or groundwater monitoring systems, and a corrective action plan to be implemented at the WMF.

6. The Discharger shall submit to the Colorado River Basin Water Board a final closure and post-closure maintenance plan, pursuant to Title 27, one (1) year prior to the anticipated closure of Cell 3, for review and approval by the Colorado River Basin Water Board's Executive Officer. Final closure and post-closure maintenance plan shall include seismicity studies.

7. Within 180 days of the adoption of this Board Order, the Discharger shall submit to the Colorado River Basin Water Board, pursuant to Title 27, assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the Facility, for staff review and approval by the Colorado River Basin Water Board's Executive Officer.

8. The Discharger shall submit to this Colorado River Basin Water Board for review and approval by the Colorado River Basin Water Board's Executive Officer, evidence of Financial Assurance for Closure and Post Closure, pursuant to Section 22212, Title 27. The post-closure period shall be at least 30 years. However, the post-closure maintenance period shall extend as long as the waste poses a threat to water quality.

9. The Discharger shall maintain legible records on the volume and type of each waste discharged at the WMF. These records shall be available for review by representatives of the Colorado River Basin Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Colorado River Basin Water Board.

10. The Discharger shall maintain visible monuments identifying the boundary limits of the entire WMF.

11. The Discharger shall comply with the existing load-checking program.

12. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.

13. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the WMF inoperable.

14. Annually, prior to the first day of November, any necessary erosion control measures shall be implemented, including any necessary construction, maintenance, or repairs of precipitation and drainage control facilities to prevent erosion and flooding of the WMF. The report thereon shall be submitted to the Colorado River Basin Water Board by **November 15** of each year.

15. All containment structures and erosion and drainage control systems shall be designed and constructed under direct supervision of a California licensed professional; Civil Engineer or Certified Engineering Geologist, and shall be certified by the individual as meeting prescriptive standards and performance goals of Title 27.

16. The Discharger shall allow the Colorado River Basin Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

    a. Enter upon the premises regulated by this Board Order, or the place where records must be kept under the conditions of this Board Order;

    b. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Board Order;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Board Order;

    d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Board Order or as otherwise authorized by the California Water Code, any substances or parameters at this location.

17. The Discharger shall ensure that all site-operating personnel are familiar with the content of this Board Order, and shall maintain a copy of this Board Order at the site.

18. Prior to any modifications at this Facility that would result in change in the quality or quantity of waste discharged at the WMF; the Discharger shall report all pertinent information in writing to the Colorado River Basin Water Board and obtain revised WDRs prior to any modifications being implemented.

19. Prior to any change in ownership of this operation, the Discharger shall transmit a copy of this Board Order to the succeeding owner, and forward a copy of the transmittal letter to the Colorado River Basin Water Board.

20. The Discharger is the responsible party for the WDRs and the Monitoring and Reporting Program for the WMF. The Discharger shall comply with all conditions of the WDRs. Violations may result in enforcement actions, including Colorado River Basin Water Board Orders or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these WDRs by the Colorado River Basin Water Board.

21. The Colorado River Basin Water Board considers the property owner to have a continuing responsibility for correcting any problems that may arise in the future, as a result of this waste discharge.

22. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

23. This Board Order does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal right, nor any infringement of federal, state, or local laws or regulations.

24. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports. Such monitoring reports shall be submitted in accordance with the specifications prepared by the Colorado River Basin Water Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

25. The Discharger may be required to submit technical reports as directed by the Colorado River Basin Water Board's Executive Officer.

26. Unless otherwise approved by the Colorado River Basin Water Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Water Board's Laboratory Certification Program. All analyses shall be conducted pursuant to the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants", promulgated by the USEPA.

27. The Discharger shall maintain its storm water regulatory coverage and compliance with the Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 2014-0057-DWQ NPDES No. CAS000001, or the most recent version of this order.

28. This Board Order is subject to Colorado River Basin Water Board review and updating, as necessary to comply with changing State or Federal laws, regulations, policies, or guidelines, or changes in the discharge characteristics.

29. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with Chapter 30, Division 3, Title 23 of the California Code of Regulations (CCR), as groundwater raw data uploads electronically over the internet into the State Water Board's GeoTracker https://geotracker.waterboards.ca.gov/ database. Documents that are normally mailed by the Discharger, such as regulatory documents, narrative technical monitoring program reports, and such reports submissions, materials, data, and correspondence, to the Colorado River Basin Water Board shall also be uploaded into GeoTracker in the appropriate Microsoft software application, such as word, excel, or an Adobe Portable Document Format (PDF) file. Large documents are to be split into manageable file sizes appropriately labelled and uploaded into GeoTracker. The Facility is identified in the GeoTracker by the global identification number L10003472657 and in the California Integrated Water Quality Systems (CWIQS) by waste discharge identification (WDID) No. 7A 13 2197 001

I, Jose Angel, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on June 30, 2016.

Jose L. Angel

JOSE L. ANGEL, P.E.
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM R7-2016-0016
FOR
MAGMA POWER COMPANY, OWNER
CALENERGY OPERATING CORPORATION, OWNER/ OPERATOR
CLASS II SOLID WASTE MANAGEMENT FACILITY

Northwest of Westmorland – Imperial County

CONSISTS OF:

PART I – GENERAL REQUIREMENTS
PART II – MONITORING REQUIREMENTS
PART III – STATISTICAL AND NON-STATISTICAL ANALYSIS
SUMMARY OF SELF-MONITORING AND REPORTING REQUIREMENTS

PART I

GENERAL REQUIREMENTS

A. GENERAL

1. This Monitoring and Reporting Program (MRP) describes requirements for monitoring a wastewater system and groundwater quality. This MRP is issued pursuant to California Water Code (Water Code) section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

2. Water Code section 13267 states, in part:

   "In conducting an investigation specified in subdivision (a), the Colorado River Basin Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Colorado River Basin Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Colorado River Basin Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

3. Water Code section 13268 states, in part:

   "(a) (1) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of § 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of Section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor, and may be liable civilly in accordance with subdivision (b). (b) (1) Civil liability may be administratively imposed by a Colorado River Basin Water Board in accordance with Article 2.5 (commencing with § 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs."

4. The Discharger owns and operates the waste management Facility that is subject to Order R7-2016-0016. The reports are necessary to ensure that the Discharger complies with the Order. Pursuant to Water Code section 13267, the Discharger shall implement the MRP and shall submit the monitoring reports described herein.

5. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. If composite samples are collected, the basis for

sampling (time or flow weighted) shall be approved by Colorado River Basin Regional Water Quality Control Board staff.

6. Field test instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that:

    a. The user is trained in proper use and maintenance of the instruments;

    b. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;

    c. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

    d. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

7. The collection, preservation and holding times of all samples shall be in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Colorado River Basin Regional Water Quality Control Board Executive Officer, all analyses shall be conducted by a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP) with the State Water Board's Division of Drinking Water. All analyses shall be conducted in accordance with the latest edition of the "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136), promulgated by the USEPA.

B. DEFINITION OF TERMS

1. Affected Persons – all persons who either own or occupy land outside the boundaries of the parcel upon which a waste management unit (surface impoundment or impoundment) is located that has been or may be affected by the release of waste constituents from the unit.

2. Background Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is upgradient or side gradient from the impoundment assigned by this MRP, where water quality samples are taken that are not affected by a release from the impoundment and that are used as a basis of comparison against samples taken from downgradient Monitoring Points. Alternatively (in accordance with Section 21750 (g)(7) of Title 27 of the California Code of Regulations), where hydrogeologic conditions do not allow the determination of the upgradient direction, or where sampling at other wells will provide a representative indication of background water quality, other wells may be used as the background monitoring point(s).

3. Constituents of Concern (COCs) – those constituents likely to be in the waste, or derived from waste constituents in the event of a release from the impoundment.

4. Matrix Effect – refers to any change in the Method Detection Limit (MDL) or Practical Quantitation Limit (PQL) for a given constituent as a result of the presence of other

constituents - either of natural origin or introduced through a spill or release - that are present in the sample being analyzed.

5. Method Detection Limit (MDL) – the lowest constituent concentration that can support a non-zero analytical result with 99 percent reliability. The MDL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

6. Monitored Media – water - bearing media monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) groundwater in the uppermost aquifer, in any other portion of the zone of saturation (as defined in Title 27, Section 20164) in which it would be reasonable to anticipate that waste constituents migrating from the surface impoundment could be detected, and in any perched zones underlying the impoundment, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the surface impoundment, and (4) soil-pore gas beneath and/or adjacent to the surface impoundment.

7. Monitoring Parameters – the list of constituents and parameters used for the majority of monitoring activity.

8. Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is downgradient from the surface impoundment assigned by this MRP, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.

9. Practical Quantification Limit (PQL) – the lowest constituent concentration at which a numerical concentration can be assigned with a 99 percent certainty that its value is within 10 percent of the actual concentration in the sample. The PQL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

10. Reporting Period – the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. Unless otherwise stated, the due date for any given report shall be 30 days after the end of its Reporting Period.

11. Sample Size –

    a. For Monitoring Points – the number of data points obtained from a given Monitoring Point during a given Reporting Period – used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period.

    b. For Background Monitoring Points – the number of new and existing data points from all applicable Background Monitoring Points in a given Monitored Medium – used to collectively represent the background concentration and variability of a given analyte in carrying out a statistical or non-statistical analysis of that analyte during a given Reporting Period.

12. Uppermost Aquifer – the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

13. Volatile Organic Constituents (VOCs) – the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.

14. VOC_{water} – the composite monitoring parameter that includes all VOCs that are detectable in less than 10 percent of the applicable background samples. This parameter is analyzed, using the non-statistical method described in Part III.A.2. of this MRP, to identify releases of VOCs that are detected too infrequently in backgroundwater to allow for statistical analysis.

C. SAMPLING AND ANALYTICAL METHODS

1. Methods, analysis, and detection limits used must be appropriate for expected concentrations. For detection monitoring of any constituent or parameter found in concentrations that produce more than 90% non-numerical determinations (i.e. "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical methods having the lowest "facility-specific method detection limit (MDL)", defined in Part I.B.5., shall be selected from among those methods that provide valid results in light of any "Matrix Effects" (defined in Part I.B.4.) involved.

2. Analytical results falling between the MDL and the PQL shall be reported as "trace", and shall be accompanied both by the estimated MDL and PQL values for that analytical run, and by an estimate of the constituent's concentration.

3. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific equipment used by the lab. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.

4. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of any recovery rate that is less than 80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.

5. Upon receiving written approval from the Colorado River Basin Regional Water Quality Control Board Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that

is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Colorado River Basin Regional Water Quality Control Board staff.

6. In cases where contaminants are detected in QA/QC samples (i.e. field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

7. The MDL shall always be calculated such that it represents a concentration associated with a 99 percent reliability of a non-zero result.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Colorado River Basin Regional Water Quality Control Board. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;

2. Date and time of sampling;

3. Date and time that analyses were started and completed, and the initials of the personnel performing each analysis;

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

5. Calculations of results; and

6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE COLORADO RIVER BASIN WATER BOARD

1. Detection Monitoring Reports – For each Monitored Medium, all Monitoring Points and Background Monitoring Points assigned to detection monitoring under Part II.B.7 of this MRP shall be monitored **quarterly** for the Monitoring Parameters (Part II.B.4). A "Detection Monitoring Report" shall be submitted to the Colorado River Basin Regional Water Quality Control Board in accordance with the schedule contained in the Summary of Self-Monitoring and Reporting Requirements, and shall include the following:

   a. A Letter of Transmittal that summarizes the essential points in each report shall accompany each report submittal. The letter of transmittal shall be signed by a principal executive officer at the level of vice-president or above, or by his/her duly

authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter of transmittal shall include:

i. A discussion of any violations noted since the previous report submittal and a description of the actions taken or planned for correcting those violations. If no violations have occurred since the last submittal, that should be so stated;

ii. If the Discharger has previously submitted a detailed time schedule or plan for correcting any violations, a progress report on the time schedule and status of the corrective actions being taken; and

iii. A statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. A Compliance Evaluation Summary shall be included in each Detection Monitoring Report. The compliance evaluation summary shall contain at least:

i. Velocity and direction of groundwater flow for each monitored groundwater body under and around the surface impoundment based upon the water level elevations taken during the collection of water quality data. A description and graphical presentation (e.g., arrow on a map) shall be submitted;

ii. Methods used for water level measurement and pre-sampling purging for each monitoring well addressed by the report including:

1. Method, time, and equipment used for water level measurement;
2. Type of pump used for purging, placement of the pump in the well, pumping rate, and well recovery rate;
3. Methods and results of field testing for pH, temperature, electrical conductivity, and turbidity, including;

a. Equipment calibration methods, and
b. Method for disposing of purge water

iii. Methods used for sampling each Monitoring Point and Background Monitoring Point, including:

1. A description of the type of pump, or other device used, and its placement for sampling;
2. A detailed description of the sampling procedure: number and description of samples, field blanks, travel blanks, and duplicate samples; types of containers and preservatives used; date and time of sampling; name and qualifications of individual collecting samples, and other relevant observations;

c. A map or aerial photograph showing the locations of Monitoring Points, and Background Monitoring Points;

d. For each Detection Monitoring Report, provide all relevant laboratory information including results of all analyses, and other information needed to demonstrate compliance with Part I.C.;

e. An evaluation of the effectiveness of the run-off/run-on control facilities;

f. A summary of reportable spills/leaks occurring during the reporting period; include estimated volume of liquids/solids discharged outside designated containment area, a description of management practices to address spills/leaks, and actions taken to prevent reoccurrence.

2. Annual Summary Report – The Discharger shall submit to the Colorado River Basin Regional Water Quality Control Board, an "Annual Summary Report" for the period extending from April 1 through March 31. The "Annual Summary Report" is due **March 15** of each year, and shall include the following:

a. A graphical presentation of analytical data for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(14)). The Discharger shall submit, in graphical format, the laboratory analytical data for all samples taken within at least the previous five (5) calendar years. Each such graph shall plot the concentration of one (1) or more constituents over time for a given Monitoring Point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Colorado River Basin Regional Water Quality Control Board Executive Officer may direct the Discharger to carry out a preliminary investigation (Title 27, Section 20080(d)(2)), the results of which will determine whether or not a release is indicated;

b. A tabular presentation of all monitoring analytical data obtained during the previous two (2) Monitoring and Reporting Periods, submitted digitally on electronic media in a file format acceptable to the Colorado River Basin Regional Water Quality Control Board Executive Officer (Title 27, Section 20420(h)).

c. A comprehensive discussion of the compliance record and any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with WDRs;

d. A written summary of the groundwater analyses, indicating changes made since the previous annual report; and

e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to Title 27, Section 20365.

f. An evaluation of the effectiveness of the Leachate Collection and Removal System, pursuant to Section 20340, Title 27**.**

g. A map showing the area, if any, in which deposition of geothermal materials has been completed during the previous calendar year.

3. Contingency Reporting

a. The Discharger shall report any spill by telephone within 48 hours of discovery. .

After reporting a spill, a written report, uploaded to the GeoTracker Data Base, shall be filed with the Colorado River Basin Regional Water Quality Control Board Executive Officer within seven (7) days, containing at a minimum the following:

i. A map showing the location(s) of the discharge/spill;

ii. A description of the nature of the discharge (all pertinent observations and analyses including quantity, duration, etc.); and

iii. Corrective measures underway or proposed.

b. Should the initial statistical comparison (Part III.A.1.) or non-statistical comparison (Part III.A.2.) indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall immediately notify the Colorado River Basin Regional Water Quality Control Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven (7) days of such determination (Title 27, Section 20420(j)(1)), and shall conduct a discrete retest in accordance with Part III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.3.d. In any case, the Discharger shall inform the Colorado River Basin Regional Water Quality Control Board of the outcome of the retest as soon as the results are available, following up with written results uploaded to the GeoTracker Data Base within seven (7) days of completing the retest.

c. If either the Discharger or the Colorado River Basin Regional Water Quality Control Board determines that there is significant physical evidence of a release (Title 27, Section 20385(a)(3)), the Discharger shall immediately notify the Colorado River Basin Regional Water Quality Control Board of this fact by uploading the information to the GeoTracker Data Base and shall carry out the requirements of Part I.E.3.d. for all potentially-affected monitored media.

d. If the Discharger concludes that a release has been discovered:

i. If this conclusion is not based upon “direct monitoring” of the Constituents of Concern, pursuant to Part II.A.5., then the Discharger shall, within thirty days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the Discharger shall notify the Colorado River Basin Regional Water Quality Control Board, by uploading to the GeoTracker Data Base the

concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Title 27 Section 20420(k)(1));

ii. The Discharger shall, within 90 days of discovering the release (Title 27, Section 20420(k)(5)), submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program, meeting the requirements of Title 27, Section 20425; and

iii. The Discharger shall, within 180 days of discovering the release (Title 27, Section 20420(k)(6), submit a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20430. Both requirements (ii. and iii.) shall be uploaded to the GeoTracker Data Base.

e. Any time the Discharger concludes - or the Colorado River Basin Regional Water Quality Control Board Executive Officer directs the Discharger to conclude - that a liquid phase release from the surface impoundment has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

i. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release; and

ii. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding a material change in the nature or extent of the release has occurred.

PART II

MONITORING REQUIREMENTS

A. WASTE MONITORING

Report the following quarterly:

1. A table reporting the amount of waste received in tons for each month of the previous reporting period;

2. A table presenting the amount of ponded liquid removed from the Monofill for each month of the previous reporting period. If no liquid is present to remove then the statement of "No liquids present" shall be put in the report;

3. Describe the general condition of the Monofill (general maintenance, condition of slopes, etc.);

4. A map showing the locations of all observation stations, groundwater monitoring wells, vadose wells, and any other monitoring points.

B. GROUNDWATER SAMPLING AND ANALYSIS FOR DETECTION MONITORING

1. Groundwater Surface Elevation and Field Parameters – Groundwater sampling and analysis shall be conducted quarterly pursuant to California ELAP rulings, and include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(13)). Groundwater elevation obtained prior to purging the well and sample collection, shall be used to fulfill the quarterly groundwater flow rate/direction analyses required under Part I.E.1.b.i. Groundwater wells shall be gauged using an electronic sounder capable of measuring depth to groundwater within 100th of an inch. Following gauging, wells shall be purged according to EPA groundwater sampling procedures until:

   a. pH, temperature, and conductivity are stabilized within 10 percent, and
   b. turbidity has been reduced to 10 NTUs or the lowest practical levels achievable.

   The above identified parameters shall be recorded in the field, and submitted in the monitoring report. Sampling equipment shall be decontaminated between wells. Discharge to the ground surface is prohibited.

2. Groundwater Sample Collection - Groundwater samples shall be collected from all monitoring points and background monitoring points after wells recharge to within at least 80 percent of their original static water level. Groundwater samples shall be collected with a peristaltic pump that is decontaminated between sampling events. Samples shall be labeled, logged on chain-of-custody forms, and placed in cold storage pending delivery to a State certified analytical laboratory.

3. Five-Day Sample Procurement Limitation – To satisfy data analysis requirements for a given reporting period, samples collected from all Monitoring Points and Background Monitoring Points shall be taken within a span not exceeding five (5) days, and shall be taken in a manner that insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)).

4. Groundwater Monitoring Parameters for Detection Monitoring – Groundwater samples collected from monitoring points and background monitoring points shall be analyzed for the following:

Parameter & Constituents	Unit	Sampled	Reported
Groundwater Elevations	USGS Datum	Quarterly	Quarterly
Temperature	°F	Quarterly	Quarterly
pH	#	Quarterly	Quarterly
Specific Conductance	μmhos/cm	Quarterly	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
Arsenic	mg/L	Quarterly	Quarterly
Barium	mg/L	Quarterly	Quarterly
Cadmium	mg/L	Quarterly	Quarterly
Lead	mg/L	Quarterly	Quarterly
Zinc	mg/L	Quarterly	Quarterly
Sodium	mg/L	Quarterly	Quarterly
Sulfate	mg/L	Quarterly	Quarterly
Chloride	mg/L	Quarterly	Quarterly
Gross Alpha Particles	pCi/L	Quarterly	Quarterly
Gross Beta Particles	pCi/L	Quarterly	Quarterly

5. All Monitoring Points assigned to Detection Monitoring shall be sampled quarterly pursuant to the following schedule and for parameters listed in the Part II.B.4.

    1. First Quarterly Report (January 1st through March 31th) – Due by April 30th
    b. Second Quarterly Report (April 1st through June 30st) – Due by July 31st
    c. Third Quarterly Report (July 1st through September 30th) – Due by October 31st
    d. Forth Quarterly Report (October 1st through December 31st) – Due January 31st

6. Data Analysis – Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this monitoring program.

7. Monitoring Points and Background Monitoring Points – The Discharger shall sample the following Monitoring Points and Background Monitoring Points in accordance with the sampling schedule given under Parts II.A.5. (immediately foregoing), obtaining sufficient samples to qualify for the most appropriate test under Part III. For groundwater in the upper most aquifer, the Monitoring Points shall be:

    a. Upgradient Well:

        i. Well W306

b. Downgradient Wells:

i. Well W302
ii. Well 305
iii. Well W309
iv. Well W307
v. Well W308
vi. Well W01
vii. Well W10A
viii. Well W09A
ix. Well W11
x. Well W12

8. Initial Background Determination: For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point (Title 27, Section 20415(e)(6)):

a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, the Discharger shall collect at least one (1) sample **quarterly** for at least one (1) year from each Background Monitoring Point in each monitored medium and analyze for the newly-added constituent(s); and

b. Whenever a new Background Monitoring Point is added, including any added by this Order, the Discharger shall sample the new monitoring point at least **quarterly** for at least one (1) year, analyzing for all Constituents of Concern and Monitoring Parameters.

9. Quarterly Determination of Groundwater Flow Rate/Direction (Title 27, Section 20415(e)(15): The Discharger shall measure the water level in each well and determine groundwater flow rate and direction in each groundwater body described in Part II.A.1. at least quarterly. This information shall be included in the quarterly Detection Monitoring Reports required under Part I.E.1.

10. "Direct Monitoring" of all Constituents of Concern Every Five (5) Years. In the absence of a release being indicated (1) pursuant to Parts II.B.2. and III.A.3. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c. or (3) by a study required by the Regional Board's Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Part I.E.3.a.), the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, for all Constituents of Concern every fifth year, with successive direct monitoring efforts being carried out in 2004 and every fifth year, thereafter. Direct monitoring for Constituents of Concern shall be carried out in accordance with Part II.B.4 of this program, and shall encompass only those Constituents of Concern listed in the Summary of Self-Monitoring and Reporting Program.

C. LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS) MONITORING

The following are the monitoring and reporting requirements of the LCRS for each **quarterly** report:

1. The LCRS shall be inspected weekly and any liquid present shall be removed and stored in either an above ground storage tank or lined surface impoundment. The liquid removed shall have field Specific Conductance and pH readings taken and recorded;

2. A table presenting the amount of liquid removed from the LCRS for each month of the reporting period. If no liquid is present to remove then the statement "No liquid present" shall be reported in the report.

D. LEAK DETECTION SYSTEM (LDS) MONITORING

The following are the monitoring and reporting requirements of the LDS for each **quarterly** report.

1. Each LDS sump shall be monitored weekly and any liquid found shall be removed and stored in either above ground storage tanks or lined surface impoundments used for the LCRS liquids. The liquid removed shall have field Specific Conductance and pH readings taken and recorded;

2. A table presenting the amount of liquid removed from the LDS for each month of the previous reporting period. If no liquid is present then the statement "No liquid present" shall be reported in the report;

3. Should an amount of liquid or analysis of the liquid removed from the LDS alert the discharger that leak may be occurring from the primary liner, the discharger shall contact the Regional Board immediately.

E. VADOSE ZONE MONITORING

The following are the monitoring and reporting requirements of the vadose zone monitoring for each quarterly report.

1. The vadose zone monitoring system shall be monitored on a quarterly basis. The results shall be presented in a table and shall report, at a minimum, the last four measurements taken for each access tube;

2. A written summary of the vadose zone data collected and summary of what the data represents shall be submitted;

3. Should a moisture measurement alert the discharger that a liquid leak may be occurring from the Monofill, the discharger shall contact the Regional Board immediately.

PART III

STATISTICAL AND NON-STATISTICAL ANALYSES

A. STATISTICAL AND NON-STATISTICAL ANALYSIS

The Discharger shall use the following method to compare the downgradient concentration of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the surface impoundment. For any given data set, the non-statistical method shall be used. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.2.

1. Statistical Methods. The Discharger shall use one (1) of the following statistical methods to analyze Monitoring Parameters, which exhibit concentrations exceeding their respective MDL in at least 10 percent of the background samples taken during that Reporting Period. Except for pH, which uses a two (2)-tailed approach, the statistical analysis for all constituents and parameters shall be one (1)-tailed (testing only for statistically significant increase relative to background):

   a. One (1)-Way Parametric Analysis of Variance ANOVA followed by multiple comparisons (Section 20415(e)(8)(A)). This method requires at least four (4) independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data from the parameter of constituent, obtained during a given sampling period, has not more than 15% of the data below PQL. Prior to analysis, replace all 'trace' determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all "non-detect" determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent;

   b. One (1)-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons. This method requires at least nine (9) independent samples from each Monitoring Point and Background Monitoring Point, therefore, the Discharger shall anticipate the need for taking more than four (4) samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50% of the data below the PQL. The ANOVA shall be carried out 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be

rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or

c. Method of Proportions. This method shall be used if the "combined data set", the data from a given Monitoring Point in combination with the data from the Background Monitoring Points, has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method (1) requires at least nine (9) downgradient data points per Monitoring Point per Reporting Period, (2) requires at least 30 data points in the combined data set, and (3) requires that N * P > 5 (where N is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, the Discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter; or

d. Other Statistical Methods. These include methods pursuant to Section 20415(e)(8)(c-e) of Title 27, CCR.

2. Non-Statistical Method. The Discharger shall use the following non-statistical methods for all constituents that are not amenable to statistical analysis by virtue of having been detected in less than 10% of applicable background samples. A separate variant of this test is used for the VOC_{water} Composite Monitoring Parameters. Regardless of the test variant used, the method involves a two-step process: (1) from all constituents to which the test variant applies, compile a list of those constituents which equal or exceed their respective MDL in the downgradient sample from a given Monitoring Point, then (2) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions. For each Monitoring Point, the list described above shall be compiled based on either the data from a single sample taken during the Monitoring Period for that Monitoring Point, or (where several independent samples have been analyzed for that constituent at a given Monitoring Point) from the sample that contains the largest number of detected constituents. Background shall be represented by the data from all samples taken from the appropriate Background Monitoring Points during that Reporting Period (at least one (1) sample from each Background Monitoring Point). The method shall be implemented as follows:

   a. VOC_{water} Composite Monitoring Parameter – For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all detectable VOCs including at least all 47 VOCs listed in Appendix I to 40 CFR 258 and all unidentified peaks. The Discharger shall compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (an unidentified peak is compared to its presumed (MDL), and also (2) exceeds its MDL in less than ten percent of the samples taken during that Reporting Period from that medium's Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} composite Monitoring Parameter if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL;

b. Constituents of Concern: As part of the COC monitoring required under Part 2.A.5 of this MRP, for each Monitoring Point, the Discharger shall compile a list of COCs that exceed their respective MDL at the Monitoring Point, yet do so in less than ten percent of the background samples taken during that Reporting Period. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL.

3. Discrete Retest – In the event that the Discharger concludes that a release has been tentatively indicated (under Parts III.A.1. or III.A.2.), the Discharger shall, within 30 days of that conclusion, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicated Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of Background Monitoring Points is optional. As soon as the retest data is available, the Discharger shall use the same statistical method or non-statistical comparison separately on each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter that triggered the indication there, as follows:

a. If an ANOVA method was used in the initial test, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two (2) new suites of samples taken from the indicating Monitoring Point;

b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, carried out separately on each of the two (2) new sample suites from the indicating Monitoring Point;

c. If the non-statistical comparison was used:

i. Because the VOC Composite Monitoring parameters (VOC_{water}) each address, as a single parameter, an entire family of constituents which are likely to be present in any surface impoundment release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the confirming retest sample(s) differs from that in the sample that initiated the retest;

ii. Because all Constituents of Concern that are jointly addressed in the non-statistical testing under Part III.A.2. remain as individual Constituents of Concern, the scope of the laboratory analysis for the non-statistical retest samples shall be narrowed to involve only those constituents detected in the sample which initiated the retest.

B. RESPONSES TO VOC DETECTION IN BACKGROUND

1. Except as indicated in Part III.B.2., below, any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under Part III.A., shows either (1) two or more VOCs above their respective MDL, or (2) one VOC above its respective PQL, then the Discharger shall immediately notify the Regional Board by phone that possible background contamination has occurred, shall follow up with written notification by certified mail within seven days, and shall obtain two new independent VOC samples from that Background Monitoring Point and send them for laboratory analysis of all detectable VOCs with 30 days. If either or both the new samples validates the presence of VOC(s) at that Background Monitoring Point, using the above procedure, the Discharger shall:

    a. Immediately notify the Regional Board about the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven (7) days of validation; and

    b. Within 180 days of validation, submit a report, acceptable to the Regional Board's Executive Officer, which examines the possibility that the detected VOC(s) originated from the WMF and proposing appropriate changes to the Monitoring Program.

2. If the Regional Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the VOC(s) detected originated from a source other than the WMF, the Regional Board's Executive Officer will make appropriate changes to the Monitoring Program.

3. If the Regional Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the detected VOC(s) most likely originated from the WMF, the Discharger shall assume that a release has been detected and shall immediately begin carrying out the requirements of Part I.E.2.d.

SUMMARY OF SELF-MONITORING

A. WASTE MONITORING

Report the following quarterly:

1. Record the total amount of waste in tons disposed of at the site during each month.

2. Table presenting amount of any ponded liquid removed from monofill

3. Discuss general condition of the monofill (maintenance, condition of berms, etc.)

4. A map showing the locations of all observation stations, groundwater monitoring wells, vadose wells, and any other monitoring point.

5. Include a description of the waste stream.

B. GROUND WATER ANALYSIS FOR DETECTION MONITORING

1. "Indirect Monitoring" for Monitoring Parameters completed **quarterly**. The ground water monitoring points assigned to Detection Monitoring in Part II.B.1. of this Program, and shall be sampled quarterly. The Detection Monitoring Points shall be sampled for the following Monitoring Parameters:

Parameter & Constituents	Unit	Sampled	Reported
Groundwater Elevations	USGS Datum	Quarterly	Quarterly
Temperature	°F	Quarterly	Quarterly
pH	#	Quarterly	Quarterly
Specific Conductance	μmhos/cm	Quarterly	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
Arsenic	mg/L	Quarterly	Quarterly
Barium	mg/L	Quarterly	Quarterly
Cadmium	mg/L	Quarterly	Quarterly
Lead	mg/L	Quarterly	Quarterly
Zinc	mg/L	Quarterly	Quarterly
Sodium	mg/L	Quarterly	Quarterly
Sulfate	mg/L	Quarterly	Quarterly
Chloride	mg/L	Quarterly	Quarterly
Gross Alpha Particles	pCi/L	Quarterly	Quarterly
Gross Beta Particles	pCi/L	Quarterly	Quarterly

The collection, preservation and holding times of all samples shall be in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Regional Board's Executive Officer, all analyses shall be conducted by a laboratory certified by the State Water Resources Control Board's Division of Drinking Water. All analyses shall be conducted in accordance with the latest

edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR 136), promulgated by the USEPA.

2. "Direct Monitoring" of all Constituents of Concern Done **Every Five Years**. In the absence of a release being indicated (1) pursuant to Parts II.B.2. and III.A.3. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c., or (3) by a study required by the Regional Board's Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Part I.E.3.a.), the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, for all Constituents of Concern every five years. Direct monitoring efforts shall be carried out in 2004 and every five years thereafter. The Five-Year Constituents of Concern Report shall be submitted with the appropriate Annual Report for that five-year sampling event.

   Direct monitoring for Constituents of Concern shall be carried out pursuant to Parts II.B.2. and III of this program, and shall encompass only those Constituents of Concern that do not also serve as a Monitoring Parameter.

   The Constituents of Concern for water-bearing media (i.e. ground water, surface water, and soil-pore liquid) shall consist of the combined listing of all constituents listed in Appendices I and II, 40 CFR Part 258, in addition to:

Constituent	Units
Fluoride	mg/L
Nitrate	mg/L
Gross Alpha Particles	pCi/L
Gross Beta Particles	pCi/L
Cesium 137*	pCi/L
Cobalt 60*	pCi/L
Radium 226*	pCi/L
Potassium 40*	pCi/L
Thorium 228*	pCi/L
Thorium 232*	pCi/L
(* by gamma scan)	
Total Dissolved Solids	mg/L
pH	#
Electrical Conductivity	μmhos/cm

C. LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS) MONITORING

Report the following inspections and data quarterly:

1. Inspect weekly and remove any liquid
2. Table showing the amount of liquid removed from LCRS per month

D. LEAK DETECTION SYSTEM (LDS) MONITORING

Report the following inspections and data quarterly:

1. Inspect LDS weekly and remove any liquid
2. Table showing the amount of liquid removed from LDS per month

E. VADOSE ZONE MONITORING

Report the following quarterly:

1. Data from quarterly monitoring of vadose zone presented in tabular form.
2. Written summary of what the data represents.

F. ANNUAL REPORT

The Discharger shall submit an annual report to the Regional Board on March 15th of each year covering the previous monitoring year as described in Part I.3. of this Monitoring and Reporting Program.

SUMMARY OF REPORTING REQUIREMENTS

1. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with Waste Discharge Requirements.

2. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurement(s);
   b. The individual(s) who performed the sampling or measurement(s);
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or method used; and
   f. The results of such analyses.

3. Each report shall contain the following statement:

   "I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

4. A duly authorized representative of the Discharger may sign the documents if:

   a. The authorization is made in writing by the person described above;

b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and

c. The written authorization is submitted to the Regional Board's Executive Officer.

5. Quarterly Monitoring Reports shall be submitted to the Regional Board quarterly according to the following schedule:

4. First Quarterly Report (January 1st through March 31th) – Due by April 30th
b. Second Quarterly Report (April 1st through June 30st) – Due by July 31st
c. Third Quarterly Report (July 1st through September 30th) – Due by October 31st
d. Fourth Quarterly Report (October 1st through December 31st) – Due January 31st

7. Annual Reports Annual Monitoring Reports shall be submitted to the Regional Board by March 15th of the each year, covering the Reporting Period from the previous January 1st through December 31st.

8. Five-Year COC Reports Continuing with the 2004 COC sampling event schedule, with successive sampling efforts being carried out 2004 and every fifth year thereafter, as long as the WMF is in operation and through the closure/post-closure period.

   The Five-Year COC Report shall be submitted with the appropriate Annual Report due on March 15th, pursuant to Parts II.B.2. and Summary of Monitoring and Reporting Programs of this Monitoring and Reporting Program.

9. Contingency Reports Notify immediately by telephone, and submit a written report pursuant to Part I.E.2. of this Monitoring and Reporting Program.

10. Submit Monitoring Reports to: The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted according to Chapter 30, Division 3, Title 23 of the California Code of Regulations, as data uploads and in Portable Document Format (PDF) electronically over the internet into the State Water Board's GeoTracker database. The Facility is identified in the GeoTracker by the global identification number L10003472657 and in the California Integrated Water Quality Systems (CWIQS) by waste discharge identification (WDID) No. 7A 13 2197 001

Ordered by: Jose L. Angel
JOSE L. ANGEL, P.E.
Executive Officer
6/30/2016
Date

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C-1b Supplement Reports

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DESERT VALLEY COMPANY

7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

April 26, 2018

Ms. Patricia Valenzuela
Imperial County Planning and Development Services
801 Main Street
El Centro, California 92243

Subject: 2017 Annual Compliance Report for Desert Valley Company Monofill Conditional Use Permit #05-0020

Dear Ms. Valenzuela,

As required under Conditional Use Permit #05-0020, condition G-3.1., enclosed is the 2017 Annual Compliance Report for Desert Valley Company monofill.

Attachment A: General, Automotive and Property Damage Liability Insurance, Workman's Compensation Insurance, Financial Responsibility Facility Pollution Liability Certificate per conditions G-11 (a) & (b) and S-7 (a) & (b), respectively.
Attachment B: Designated Truck Route per condition G-13
Attachment C: Required Waste Analysis: Annual Filter Cakes from Specified Geothermal Power Plants per condition S-3
Attachment D: Imperial County Air Pollution District's Authority to Construct and Permit to Operate No. 2120 B-3 for Desert Valley Company

If you have any questions, please contact me at (760) 348-4200 or by e-mail at Anetha.Lue@calenergy.com.

Sincerely,

D. Anetha Lue Digitally signed by D. Anetha Lue
Date: 2018.04.26 15:36:37 -07'00'

D. Anetha Lue
Director, IPP Environmental Services

Attachments

Cc: Jeff Lamoure, Imperial County Environmental Health Services via Email
John A. Gay Imperial County Department of Public Works via Email
Doug Wylie, Regional Water Quality Control Board via Email
Imperial County Office of Emergency Services via Email
Lenie Sarion
Diane Cason
Jon Trujillo
Sam Rubin
Osvaldo Flores
Environmental File

DESERT VALLEY COMPANY

2017 ANNUAL REPORT

Conditional Use Permit
05-0020

General Condition
G 3.1

2017 Summary:

From January 1 to December 31, 2017, the Desert Valley Company Monofill was in operation to receive geothermal filter cake, drilling muds, incidental sheeting and cuttings and soils containing geothermal materials from specified facilities in Imperial County.

Capacity:
Desert Valley Company began operations on May 1, 1991. During the first year of operation, Desert Valley Company was permitted to receive specified material at a maximum rate of 250 tons/day average. Thereafter, the maximum was reduced to 150 tons/day. On January 24, 1996, the Integrated Waste Management Board concurred in the issuance of a revised Solid Waste Facility permit allowing for the hauling capacity of 180 tons/day. On February 1, 1996, Imperial County Environmental Health Services issued the permit. On June 17, 2003, the Integrated Waste Management Board approved an increase in the allowed daily tonnage to 750 tons/day. The maximum permitted tonnage is calculated as follows:

	Days	Tons/day	Tons
Jan. 1 - Dec. 31	365	750	273,750

In 2017, Desert Valley Company received 48,216.06 tons. This equates to 132.09 tons/day.

Volume:
After reaching the design capacity of 541,100 cubic yards, Cell 1, Cell 2 and the tie-in area were closed and capped in May, 2008. Construction of Cell 3 began in the summer of 2004 and was completed in June, 2005. The current Solid Waste Facility Permit 13-AA-0022 issued on June 26, 2003, was most recently reviewed on September 28, 2015. The permit indicates that the remaining capacity of Cell 3 is 1,058,252 cubic yards; however the Preliminary Closure/ Post Closure Maintenance Plan CalEnergy submitted to the Imperial County Division of Environmental Health on November 30, 2016, states the correct remaining site capacity of 789,644 cubic yards.

The capacity volume of Cell 3 is:

Cell 3	1,298,800 cubic yards

Maintenance and Repair:
There were no major repairs or maintenance activities at the Desert Valley Company monofill in 2017 to report.

General Conditions Update:

G-1 Acquisitions of Permits/Licenses and Compliance with General Laws

To the best of my knowledge, Desert Valley Company has complied with, and maintained all applicable County, State and Federal permits, licenses and/or approvals, including, but not limited to those required by Imperial County Planning/Building Department, Imperial County Air Pollution Control District, California Regional Water Quality Control Board, Imperial County Division of Environmental Health Services (EHS), and Public Works Department for the year 2017.

Additionally, to the best of my knowledge, Desert Valley Company has complied with all applicable laws, ordinances, and/or regulations promulgated by County, State, and Federal jurisdictions whether or not specified in the Conditional Use Permit for the year 2017.

On April 10, 2015, an application for the review of the Solid Waste Permit 13-AA-0022 was submitted to the Imperial County Public Health Department. Concurrence of the permit's 5-Year Extension was communicated by the Imperial County Health Department on September 29, 2015, stating, "no significant changes have been made to the permitted design or operations since the Solid Waste Facility Permit (SWFP) was modified on September 14, 2010". On November 19, 2015, an application to update the Waste Discharge Requirements permit (Board Order R7-2003-0075) for Desert Valley Company was submitted to the Colorado River Basin Water Quality Control Board. CalEnergy received updated Board Order R7-2016-0016 in July 2016.

A request to amend condition F.2 of the permit to Operate (PTO) No. 2120 B-2 was submitted to the Imperial County APCD in 2016. Amendment sought modification of condition F.2. requiring annual testing of radon gas. Condition F.2 of the permit was amended requiring testing (measuring) for radon gas every three years. This amendment has been captured in Authority to Construct/Permit to Operate No. 2120 B-3 issued in February 2018, herein enclosed as Attachment D.

On January 3, 2017, a Level 1 Exceedance Response Action Evaluation and Report (Level 1 ERA) was prepared and submitted to the State Water Resources Control Board to comply with National Pollutant Discharge Elimination System

(NPDES) General Permit No.CAS000001 for Discharges of Storm Water Associated with Industrial Activities (IGP), after exceeding the Numerical Action Level of Iron in 2016. Similarly, on January 2018 the Desert Valley Company monofill entered discharger Level 2 Exceedance Response Action status (ERA) for Iron after exceeding the annual Numerical Action Limit in 2017. A Level 2 ERA Action Plan has been submitted to the SWRCB detailing advanced BMP(s) selected for implementation in 2018. Level 2 Technical Report summarizing outcome of implemented action plan will be submitted in 2019. These reports will be provided as requested.

Desert Valley Company has submitted to the Planning Department any additional permit(s)/license(s) that had not already been submitted directly via another County, State, or Federal entity.

G-2 Permit/Monitoring Related Fees

Desert Valley Company has paid all of the 2017 Imperial County Planning/Building fees submitted.

G-3 Reports

Annual Reports –. An aerial photograph of the northeast quarter of Section 33 is required every 3 years. The most recent aerial photograph was taken on March 24, 2017, and was included as an attachment of the 2016 Annual Compliance Report. A summary depicting current site development of the Desert Valley Company Monofill is found on page two of this report. An updated version of the Preliminary Closure/Post-Closure Maintenance Plan (PCPCMP) was submitted by CalEnergy on November 30, 2015. The amended plan prepared by Veizades & Associates included updates of cost estimates for closure, post closure maintenance, and potential corrective actions at the site. In addition a site specific Non-Water Release Corrective Action Plan was prepared as part of the PCPCMP. Copies of the regulatory approvals by the Imperial County Department of Environmental Health, the Colorado River Basin Regional Water Board and the Department of Resources Recycling and Recovery were submitted with the 2016 report.

Desert Valley Company also submits an annual report to the Regional Water Quality Control Board. A copy was provided to the Imperial County Planning Department on March 13, 2018.

Quarterly Reports - The California Regional Water Quality Control Board amended Desert Valley Company's Waste Discharge Requirements on June

30, 2016, and requires quarterly reports. The quarterly report required by Board Order No. R7-2016-0016 includes:

-LCRS monitoring
-LDS monitoring
-Vadose zone monitoring
-Ground water well monitoring
-Summary of waste hauled on a monthly basis

Quarterly Reports- Desert Valley Company also prepares quarterly reports for the Imperial County Air Pollution Control District. This report includes:

-Types of waste
-Tonnage for each type
-Radiation badge monitoring
-Air station monitoring
-Air filter radionuclide analysis

Monthly Reports - Desert Valley Company submits a monthly report to the Imperial County Environmental Service and one report to the Imperial County Pollution Control District. The reports include:

Daily Tonnage Report
-Daily tonnage of materials received in that month
-Number of waste delivery vehicles entering the facility

High-Volume Particulate Sampler and Meteorological Data Report
- Meteorological air station data
- Airborne six day air station particulate sampler data

Special External Reports –No requests for special reports/studies were received in 2017.

G-4 Violations of Reporting Requirements

Desert Valley Company did not receive any violations of reporting requirements during 2017.

G-5 Nuisance per se/Nuisance

Desert Valley Company is not aware of any permit violations. Furthermore, to the best of my knowledge, Desert Valley Company does not maintain a "nuisance" as described in this section of the Conditional Use Permit.

G-6 Responsible Agent

In 2017, the responsible agent for Desert Valley Company is Lenie Sarion. Lenie Sarion, General Manager can be reached at (760) 348-4800 or via email at Lenie.Sarion@calenergy.com.

G-7 Encroachment Permit

Cal-Trans: An encroachment permit was obtained and maintained during the construction of the Desert Valley Road and Highway 86 construction. In 1992, Desert Valley Company received a permit for the construction of a left-hand turn lane. The construction of the left-hand turn lane was completed on March 16, 1992. Desert Valley Company did not apply for any new Encroachment Permits from CalTrans in 2017.

BLM: Desert Valley Company obtained a right-of-way permit for the construction of Desert Valley Road. However, this permit did not allow for the installation of phone or power transmission lines. In 1992, BLM issued a right-of-way permit for the construction of power/telephone poles. In June of 1992, Imperial Irrigation District connected power to the Desert Valley Company facility. No new permits were applied for in 2017.

Imperial Irrigation District: No new permits were applied for in 2017.

G-8 Construction Standards

All structures, facilities, buildings, dikes and monofill at the site are constructed in accordance with County Ordinance(s) and uniform codes, as adopted by the County, for Seismic Zone 4, and in compliance with State and Federal regulations. Permits from agencies for the construction of Cell 1&2 and administrative buildings were obtained prior to construction. Desert Valley Company applied and received all requisite permits for the construction of Cell 3. No construction activities were performed at DVC during 2017.

G-9 Archaeology

A Cultural Resources Technical Report has been made and filed with the Imperial County Planning Department. Mitigation is achieved by avoidance. Desert Valley Company allows off road vehicular traffic only as required to conduct surveys of the property.

G-10 Training

Desert Valley Company has conducted training in 2017 on a weekly, monthly and annual basis. Training covers numerous topics including:

- Material Safety Data Sheets
- Respiratory Protection
- Confined Space Entry
- Lock Out/Tag Out Procedures
- Business plan emergency spill response
- Formal annual training (including handling annual spills)
- Formal site-specific contractor training
- Radiation Awareness

G-11 Insurance and Indemnity

(a) General, Automotive and Property Damage Liability Insurance – A Certificate is sent directly to the Planning Department. Copies of Desert Valley Company's coverage are included in Attachment A.

(b) Workman's Compensation Insurance - A Certificate is sent directly to the Planning Department. A copy of Desert Valley Company's Certificate is in Attachment A.

(c) All insurance policies required here under sections **(a)** and **(b)** name the County of Imperial as an additional insured.

G-12 Provision to run with Land/Project

Desert Valley Company has not sold, transferred nor granted control of project or any right or privilege to another party.

G-13 Routes

Trucks hauling between the four locations operated by CalEnergy Operating Corporation and Desert Valley Company are confined to the designated route(s) in Attachment B. Alternate emergency routes may be used as authorized by the Imperial County Department of Public Works due to road closures during maintenance of designated roadways. In addition, when traveling on recommended hauling routes vehicle operate with the headlights on.

G-14 Seismic Detection

The Imperial County Public Works Department approved the installation of a Kinemetrics Accelerograph model SSA2. The facility is designed to withstand 0.6-g acceleration when empty.

On December 19, 2006, Desert Valley Company upgraded the seismic detection system by replacing the Kinemetrics Accelerograph with a Kinemetrics Etna Digital Recorder. In 2017, the unit recorded one seismic event. A seismic report was submitted previously with the monthly report for March 2017.

G-15 Appeals

The Permittee did not appeal any decisions/determinations by the Planning Director in 2017.

G-16 Approvals of Plans, Programs or Interpretations

(a) Desert Valley Company had no requests for amendments to Conditional Use Permit 05-0020; also no requests were made regarding the approval of plans, programs or interpretations pursuant to Section G-21(Minor Changes) in 2017.

(b) The Imperial County Hazardous Material Committee did not disapprove any plan, procedure or minor change this reporting period.

G-17 Enforcement and Termination

(a) No notices from the Planning Director have been provided to Desert Valley Company.

(b)(c)(d)(e) Not applicable in 2017.

G-18 Industrial Hygiene/Health Standards

The County Health Officer has not determined that a significant health hazard exists at Desert Valley Company in 2017.

G-19 Annual Conditional Use Permit Review

Desert Valley Company is willing to assist the Planning Director in preparing an annual review/report of the conditional use permit/project if requested to do so.

G-20 Invalid Conditions

No section, subsection, sentence, clause, or phrase of this Conditional Use Permit has been reviewed by any court during 2017.

G-21 Minor Changes

Desert Valley Company did not request any changes in the design, construction, an/or operation of the facility requiring minor amendment to the Conditional Use Permit 05-0020.

G-22 Notice of Regulatory Activity

Desert Valley Company routinely submits to the Planning Department copies of notices and/or submissions to any State, Federal or Local regulatory authority initiated by Desert Valley Company.

G-23 Definitions

No disputes as to the meaning or intent of word(s), phrase(s), and/or conditions or sections in the Conditional Use Permit have occurred during 2017.

G-24 Specificity

The Desert Valley Company operation did not receive any violations in 2017 nor has it operated beyond the boundaries of the project as described.

G-25 Recordation

The Desert Valley Company Conditional Use Permit was originally issued on August 13, 1990. The permit was revised in 1994. On July 27, 1994, revisions to the Conditional Use Permit were completed. The permit was recorded on September 26, 1994. Conditional Use Permit 02-0003 was recorded on February 7, 2003, then revised to the current Desert Valley Company Conditional Use Permit number 05-0020 on August 10, 2005.

G-26 Condition Priority

The Desert Valley Company Monofill was operated during 2017 as described in the Conditional Use Permit application, Environmental Assessment, the project description and as specified in the Conditional Use Permit conditions.

Site Specific Conditions Update:

S-1 Maximum Annual Tonnage

The maximum permitted tonnage is calculated as follows:

	Days	Tons/day	Tons
Jan. 1 - Dec. 31	365	750	273,750

For 2017, Desert Valley Company received 48,216.06 tons. This equates to 132.09 tons/day. The maximum permitted vehicles of 38 per day was not exceeded in 2017.

S-2 Hours and Days of Operation

During the winter months, Desert Valley typically operates from 7: 00 a.m to 3:30 p.m. and during the summer, 6:00 a.m. to 2:30 p.m., 5 days per week. On occasion, longer hours and weekends may be scheduled but always within the 6:00 a.m. to 6:00 p.m., 7-days per week permitted operating window.

S-3 Required Waste Analysis

On March 18, 1991, a revised Material Storage and Handling Plan was submitted to the Planning Department for review and approval. Certifications of Compliance with documentation procedures were updated in May of 1994 and provided to the Environmental Health Services from the Hauler and Generators.

On April 10, 2015, an updated Operations Plan which includes the Material Storage and Handling Plan was submitted to the Imperial County Public Health Department as part of the application for the review of the Solid Waste Permit 13-AA-0022. Revisions affecting the Material Storage and Handling Plan are documented in the Document History Table of the Operations Plan. No requests to amend the Material Storage and Handling Plan were made to the Imperial County Environmental Health Department in 2017.

S-4 Vehicle/Equipment Maintenance

Hazardous waste generated on site due to equipment maintenance is stored and disposed of in accordance to the latest Federal, State, and County laws and/or regulations. Should hazardous waste be generated, it will be disposed of under Desert Valley Company's Hazardous Waste Generator number: CAL000057678.

S-5 Air Quality Monitoring

Airborne Particulate Monitoring - During the 1991 construction phase, Desert Valley Company installed four air-monitoring stations. Locations for the stations were selected with the help of the Imperial County Air Pollution Control District. One of the air-monitoring stations was relocated with the approval of Imperial County Air Pollution Control District due to the construction of Cell 3. These air stations operate every six days for 24 hours on the Environmental Protection Agency air-monitoring schedule.

Quarterly, two filters (one set) from an air sampling station are selected for radiological and metal analyses.

The quarterly analytical results of metal and radiological analyses as specified in Condition S-5 of the Conditional Use Permit conducted in 2017 have been previously submitted to your office. All measured values are below the public exposure limits without blank or background corrections.

Film Badge Radiological Dosimeter Monitoring - Desert Valley Company conducts employee radiological dosimeter monitoring and sends the results to agencies via the quarterly air monitoring report. The results in summary for 2017 are:

- All doses are well below the NRC total dose equivalent limit of 5 Rem (5000 mRem) per calendar year (10 CFR 20.1201(a) (1) (i)) or the sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 50 Rems (10 CFR 20.1201(a)(1)(ii).

- All doses are well below the NRC lens dose equivalent of 15 rems (10 CFR 20.1201(a)(2)(i) and a shallow dose equivalent of 50 rem to the skin of the whole body or the skin of any extremity (10 CFR 20.1201(a)(2)(ii).

Wind Dispersal Program - Desert Valley Company installed and maintains a weather station at the Monofill. The purpose of the station is to gauge and document weather data that affects the Desert Valley Company operations. Audible warning alarms as well as a light give indication when the wind speed is at the 13-mph disposal limit.

At the end of each day, an acrylic polymer solution (Soil Seal) is applied to the disposed material. The Imperial County Environmental Health Services as part of an "Alternate Cover" program conducted weekly inspections for CalRecycle. The alternate cover program has been deemed a success and has been permanently included in the solid waste permit.

S-6 Site Operations

Desert Valley Company is constructed and maintained in accordance with all approved Conditional Use Permit conditions and building/structure code requirements.

Desert Valley Company prepared a site operation plan and emergency response/contingency plan that was submitted and approved in 1991. On April 10, 2015, an updated Operations Plan was submitted to the Imperial County Public Health Department as part of the application for the review of the Solid Waste Permit 13-AA-0022. The updates were minor and consisted of formatting changes ,

and personnel and equipment updates. . The Emergency Response Plan is updated annually in conjunction with the Hazardous Material Business Plan (HMBP). Onsite copies of the HMBP are available in electronic format accessible in the event an emergency. These plans are available upon request. . No emergencies occurred at DVC in 2017.

S-7 Site Closure, Financial Responsibility and Post Closure Plan

(a) Closure

Preliminary Closure & Post Closure Maintenance Plan – The final revision of the updated Preliminary Closure and Post-Closure Maintenance Plan (PCPCMP) for Desert Valley Company (Cells I-III) was submitted to Imperial County Public Health Department on November 30, 2015. On February 29, 2016, the Imperial County Division of Environmental Health, completed its review and approved the updated PCPCMP. The post-closure cost estimate was updated in 2015 to reflect the post closure maintenance cost of $2,851,920, similarly the closure cost estimate for Cell III was updated to reflect estimate of $5,573,736.

In addition the Financial Assurance for the greatest Corrective Action Cost Estimate (for water or non-water damage) for DVC was estimated at $279,000 (non-water damage).

Desert Valley Company has adjusted the closure and post closure bonds accordingly for 2017. (See Attachment A)

(b) Environmental Impairment Liability Insurance

Transportation – CalEnergy Operating Corporation owns and operates the trucks that transport materials to be disposed of at Desert Valley Company. These trucks were covered by special Environmental Impairment Liability (EIL) insurance.

Site Specific Coverage - Desert Valley Company originally maintained an irrevocable letter of credit for $1,000,000 to Imperial County Planning Department. In 1992, Desert Valley Company was required to obtain financial Liability Insurance with environmental impairment coverage that was acceptable to the California Integrated Waste Management Board. The California Integrated Waste Management Board required coverage in the amount of $1,000,000 per occurrence, $2,000,000 annual aggregate. Unfortunately, the Integrated Waste Management Board did not recognize

the letter of credit used with Imperial County as a valid coverage mechanism.

When the Conditional Use Permit was modified in 1994, this condition was changed to $2,500,000 in a form acceptable to the Board of Supervisors. Desert Valley Company has obtained site-specific insurance for $2,500,000. In 1996, Desert Valley Company formally requested the Planning Department to release the redundant letter of credit as an insurance policy naming Imperial County as an additional insured and now satisfies this condition. A copy of the Environmental Impairment Liability (EIL) site insurance certificate can be found in Attachment A.

S-8 Dust Control

Desert Valley Company constructed and maintains a paved road from Highway 86 to the facility. As soon as practical after a rainstorm, if any dirt has covered the road near washes, it is removed and the road swept clean.

Areas around the Monofill are wetted by means of a water truck and occasionally soil sealant is applied to mitigate fugitive dust.

Newly disposed material is sprayed with a soil sealant polymer producing a layer of sealant the same day waste is deposited. Occasionally, all exposed material inside the cell is sprayed with soil sealant as well.

S-9 Vegetation

Since the start-up of Desert Valley Company operations, minimal vehicular travel has occurred in the surrounding desert. Travel in the desert has only occurred during surveys and for the most part, the equipment stayed on pre-existing roads. Therefore, relocation of rare or endangered vegetation has not been required.

S-10 Flood Waters

Desert Valley Company maintains a 100-year, 24- hour flood embankment. No changes occurred in 2017.

S-11 Lighting

Desert Valley Company does not operate at night so night lights have not been installed. At this time, night operation does not seem necessary.

Earth tone colors have been used as required by the Conditional Use Permit.

S-12 Wildlife Protection

There has been no noticeable mortality of birds or animals in the vicinity of Desert Valley Company.

S-13 Groundwater Monitoring/Hydrologic Data

(a) The quarterly and annual reports to the Regional Water Quality Control Board are copied to the Imperial County Planning and Environmental Health. The County Health offices have not requested any additional groundwater monitoring in 2017.

(b) Project design data was submitted to meet requirements of this section in the Report of Waste Discharge to the California Regional Water Quality Control Board. This report was submitted to the Regional Board in July of 1989. Copies of this report were sent to the Planning Department as well as other agencies. In 1999, two ground water wells were plugged and abandoned for the construction of Cell 2. A report proposing the installation of two new ground water wells and two new vadose zone monitoring tubes was submitted to the California Regional Water Quality Control Board. The Regional Board staff concurred with the monitoring additions and the wells were installed.

S-14 Right of Entry

Desert Valley Company recognizes the County's right to enter premises and has appreciated the input received during inspections.

S-15 Site Water Usage

Desert Valley Company operates a non-potable water well for on-site use under Conditional Use Permit 05-0020. Desert Valley Company used 3.58 acre-feet of water in 2017. See Condition S-3 of the attached Water Well Conditional Use Permit #05-0020.

S-16 Injection Well(s)

Desert Valley Company has not constructed nor operated any injection wells.

S-17 Private Access Road/Levees

The access road, as built, avoids cultural resource site IMP-6141/MON-5-4. This road is in good repair, and underwent scheduled maintenance (repaving) in 2014.

Most of Desert Valley Company's internal traffic is on paved roads. Infrequently traveled roadways have a gravel surface. Desert Valley Company maintained an encroachment permit with Cal-Trans for activities within that agency’s right-of-way.

In 1992, Desert Valley Company received a Cal-Trans permit for the construction of a left-hand turn lane on Highway 86. This left-hand turn lane was completed in 1992. Desert Valley Company obtained an Encroachment Permit from CalTrans to cross a 140-foot wide state drainage easement in 2014. No new work requiring an encroachment permit was conducted in 2017.

S-18 Limited Usage

During 2017, Desert Valley Company only disposed/stored materials for the plants operated by Vulcan Power Company and/or CalEnergy Operating Corporation. All generating facilities are located in Imperial County.

S-19 Recycling Prohibited

No recycling of designated waste disposed on-site occurred at Desert Valley Company in 2017.

S-20 Mineral Extraction Activities

No mineral extraction activities took place at Desert Valley Company during 2017.

S-21 Project Design/Construction

(a) Desert Valley Company was built in conformance with the requirements for Class II waste management units in Title 23 of the California code of Regulations.

(b) All structures have earth tone coloration.

(c) Desert Valley was built to conform to Title 24, Uniform Building Code, California Regional Water Quality Control Board and County of Imperial Standards regarding the nature, location, and construction of facility.

(d) Construction work and staging areas were limited to the designated project area.

(e) Vehicles remained on designated roads.

(f) Gating was installed to control access.

(g) Access road is paved.

(h) Screening was installed in the facility fence.

(i) Facility design incorporated peak ground acceleration loading values of 0.60 g.

(j) Final project design incorporated all measures deemed appropriate by the geotechnical engineer.

S-22 Erosion

The project is located in a naturally protected area.

Prior approval was received from CalTrans before building the Desert Valley Company access road over CalTrans flood control levee.

Desert Valley obtained an encroachment permit and built Desert Valley road to Cal-Trans approved prints.

S-23 Groundwater

The final project design was approved by California Regional Water Quality Control Board.

S-24 Fugitive Emissions

Desert Valley Company has submitted a Wind Dispersal Prevention Program (Operation Plan) to Imperial County Air Pollution Control District. To date, no modification to the plan has been requested by Imperial County Air Pollution Control District.

S-25 Biological Resources

As determined in Desert Valley Company's Environmental Impact Report, the projects impact on the flat-tailed horned lizard is "insignificant due to the relatively low abundance index".

Additionally, Desert Valley Company trains personnel on how to minimize impact on the habitat of the flat-tailed horned lizard. The loss of habitat for the Salton Milkvetch due to the Monofill construction was not significant.

Mitigation - No significant biological impacts were identified for the Desert Valley Company project. Therefore, no specific mitigation measures have been developed. However, recommendations are made to curtail or reduce the potential for indirect effects to species degradation of surrounding natural habitat:

All vehicles remain on roads. No off road vehicle travel is authorized without prior approval.

Gating controls access to the project area.
Access roads are paved to eliminate the amount of time the flat-tailed horned lizards spend on roads and potentially reduce lizard mortality.

Screening was put in the fence around the project site to reduce flat-tailed horned lizard entering the landfill area and potentially affecting lizard mortality.

All work is confined to the designated project area.

S-26 Dike(s) and/or Monofill(s) Construction

Cells 1 and 2 were designed and constructed by Dow Engineering Company. Chuck Oliver was responsible for the overall design and is a California Certified Engineer. Project management and quality assurance is described in the completion report. A copy of this report has been provided to the Planning Department.

Cell 3 was designed by McDowell & Associates. Construction Quality Assurance services during the construction were provided by Veizades & Associates, Inc. Construction began in June 2004 and was completed in June 2005. Project management and quality assurance is described in the completion report. A copy of this report has been provided to the Planning Department.

S-27 Local Equity Payment(s)

At the time of this report, Desert Valley Company has not yet received an invoice from the County Executive Office.

Prohibited and Allowed Wastes:

P-1 Prohibited Wastes

During 2017, Desert Valley did not accept for disposal or receive for disposal any of the following wastes:

(a) Radioactive wastes (except for NORM's associated with the geothermal material approved for the site)

(b) Infectious wastes (including biological and chemical warfare agents)

(c) Water reactive wastes

(d) Air reactive wastes

(e) Strong oxidizers

(f) Compressed gases

(g) Explosives

(h) PCB wastes (or any material containing and PCB's)

(i) Any waste designated as a hazardous waste by CCR, Title 22 and/or 23

(j) Any waste that by State and/or Federal law is required to be disposed or treated at Class I facility

P-2 Allowed Wastes

During 2017, Desert Valley Company accepted wastes from plants operated by Vulcan Power Company and/or CalEnergy Operating Corporation.

The permitted wastes are non-hazardous drilling muds and cuttings, incidental plastic sheeting, non-hazardous soil containing geothermal materials and non-hazardous filter cake.

Conditional Use Permit 05-0020
Desert Valley Company Water Well

Summary:
Desert Valley Company maintained a non-potable water well which was put into service at Desert Valley Company during 1992. This well provides water to the office building and for the soil stabilizer applied to the waste. This well was abandoned in 2004 due to the construction of Cell 3.

Conditional Use Permit 02-0003 included water well conditions for a new water well necessary due to the construction of Cell 3. The water well was drilled in 2005 and is now incorporated in Conditional Use Permit 05-0020. The amount of water to be extracted from the new water well has been limited to 8.5 acre-feet per year.

Site Specific Conditions:

Desert Valley Company is in compliance with the following conditions:

S-1 The water well will be used for dust control in and outside the Monofill cell.

S-2 No water will be sold, exported or transported off-site.

S-3 Conditional Use Permit limits well water use to approximately 8.5 acre-feet per year. In 2017, Desert Valley Company used 3.58 acre- feet of water.

S-4 A flow meter is installed on the well.

S-5 This report satisfies the annual report requirement.

S-6 The water well was drilled by a California licensed water well drilling contractor and the name of the contractor and license number was provided to the Planning Department.

S-7 The well will not be tested for potability as it will only be used for dust control.

S-8 No action has been taken by the County in 2017 to limit or stop use of this well.

S-9 The water well is located within the property limits specified under Conditional Use Permit 05-0020.

S-10 The water well complies with the applicable portions of the following general conditions in Conditional Use Permit 05-0020: G-1, G-2, G-3, G-4, G-5, G-6, G-9, G-13, G-16, G-18, G-20, G-21, G-22, G-23, G-24, G-25 and G-26.

ATTACHMENT A

G-11 (a) General, Automotive and Property Damage Liability Insurance
(b) Workman's Compensation Insurance

S-7 (a) Financial Responsibility
(b) Facility Pollution Liability Certificate

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
03/30/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Services Central, Inc.
Omaha NE Office
11213 Davenport
Suite 201
Omaha NE 68154 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (402) 697-1400 **FAX (A/C. No.):** (402) 697-0017
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Liberty Mutual Fire Ins Co	23035
INSURER B:	Liberty Insurance Corporation	42404
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

INSURED
CalEnergy Generation
Attn: Mariya Fedorchenko
P.O. Box 657
Des Moines IA 50306-0657 USA

COVERAGES **CERTIFICATE NUMBER:** 570070665806 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	
	[ ] CLAIMS-MADE [ ] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	
							MED EXP (Any one person)	
							PERSONAL & ADV INJURY	
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	
	[ ] POLICY [ ] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	
	[ ] OTHER:							
A	**AUTOMOBILE LIABILITY**			AS2-691-550801-318	04/01/2018	04/01/2019	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	[X] ANY AUTO						BODILY INJURY (Per person)	
	[ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	
	[ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	
	[ ] **UMBRELLA LIAB** [ ] OCCUR						EACH OCCURRENCE	
	[ ] **EXCESS LIAB** [ ] CLAIMS-MADE						AGGREGATE	
	[ ] DED [ ] RETENTION							
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N			WA7-69D-550801-278 - AOS	04/01/2018	04/01/2019	[X] PER STATUTE [ ] OTH-ER	
B	ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? [N]	N / A		WA7-69D550801-288 - MN	04/01/2018	04/01/2019	E.L. EACH ACCIDENT	$1,000,000
A	**(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below			WC2-691-550801-308 - WI	04/01/2018	04/01/2019	E.L. DISEASE-EA EMPLOYEE	$1,000,000
							E.L. DISEASE-POLICY LIMIT	$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
DVC CUP #05-0020, Unit 1 CUP #9013A-94 & CUP #9013B-94, Unit 2 CUP #9014A-94 & CUP #9014B-94, Unit 3 CUP #9015A-94, Unit 4 CUP #G94-0001, Unit 5 CUP #05-0054, Elmore CUP #05-0053, Leathers CUP #05-0052, Vulcan CUP #05-0051, Hoch CUP #G91-0001

CERTIFICATE HOLDER

Imperial County Planning
and Department Services
801 W Main Street
El Centro CA 92243 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Central, Inc.

Holder Identifier :

Certificate No : 570070665806

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 08/14/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER MCGRIFF, SEIBELS & WILLIAMS, INC. P.O. Box 10265 Birmingham, AL 35202	**CONTACT NAME:** **PHONE (A/C, No, Ext):** 800-476-2211 **FAX (A/C, No):** **E-MAIL ADDRESS:**
INSURED Berkshire Hathaway Energy Company including CalEnergy Operating Corporation 666 Grand Avenue, Suite 500 Des Moines, IA 50309-2511	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** Assoc. Elec. & Gas Ins. Serv. Ltd (AEGIS) AA-3190004 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** VSWQ6LLE **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR ☐ ____ ☐ ____ GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC ☐ OTHER:						EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ $ $ $ $ $ $
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY ☐ ☐						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $ $	$ $ $ $ $
A	☐ **UMBRELLA LIAB** ☐ OCCUR X **EXCESS LIAB** X CLAIMS-MADE ☐ DED ☐ RETENTION $			XL5194006P	08/15/2017	08/15/2018	EACH OCCURRENCE AGGREGATE $	$ 2,000,000 $ 2,000,000 $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					☐ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ $ $
								$ $ $ $ $

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Annual Desert Valley Company Report. RE: CUP & Condition: 9013A-94-G-6, 9013B-94-G-6, 9014A-94-G-6 / S-28, 9014B-94-G-6, 9015A-94-G-6, G94-0001-G-6, G91-0001-G-6, 05-0020-G-6, 05-0051-G-6, 05-0052-G-6, 05-0053-G-6, 05-0054-G-6,

CERTIFICATE HOLDER

Imperial County Planning
and Development Services
801 W. Main Street
El Centro, CA 92243

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 08/02/2017

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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Aon Risk Services Central, Inc. Omaha NE Office 11213 Davenport Suite 201 Omaha NE 68154 USA	PHONE (A/C. No. Ext): (402) 697-1400	FAX (A/C. No.): (402) 697-0017
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Berkshire Hathaway Energy Company Attn: Mariya Fedorchenko P.O. Box 657 Des Moines IA 50306-0657 USA	INSURER A: Steadfast Insurance Company	26387
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 570067840441 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	
							MED EXP (Any one person)	
							PERSONAL & ADV INJURY	
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	
	☐ OTHER:							
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	
	☐ ANY AUTO						BODILY INJURY (Per person)	
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	
	☐ DED ☐ RETENTION							
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ N / A						E.L. EACH ACCIDENT	
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE-EA EMPLOYEE	
							E.L. DISEASE-POLICY LIMIT	
A	Env Site Liab			EPC2252797-20 Desert Valley Monofil Pol	08/28/2017	08/28/2018	Per Claim Limit Aggregate Limit SIR/Deductible	$2,500,000 $2,500,000 $500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Covered Location: Desert Valley Company, 3301 W. Highway 86, Brawley, California, Facility No. 13-AA-0022. Certificate holder is named as an Additional Insured with respect to the covered location only.

CERTIFICATE HOLDER

Imperial County Planning
and Department Services
801 W Main Street
El Centro CA 92243 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Central Inc.

Holder Identifier :

Certificate No : 570067840441

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CERTIFICATE OF LIABILITY INSURANCE

(If additional space is needed, add attachment.)

Name of Insurer Steadfast Insurance Company	Address 1299 Zurich Way, Schaumburg, Illinois 60196 Phone Number 312-496-9554	CA Insurer License Number: or NAIC Number: 26387
Name of Insured Desert Valley Company c/o CalEnergy Operating Company	Address 7030 Gentry Road, Calipatria, CA 92233-9704 Phone Number 760-348-4200	

Solid Waste Disposal Facilities Covered: (Enter Information for Each Facility) LIMITS OF LIABILITY

Name	Address	Facility Information Number	Per Occurrence*	Annual Aggregate*
Desert Valley Company	3301 W. Highway86, Brawley, CA 92227	13-AA-0022	$2,500,000	$2,500,000
			TOTAL $2,500,000	TOTAL $2,500,000
Policy Number: EPC 2252797 - 20		Effective Date: 08/28/17 to 08/28/18		

*Excluding legal defense costs and deductibles

INSURER CERTIFICATION:

1. The insurer hereby certifies that it has issued liability insurance covering bodily injury and property damage to the insured listed above in connection with the insured's obligation to demonstrate financial responsibility under Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 6. The coverage applies to the above-listed facility(ies) for accidental occurrences arising from the operation of the facility(ies).

2. Indicate whether this coverage is X primary or ☐ excess coverage.

3. The limits of liability are the amounts stated above for "per occurrence" and "annual aggregate", exclusive of legal defense costs. If an excess coverage insurance policy is being provided, complete the following sentence:

[$2,500,000 per occurrence and $ 2,500,000 annual aggregate in excess of the underlying limits of $_____N/A_____per occurrence and $_____N/A_____annual aggregate.]

4. The insurance coverage is subject to all of the terms and conditions of the policy; provided, however, that any provisions of the policy inconsistent with sections (a) through (e) of this paragraph shall be amended to conform with sections (a) through (e):

(a) Bankruptcy or insolvency of the insured shall not relieve the insurer of its obligations under the policy to which this certification applies.

(b) The insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement from the insured for any such payment made by the insurer. If another mechanism, as specified in Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 6, is used to demonstrate coverage of the deductible, then this section does not apply.

(c) Upon request by the California Integrated Waste Management Board (CIWMB), the insurer agrees to furnish to the CIWMB the original policy and all endorsements.

(d) Cancellation or any other termination of this certificate, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the operator of the solid waste disposal facility(ies), will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is sent by certified mail, and received by the CIWMB, as evidenced by the return receipt. (See exception, section (e))

(e) Cancellation due to non-payment of premiums is effective only upon written notice and only after the expiration of 10 days after the date on which the operator and the CIWMB have received the notice of termination, as evidenced by the return receipts.

The party below certifies and signs under penalty of perjury that the information in this document is true and correct to the best of his or her knowledge, and satisfies the requirements of Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 6, and that the insurer is licensed by the California Department of Insurance to transact the business of insurance in the State of California as an ☐ admitted carrier or X eligible excess or surplus lines insurer.

Signature of Individual Authorized to Sign on Behalf of Insurer	Title of Authorized Person
	Region Manager
Typed or Printed Name of Person Signing Robert Hampel	Date 8/1/2017
Address of Person Signing: 1001 Summit Blvd, Atlanta, GA 30319 Phone Number of Person Signing: 404-851-3447	

PRIVACY STATEMENT

The Information Practices Act (California Civil Code Section 1798.17) and the Federal Privacy Act (5 U.S.C. 552a(e)(3)) require that this notice be provided when collecting personal information from individuals.

AGENCY REQUESTING INFORMATION: California Integrated Waste Management Board.

UNIT RESPONSIBLE FOR MAINTENANCE OF FORM: Financial Assurances Section, California Integrated Waste Management Board, 1001 I Street, P.O. Box 4025, Sacramento, California 95812-4025. Contact the Manager, Financial Assurances Section, at (916) 341-6000.

AUTHORITY: Public Resources Code section 43600 et seq.

PURPOSE: The information provided will be used to verify adequate financial assurance of solid waste disposal facilities listed.

REQUIREMENT: Completion of this form is mandatory. The consequence of not completing this form is denial or revocation of a permit to operate a solid waste disposal facility.

OTHER INFORMATION: After review of this document, you may be requested to provide additional information regarding the acceptability of this mechanism.

ACCESS: Information provided in this form may be provided to the U.S. Environmental Protection Agency, State Attorney General, Air Resources Board, California Department of Toxic Substances Control, Energy Resources Conservation and Development Commission, Water Resources Control Board, and California Regional Water Quality Control Boards. For more information or access to your records, contact the California Integrated Waste Management Board, 1001 I Street, P.O. Box 4025, Sacramento, California 95812-4025, (916) 341-6000.

ATTACHMENT B

G13 Designated Truck Routes

Designated Truck Route

- Designated Route – "Plan A"
  Utilization of State Route 78-86 and Imperial County roads Sinclair, Gentry, Bowles and Lack (Figure 2)
- Alternate Route – "Plan B"
  Utilization of State Route 78-86 and Imperial County roads Sinclair, Gentry, Forester, Banister and Lack (Figure 3)
- Alternate Route – "Plan C"
  Utilization of State Route 78-86 and Imperial County roads Sinclair, Gentry, Bowles, Banister and Lack (Figure 4)

Trucks will not be entering any 'urban areas' while traveling along any of the above routes.

Figure 1 – Designated Route – Plan "A"

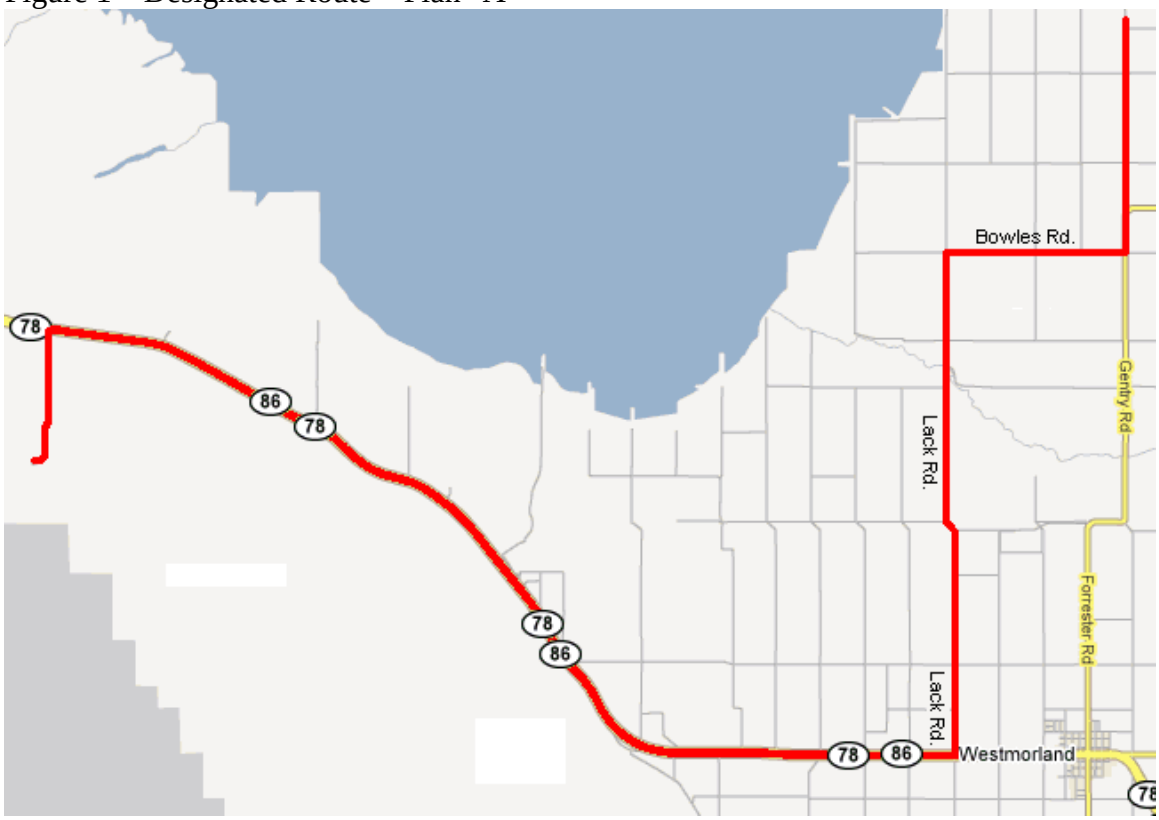


Figure 2 – Alternate Route – Plan “B”

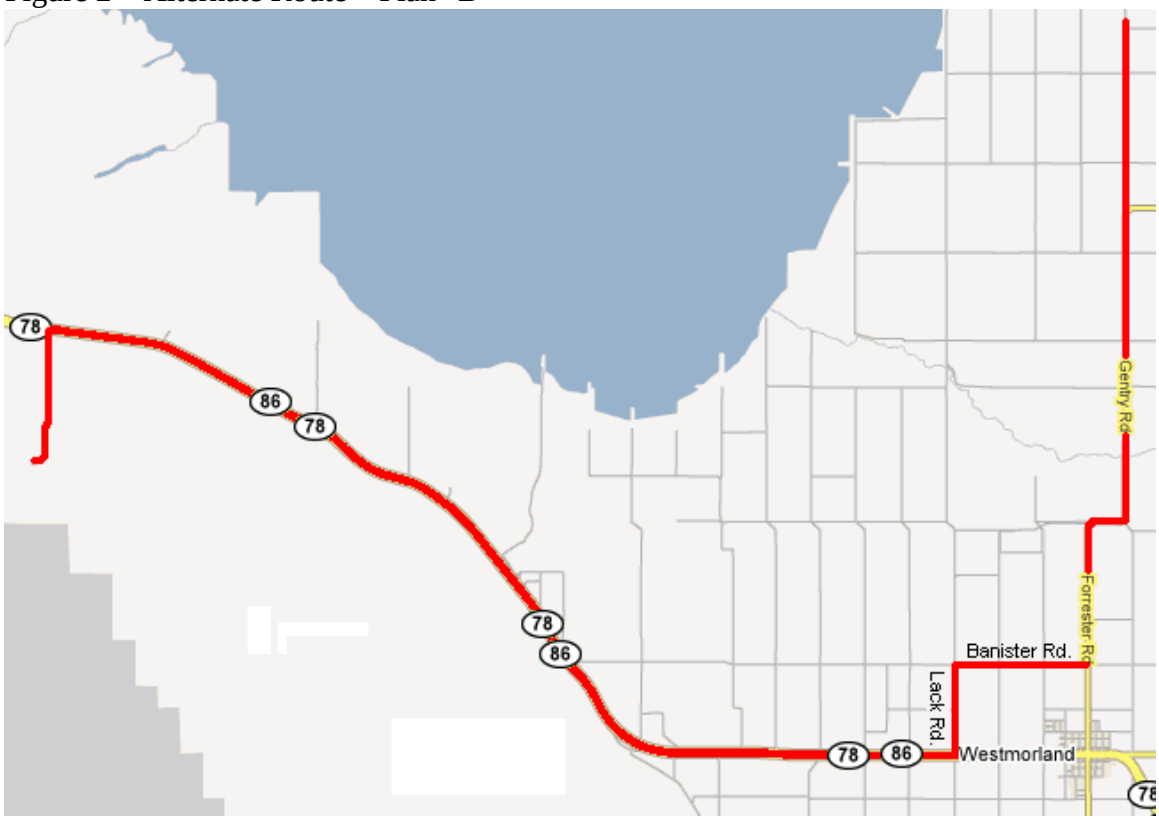
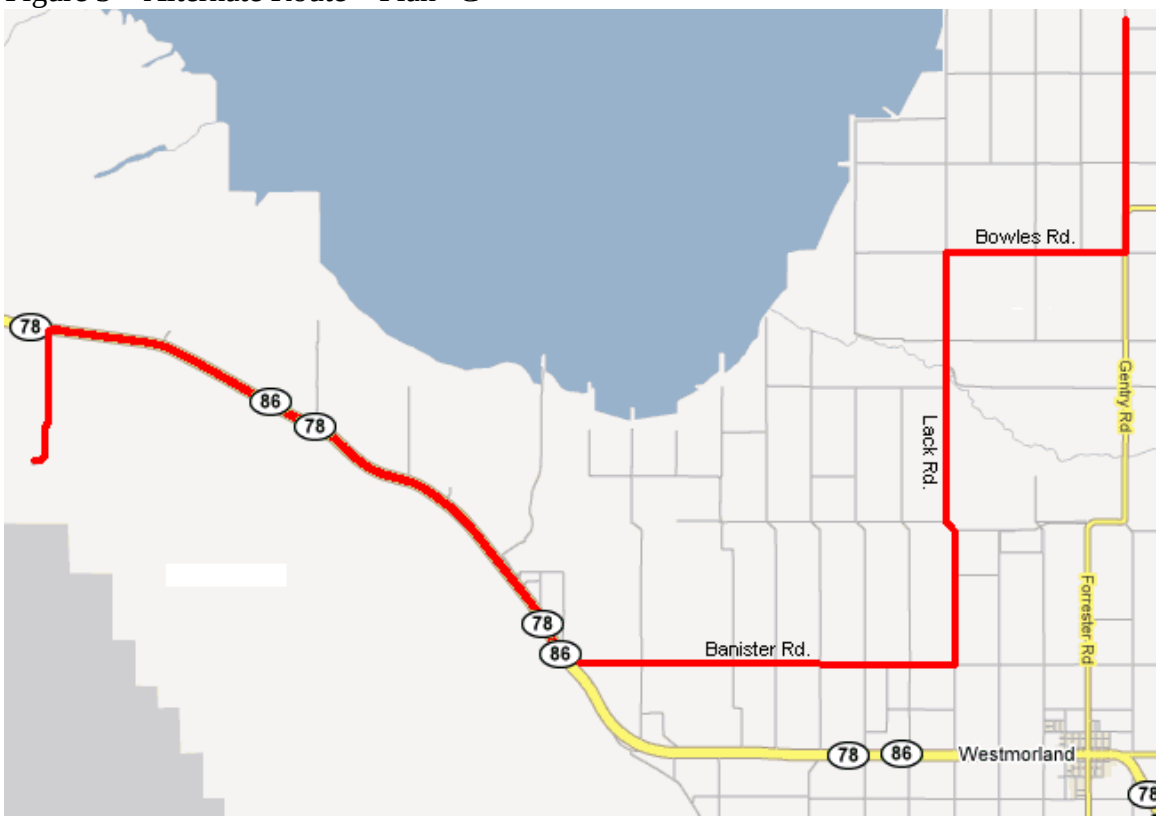


Figure 3 – Alternate Route – Plan “C”



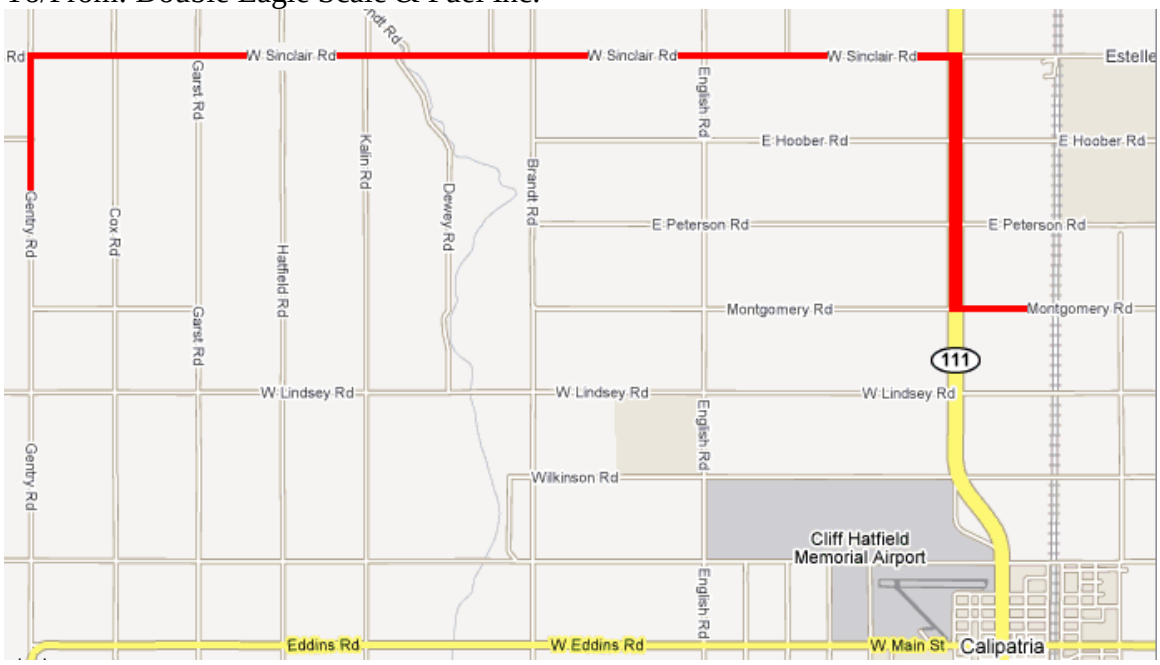
Alternate Truck Route for Weighing Trailers

- Alternate Route – To Double Eagle Scale & Fuel Inc.
  Utilization of State Route 111 and Imperial County roads Sinclair and Montgomery (Figure 4)

  Double Eagle Scale & Fuel Inc. is located at 701 N Sorensen Ave in Calipatria.

Desert Valley Company would use this route to weigh filtercake trailers in the event the CalEnergy scales were out-of-service. The trucks will use the marked route going to and returning from the Double Eagle Scale & Fuel Inc. scales and then continue onto the designated route to the Desert Valley Company.

Figure 4 – Alternate Truck Route for Weighing Trailers
To/From: Double Eagle Scale & Fuel Inc.



ATTACHMENT C

S-3 Required Waste Analysis: Annual Filter Cakes from Specified Geothermal Power Plants.

- **Elmore Power Plant**
- **Leathers Power Plant**
- **Region 1 (Units 1-5)**
- **Region 2 (Vulcan Power Plant & Del Ranch Power Plant)**

January 10, 2018

Mr. Jorge Perez
Imperial County Public Health Department
797 Main Street, B7
El Centro, CA 92243

Subject: 2017 Annual Analysis Report for DVC Filter Cake

Dear Mr. Perez:

As required under Conditions 16a, 17s and 17y of the Solid Waste Facility Permit (13-AA-0022) for the Desert Valley Company monofill (DVC), enclosed are the results of the annual analysis of geothermal filter cake received at DVC from the Region 1, Region 2, Elmore and Leathers facilities. The samples were analyzed for the following parameters outlined in Condition 17y of the Solid Waste Facility Permit:

- CAM 17 Metals for Total and Soluble Threshold Limit Concentration (Attachment 1)
- Ignitability, Corrosivity, Reactivity & Volatile Organic Compound analysis (Attachment 2)
- NORM analysis, gross alpha, gross beta and gamma spectroscopy (Attachment 3)
- Hazardous Waste Bioassay (Attachment 4)

Please note that CalEnergy conducted resampling of filter cake for Volatile Organic Compounds (VOCs) on January 8, 2017, due to unsatisfactory detection limits reported in the analytical report from third party laboratory (Weck Labs). Results indicated that all VOCs were non-detectable, with exception of bromomethane (which is a non-Title 22 parameter). The report lists the concentration of bromomethane as equal to the Method Reporting Limit (MRL); which was reported at 1200 ug/kg. Since the MRL of 1200 ug/kg is not sufficient to demonstrate compliance with the limits for some Title 22 VOC parameters e.g. Benzene (which has a hazardous waste limit of 500 ug/kg) CalEnergy requested a retest of the remaining sample that was used in the annual analysis. The results of the retest of the VOCs will be submitted to your attention when the report is received from the laboratory.

Should you have questions regarding this report, please contact me at (760) 348-4200 or by email at Anetha.Lue@calenergy.com.

CALENERGY
OPERATING CORPORATION
7030 Gentry Road, Calipatria, California 92233
Phone: 760-348-4200 Fax: 760-348-2714

Sincerely,

D. Anetha Lue

Digitally signed by D. Anetha Lue
DN: cn=D. Anetha Lue, o=CalEnergy Operating Corporation, ou, email=anetha.lue@calenergy.com, c=US
Date: 2018.01.10 11:58:22 -08'00'

Anetha Lue
Director, IPP Environmental Services

Attachments

Cc: Jeff Lamoure, Imperial County Public Health Department
Laura Apodaca, Imperial County Public Health Department
Anetha Lue
Jon Trujillo
Yanqiu Wu
Sam Rubin
Osvaldo Flores
Environmental File

CalEnergy
Desert Valley Company Monofill
Solid Waste Permit 13-AA-0022

2017 Annual Analysis Report for Composite Filter Cake

CONTENTS

Results Summary

Laboratory Reports

Attachment 1 - CAM 17 Metals for Total and Soluble Threshold Limit Concentration

Attachment 2 –Ignitability, Corrosivity, Reactivity and Volatile Organic Compounds

Attachment 3 - NORM analysis (gross alpha, gross beta and gamma spectroscopy)

Attachment 4 - Hazardous Waste Bioassay Analysis

CALENERGY
OPERATING CORPORATION
Analytical Services Department
7030 Gentry Road, Calipatria, CA 92233 * (760) 348-4250 * Fax: (760) 348-4222

January 3, 2018

Mr. Jon Trujillo
Desert Valley Company
3301 W. Highway 86
Brawley, CA 92227

2017 Annual Filter Cake Composite Analysis

Dear Mr. Trujillo,

As required by the Desert Valley Material Storage Plan, CalEnergy Operating Company is submitting the 2017 laboratory analysis report for discrete composites of filter cake from Region 1, Region 2, Elmore, and Leathers.

The following table outlines the key data collected for this analysis; Region 1, Region 2, Elmore and Leathers.

	TTLC Metals			STLC Metals		
	Arsenic	Copper	Lead	Arsenic	Copper	Lead
Plant	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/L
Region 1	77.6	28.2	11.3	1.13	1.19	0.248
Region 2	244	28.1	34.6	1.17	0.677	2.29
Elmore	376	43.7	33.9	0.548	1.43	1.82
Leathers	435	34.0	38.2	0.498	1.19	2.17
Limits	500	2500	1000	5	25	5

The report documents the non-hazardous designation of the substance under California Title 22 regulations. If you have any questions, don't hesitate to call me at (760) 348-4296.

Yanqiu Wu
Manager, Engineering & Laboratory Services

Cc:
Jeff Lamoure, Imperial County Public Health Department
Lenie Sarion
Anetha Lue
Environmental File

2017 Annual Filter Cake Analysis

Method: EPA 6010B/6020A, STLC Title 22 Metals

Constituent	Units	PQL	Region 1	Region 2	Elmore	Leathers
Mercury	mg/L	0.0278	ND	ND	ND	ND
Antimony	mg/L	0.210	0.801	0.482	0.547	0.643
Arsenic	mg/L	0.152	1.13	1.17	0.548	0.498
Barium	mg/L	0.0116	22.3	7.90	5.85	5.97
Beryllium	mg/L	0.00635	0.0438	0.0140	0.0578	0.0879
Cadmium	mg/L	0.0359	ND	0.0763	0.0624	0.0745
Chromium	mg/L	0.0531	ND	ND	ND	ND
Cobalt	mg/L	0.0445	ND	ND	ND	ND
Copper	mg/L	0.0762	1.19	0.677	1.43	1.19
Lead	mg/L	0.103	0.248	2.29	1.82	2.17
Molybdenum	mg/L	0.0790	ND	ND	ND	ND
Nickel	mg/L	0.0569	ND	ND	ND	ND
Selenium	mg/L	0.257	ND	ND	ND	ND
Silver	mg/L	0.0537	ND	0.123	0.0969	0.276
Thallium	mg/L	0.183	ND	ND	ND	ND
Vanadium	mg/L	0.0781	ND	ND	ND	ND
Zinc	mg/L	0.0281	1.48	10.0	12.7	15.2

Method: EPA 6010B/6020, CCR Title 22 Metals (TTLC)

Constituent	Units	PQL*	Region 1	Region 2	Elmore	Leathers
Mercury	mg/kg	2.50	ND	ND	ND	ND
Antimony	mg/kg	2.13	40.1	52.1	176	242
Arsenic	mg/kg	2.26	77.6	244	376	435
Barium	mg/kg	0.139	2,070	233	72.7	76.8
Beryllium	mg/kg	0.0976	2.83	12.5	25.5	45.5
Cadmium	mg/kg	0.153	2.45	7.29	11.1	12.9
Chromium	mg/kg	0.282	1.75	1.35	2.39	2.47
Cobalt	mg/kg	0.345	ND	1.77	3.84	1.47
Copper	mg/kg	0.570	28.2	28.1	43.7	34.0
Lead	mg/kg	1.52	11.3	34.6	33.9	38.2
Molybdenum	mg/kg	0.256	ND	ND	ND	ND
Nickel	mg/kg	0.347	0.978	ND	ND	ND
Selenium	mg/kg	2.08	ND	ND	ND	ND
Silver	mg/kg	0.580	18.2	22.6	8.19	25.3
Thallium	mg/kg	1.40	ND	ND	ND	ND
Vanadium	mg/kg	0.822	3.27	4.62	9.95	9.92
Zinc	mg/kg	0.318	44.2	160	199	234

PQL : Practical Quantitation Limit

ND : Non-Detected

* Reporting Limits (PQL) vary due to samples weight that are not uniform for each sample (see CalEnergy Report)

2017 Annual Filter Cake Analysis

Method: 1010, Flashpoint

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Flashpoint	Degree F	>200	>200	>200	>200

Method: EPA 9045C, Soil and Waste pH

Constituent	Units	Region 1	Region 2	Elmore	Leathers
pH	pH units	4.7	6.1	4.9	5.1

Method: SW-846-7.3.3-H_2S Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Sulfide	mg/Kg	<2.0	<2.0	<2.0	<2.0

Method: SW-846-7.3.3-HCN Test Method to Determin HCN Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Cyanide	mg/Kg	<0.50	<0.50	<0.50	<0.50

Method: 8260B Volatile Organic Compounds

Constituent	Units	Region 1	Region 2	Elmore	Leathers
VOC Analytes*	ug/Kg	ND	ND	ND	ND

*Please refer to the cover letter of the report for information on the result for Bromomethane (non-Title 22 VOC)

Fish Bioassay

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Fish Bioassay	mg/L	750	750	750	750
	Status	0% Mortality	0% Mortality	0% Mortality	0% Mortality

Gross Alpha,Beta and Gamma Analysis

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Gross Alpha	pCi/g	22.00	4.11	7.03	5.77
Gross Beta	pCi/g	20.5	<6.10	8.35	7.40
K 40	pCi/g	<3.27	7.89	6.96	7.91
Co 60	pCi/g	<0.30	<0.12	<0.07	<0.085
Cs 137	pCi/g	<0.41	<0.148	<0.077	<0.092
Ra 226	pCi/g	14.40	5.59	0.27	0.413
Th 228	pCi/g	12.10	4.98	0.324	<0.407
Th 234	pCi/g	<5.54	3.10	0.987	2.73

MDA : Minimum Detaction Activity

ND : Non-Detected

Attachment 1

CAM 17 Metals for Total and Soluble Threshold Limit Concentration

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

November 15, 2017

Anetha Lue
CalEnergy
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL:
FAX

RE: Annual Filter Cake Composite Order No.: 1710038

Dear Anetha Lue:

CalEnergy Operating Corporation received 4 sample(s) on 10/30/2017 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative. Analytical results designated with a "J" qualifier are estimated and represent a detection above the Method Detection Limit (MDL) and less than the Reporting Limit (PQL). These analytes are not reviewed nor narrated as to whether they are laboratory artifacts.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Yanqiu Wu

Yanqiu Wu
Manager, Engineering & Laboratory Service
7030 Gentry Road
Calipatria, CA 92233

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
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Case Narrative

WO#: **1710038**
Date: **11/15/2017**

CLIENT: CalEnergy
Project: Annual Filter Cake Composite

This report in its entirety consists of the documents listed below. All documents contain the CalEnergy Operating Corporation Work Order Number assigned to this report.

1. Paginated Report including: Case Narrative, Analytical Results and Applicable Quality Control Summary Reports.

2. A Cover Letter that immediately precedes the Paginated Report.

3. Paginated copies of the Chain of Custody Documents supplied with this sample set.

Concentrations reported with a J flag in the Qual field are values below the reporting limit (RL) but greater than the established method detection limit (MDL). There is greater uncertainty associated with these results and data should be considered as estimated.

Concentrations reported with an E flag in the Qual field are values that exceed the upper quantification range. There is greater uncertainty associated with these results and data should be considered as estimated.

Any comments or problems with the analytical events associated with this report are noted below.

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 9:02:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-001 **Matrix:** FILTER CAKE

Client Sample ID R1 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	27.8		µg/L	55.5556	11/6/2017 2:31:59 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	2500		µg/Kg	50	11/14/2017 2:58:41 PM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **YS**
Antimony	0.801	0.210		mg/L	1	11/3/2017 12:04:14 PM
Arsenic	1.13	0.152		mg/L	1	11/3/2017 12:04:14 PM
Barium	22.3	0.0116		mg/L	1	11/3/2017 12:04:14 PM
Beryllium	0.0438	0.00635		mg/L	1	11/3/2017 12:04:14 PM
Cadmium	ND	0.0359		mg/L	1	11/3/2017 12:04:14 PM
Chromium	ND	0.0531		mg/L	1	11/3/2017 12:04:14 PM
Cobalt	ND	0.0445	U	mg/L	1	11/3/2017 12:04:14 PM
Copper	1.19	0.0762		mg/L	1	11/3/2017 12:04:14 PM
Lead	0.248	0.103		mg/L	1	11/3/2017 12:04:14 PM
Molybdenum	ND	0.0790	U	mg/L	1	11/3/2017 12:04:14 PM
Nickel	ND	0.0569		mg/L	1	11/3/2017 12:04:14 PM
Selenium	ND	0.257	U	mg/L	1	11/3/2017 12:04:14 PM
Silver	ND	0.0537		mg/L	1	11/3/2017 12:04:14 PM
Thallium	ND	0.183		mg/L	1	11/3/2017 12:04:14 PM
Vanadium	ND	0.0781		mg/L	1	11/3/2017 12:04:14 PM
Zinc	1.48	0.0281		mg/L	1	11/3/2017 12:04:14 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **YS**
Antimony	40.1	2.13		mg/Kg	1	11/2/2017 2:22:48 PM
Arsenic	77.6	2.26		mg/Kg	1	11/2/2017 2:22:48 PM
Barium	2070	0.139		mg/Kg	1	11/2/2017 2:22:48 PM
Beryllium	2.83	0.0976		mg/Kg	1	11/2/2017 2:22:48 PM
Cadmium	2.45	0.153		mg/Kg	1	11/2/2017 2:22:48 PM
Chromium	1.75	0.282		mg/Kg	1	11/2/2017 2:22:48 PM
Cobalt	ND	0.345	U	mg/Kg	1	11/2/2017 2:22:48 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

Original

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Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 9:02:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-001 **Matrix:** FILTER CAKE

Client Sample ID R1 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **YS**
TTLC BY ICP-OES						
Copper	28.2	0.570		mg/Kg	1	11/2/2017 2:22:48 PM
Lead	11.3	1.52		mg/Kg	1	11/2/2017 2:22:48 PM
Molybdenum	ND	0.256	U	mg/Kg	1	11/2/2017 2:22:48 PM
Nickel	0.978	0.347		mg/Kg	1	11/2/2017 2:22:48 PM
Selenium	ND	2.08	U	mg/Kg	1	11/2/2017 2:22:48 PM
Silver	18.2	0.580		mg/Kg	1	11/2/2017 2:22:48 PM
Thallium	ND	1.40	U	mg/Kg	1	11/2/2017 2:22:48 PM
Vanadium	3.27	0.822		mg/Kg	1	11/2/2017 2:22:48 PM
Zinc	44.2	0.318		mg/Kg	1	11/2/2017 2:22:48 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 9:47:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-002 **Matrix:** FILTER CAKE

Client Sample ID R2 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	27.8	U	µg/L	55.5556	11/6/2017 2:31:59 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	2500		µg/Kg	50	11/14/2017 2:58:41 PM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **YS**
Antimony	0.482	0.210		mg/L	1	11/3/2017 12:08:16 PM
Arsenic	1.17	0.152		mg/L	1	11/3/2017 12:08:16 PM
Barium	7.90	0.0116		mg/L	1	11/3/2017 12:08:16 PM
Beryllium	0.0140	0.00635		mg/L	1	11/3/2017 12:08:16 PM
Cadmium	0.0763	0.0359		mg/L	1	11/3/2017 12:08:16 PM
Chromium	ND	0.0531		mg/L	1	11/3/2017 12:08:16 PM
Cobalt	ND	0.0445		mg/L	1	11/3/2017 12:08:16 PM
Copper	0.677	0.0762		mg/L	1	11/3/2017 12:08:16 PM
Lead	2.29	0.103		mg/L	1	11/3/2017 12:08:16 PM
Molybdenum	ND	0.0790	U	mg/L	1	11/3/2017 12:08:16 PM
Nickel	ND	0.0569	U	mg/L	1	11/3/2017 12:08:16 PM
Selenium	ND	0.257		mg/L	1	11/3/2017 12:08:16 PM
Silver	0.123	0.0537		mg/L	1	11/3/2017 12:08:16 PM
Thallium	ND	0.183		mg/L	1	11/3/2017 12:08:16 PM
Vanadium	ND	0.0781	U	mg/L	1	11/3/2017 12:08:16 PM
Zinc	10.0	0.0281		mg/L	1	11/3/2017 12:08:16 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **YS**
Antimony	52.1	2.15		mg/Kg	1	11/2/2017 2:24:08 PM
Arsenic	244	2.28		mg/Kg	1	11/2/2017 2:24:08 PM
Barium	233	0.141		mg/Kg	1	11/2/2017 2:24:08 PM
Beryllium	12.5	0.0985		mg/Kg	1	11/2/2017 2:24:08 PM
Cadmium	7.29	0.155		mg/Kg	1	11/2/2017 2:24:08 PM
Chromium	1.35	0.284		mg/Kg	1	11/2/2017 2:24:08 PM
Cobalt	1.77	0.348		mg/Kg	1	11/2/2017 2:24:08 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 9:47:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-002 **Matrix:** FILTER CAKE

Client Sample ID R2 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **YS**
TTLC BY ICP-OES						
Copper	28.1	0.575		mg/Kg	1	11/2/2017 2:24:08 PM
Lead	34.6	1.53		mg/Kg	1	11/2/2017 2:24:08 PM
Molybdenum	ND	0.258	U	mg/Kg	1	11/2/2017 2:24:08 PM
Nickel	ND	0.350		mg/Kg	1	11/2/2017 2:24:08 PM
Selenium	ND	2.10	U	mg/Kg	1	11/2/2017 2:24:08 PM
Silver	22.6	0.586		mg/Kg	1	11/2/2017 2:24:08 PM
Thallium	ND	1.41	U	mg/Kg	1	11/2/2017 2:24:08 PM
Vanadium	4.62	0.830		mg/Kg	1	11/2/2017 2:24:08 PM
Zinc	160	0.321		mg/Kg	1	11/2/2017 2:24:08 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

Original

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Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 10:33:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-003 **Matrix:** FILTER CAKE

Client Sample ID R3 ELM AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	27.8	U	µg/L	55.5556	11/6/2017 2:31:59 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	2500		µg/Kg	50	11/14/2017 2:58:41 PM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **YS**
Antimony	0.547	0.210		mg/L	1	11/3/2017 12:09:35 PM
Arsenic	0.548	0.152		mg/L	1	11/3/2017 12:09:35 PM
Barium	5.85	0.0116		mg/L	1	11/3/2017 12:09:35 PM
Beryllium	0.0578	0.00635		mg/L	1	11/3/2017 12:09:35 PM
Cadmium	0.0624	0.0359		mg/L	1	11/3/2017 12:09:35 PM
Chromium	ND	0.0531		mg/L	1	11/3/2017 12:09:35 PM
Cobalt	ND	0.0445		mg/L	1	11/3/2017 12:09:35 PM
Copper	1.43	0.0762		mg/L	1	11/3/2017 12:09:35 PM
Lead	1.82	0.103		mg/L	1	11/3/2017 12:09:35 PM
Molybdenum	ND	0.0790	U	mg/L	1	11/3/2017 12:09:35 PM
Nickel	ND	0.0569	U	mg/L	1	11/3/2017 12:09:35 PM
Selenium	ND	0.257		mg/L	1	11/3/2017 12:09:35 PM
Silver	0.0969	0.0537		mg/L	1	11/3/2017 12:09:35 PM
Thallium	ND	0.183	U	mg/L	1	11/3/2017 12:09:35 PM
Vanadium	ND	0.0781		mg/L	1	11/3/2017 12:09:35 PM
Zinc	12.7	0.0281		mg/L	1	11/3/2017 12:09:35 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **YS**
Antimony	176	2.11		mg/Kg	1	11/2/2017 2:25:24 PM
Arsenic	376	2.25		mg/Kg	1	11/2/2017 2:25:24 PM
Barium	72.7	0.138		mg/Kg	1	11/2/2017 2:25:24 PM
Beryllium	25.5	0.0969		mg/Kg	1	11/2/2017 2:25:24 PM
Cadmium	11.1	0.152		mg/Kg	1	11/2/2017 2:25:24 PM
Chromium	2.39	0.280		mg/Kg	1	11/2/2017 2:25:24 PM
Cobalt	3.84	0.342		mg/Kg	1	11/2/2017 2:25:24 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

Original

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Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 10:33:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-003 **Matrix:** FILTER CAKE

Client Sample ID R3 ELM AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **YS**
TTLC BY ICP-OES						
Copper	43.7	0.566		mg/Kg	1	11/2/2017 2:25:24 PM
Lead	33.9	1.50		mg/Kg	1	11/2/2017 2:25:24 PM
Molybdenum	ND	0.254	U	mg/Kg	1	11/2/2017 2:25:24 PM
Nickel	ND	0.345	U	mg/Kg	1	11/2/2017 2:25:24 PM
Selenium	ND	2.07	U	mg/Kg	1	11/2/2017 2:25:24 PM
Silver	8.19	0.576		mg/Kg	1	11/2/2017 2:25:24 PM
Thallium	ND	1.39	U	mg/Kg	1	11/2/2017 2:25:24 PM
Vanadium	9.95	0.817		mg/Kg	1	11/2/2017 2:25:24 PM
Zinc	199	0.316		mg/Kg	1	11/2/2017 2:25:24 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 11:18:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-004 **Matrix:** FILTER CAKE

Client Sample ID R3 LEA AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	27.8	U	µg/L	55.5556	11/6/2017 2:31:59 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A**		Analyst: **YS**
Mercury	ND	2500		µg/Kg	50	11/14/2017 2:58:41 PM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **YS**
Antimony	0.643	0.210		mg/L	1	11/3/2017 12:10:54 PM
Arsenic	0.498	0.152		mg/L	1	11/3/2017 12:10:54 PM
Barium	5.97	0.0116		mg/L	1	11/3/2017 12:10:54 PM
Beryllium	0.0879	0.00635		mg/L	1	11/3/2017 12:10:54 PM
Cadmium	0.0745	0.0359		mg/L	1	11/3/2017 12:10:54 PM
Chromium	ND	0.0531		mg/L	1	11/3/2017 12:10:54 PM
Cobalt	ND	0.0445	U	mg/L	1	11/3/2017 12:10:54 PM
Copper	1.19	0.0762		mg/L	1	11/3/2017 12:10:54 PM
Lead	2.17	0.103		mg/L	1	11/3/2017 12:10:54 PM
Molybdenum	ND	0.0790	U	mg/L	1	11/3/2017 12:10:54 PM
Nickel	ND	0.0569	U	mg/L	1	11/3/2017 12:10:54 PM
Selenium	ND	0.257		mg/L	1	11/3/2017 12:10:54 PM
Silver	0.276	0.0537		mg/L	1	11/3/2017 12:10:54 PM
Thallium	ND	0.183	U	mg/L	1	11/3/2017 12:10:54 PM
Vanadium	ND	0.0781		mg/L	1	11/3/2017 12:10:54 PM
Zinc	15.2	0.0281		mg/L	1	11/3/2017 12:10:54 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **YS**
Antimony	242	2.15		mg/Kg	1	11/2/2017 2:26:40 PM
Arsenic	435	2.28		mg/Kg	1	11/2/2017 2:26:40 PM
Barium	76.8	0.141		mg/Kg	1	11/2/2017 2:26:40 PM
Beryllium	45.5	0.0985		mg/Kg	1	11/2/2017 2:26:40 PM
Cadmium	12.9	0.155		mg/Kg	1	11/2/2017 2:26:40 PM
Chromium	2.47	0.284		mg/Kg	1	11/2/2017 2:26:40 PM
Cobalt	1.47	0.348		mg/Kg	1	11/2/2017 2:26:40 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

Original

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1710038**

Date Reported: **11/15/2017**

CLIENT: CalEnergy **Collection Date:** 10/30/2017 11:18:00 AM

Project: Annual Filter Cake Composite

Lab ID: 1710038-004 **Matrix:** FILTER CAKE

Client Sample ID R3 LEA AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **YS**
TTLC BY ICP-OES						
Copper	34.0	0.575		mg/Kg	1	11/2/2017 2:26:40 PM
Lead	38.2	1.53		mg/Kg	1	11/2/2017 2:26:40 PM
Molybdenum	ND	0.258	U	mg/Kg	1	11/2/2017 2:26:40 PM
Nickel	ND	0.350	U	mg/Kg	1	11/2/2017 2:26:40 PM
Selenium	ND	2.10	U	mg/Kg	1	11/2/2017 2:26:40 PM
Silver	25.3	0.586		mg/Kg	1	11/2/2017 2:26:40 PM
Thallium	ND	1.41	U	mg/Kg	1	11/2/2017 2:26:40 PM
Vanadium	9.92	0.830		mg/Kg	1	11/2/2017 2:26:40 PM
Zinc	234	0.321		mg/Kg	1	11/2/2017 2:26:40 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

TestCode: **6010B_L_OES**

Sample ID **LCS-18263** SampType: **LCS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **11/2/2017** RunNo: **22199**
Client ID: **LCSW** Batch ID: **18263** TestNo: **SW6010B** **SW3015A** Analysis Date: **11/3/2017** SeqNo: **160885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.1	0.210	11.11	0	99.5	80	120				
Arsenic	10.9	0.152	11.11	0	98.5	80	120				
Barium	2.78	0.0116	2.778	0	100	80	120				
Beryllium	2.76	0.00635	2.778	0	99.3	80	120				
Cadmium	11.2	0.0359	11.11	0	101	80	120				
Chromium	11.1	0.0531	11.11	0	100	80	120				
Cobalt	11.1	0.0445	11.11	0	99.7	80	120				
Copper	11.1	0.0762	11.11	0	99.7	80	120				
Lead	11.1	0.103	11.11	0	99.9	80	120				
Molybdenum	11.1	0.0790	11.11	0	99.5	80	120				
Nickel	11.0	0.0569	11.11	0	99.3	80	120				
Selenium	11.1	0.257	11.11	0	100	80	120				
Silver	2.80	0.0537	2.778	0	101	80	120				
Thallium	11.2	0.183	11.11	0	100	80	120				
Vanadium	11.1	0.0781	11.11	0	99.6	80	120				
Zinc	11.2	0.0281	11.11	0	101	80	120				

Sample ID **1710038-001BMS** SampType: **MS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **11/2/2017** RunNo: **22199**
Client ID: **R1 AFC** Batch ID: **18263** TestNo: **SW6010B** **SW3015A** Analysis Date: **11/3/2017** SeqNo: **160889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.2	0.210	11.11	0.8007	103	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

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TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID **1710038-001BMS** SampType: **MS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **11/2/2017** RunNo: **22199**
Client ID: **R1 AFC** Batch ID: **18263** TestNo: **SW6010B** **SW3015A** Analysis Date: **11/3/2017** SeqNo: **160889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.3	0.152	11.11	1.131	101	75	125				
Barium	47.8	0.0116	25.00	22.33	102	75	125				
Beryllium	2.90	0.00635	2.778	0.04378	103	75	125				
Cadmium	11.4	0.0359	11.11	0.03288	103	75	125				
Chromium	11.2	0.0531	11.11	0.007881	101	75	125				
Cobalt	11.6	0.0445	11.11	0	104	75	125				
Copper	12.4	0.0762	11.11	1.192	101	75	125				
Lead	11.5	0.103	11.11	0.2484	101	75	125				
Molybdenum	11.1	0.0790	11.11	0	99.5	75	125				
Nickel	11.1	0.0569	11.11	0.01758	99.9	75	125				
Selenium	11.3	0.257	11.11	0	102	75	125				
Silver	2.72	0.0537	2.778	0.01983	97.4	75	125				
Thallium	11.3	0.183	11.11	0.01104	101	75	125				
Vanadium	11.4	0.0781	11.11	0.006456	103	75	125				
Zinc	12.7	0.0281	11.11	1.484	101	75	125				

Sample ID **1710038-001BMSD** SampType: **MSD** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **11/2/2017** RunNo: **22199**
Client ID: **R1 AFC** Batch ID: **18263** TestNo: **SW6010B** **SW3015A** Analysis Date: **11/3/2017** SeqNo: **160890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.2	0.210	11.11	0.8007	103	75	125	12.22	0.212	20	
Arsenic	12.4	0.152	11.11	1.131	101	75	125	12.33	0.485	20	
Barium	47.5	0.0116	25.00	22.33	101	75	125	47.80	0.690	20	
Beryllium	2.87	0.00635	2.778	0.04378	102	75	125	2.896	0.810	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

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QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID	**1710038-001BMSD**	SampType: **MSD**	TestCode: **6010B_L_OE**	Units: **mg/L**	Prep Date: **11/2/2017**	RunNo: **22199**
Client ID:	**R1 AFC**	Batch ID: **18263**	TestNo: **SW6010B**	**SW3015A**	Analysis Date: **11/3/2017**	SeqNo: **160890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	11.4	0.0359	11.11	0.03288	102	75	125	11.44	0.403	20	
Chromium	11.1	0.0531	11.11	0.007881	99.9	75	125	11.19	0.650	20	
Cobalt	11.5	0.0445	11.11	0	103	75	125	11.58	0.781	20	
Copper	12.4	0.0762	11.11	1.192	101	75	125	12.45	0.579	20	
Lead	11.5	0.103	11.11	0.2484	101	75	125	11.46	0.291	20	
Molybdenum	11.1	0.0790	11.11	0	99.5	75	125	11.06	0.00806	20	
Nickel	11.1	0.0569	11.11	0.01758	99.5	75	125	11.11	0.393	20	
Selenium	11.3	0.257	11.11	0	102	75	125	11.30	0.121	20	
Silver	2.66	0.0537	2.778	0.01983	95.1	75	125	2.724	2.34	20	
Thallium	11.3	0.183	11.11	0.01104	102	75	125	11.27	0.191	20	
Vanadium	11.4	0.0781	11.11	0.006456	102	75	125	11.43	0.679	20	
Zinc	12.6	0.0281	11.11	1.484	99.9	75	125	12.67	0.650	20	

TestCode: **6010B_S_OES**

Sample ID	**LCS-18255**	SampType: **LCS**	TestCode: **6010B_S_OE**	Units: **mg/Kg**	Prep Date: **11/1/2017**	RunNo: **22198**
Client ID:	**LCSS**	Batch ID: **18255**	TestNo: **SW6010B**	**SW3051A**	Analysis Date: **11/2/2017**	SeqNo: **160836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	204	2.15	200.0	0	102	80	120				
Arsenic	200	2.29	200.0	0	100	80	120				
Barium	49.6	0.141	50.00	0	99.2	80	120				
Beryllium	49.8	0.0988	50.00	0	99.7	80	120				
Cadmium	200	0.155	200.0	0	100	80	120				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

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TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID **LCS-18255** SampType: **LCS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **22198**
Client ID: **LCSS** Batch ID: **18255** TestNo: **SW6010B** **SW3051A** Analysis Date: **11/2/2017** SeqNo: **160836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	200	0.285	200.0	0	99.8	80	120				
Cobalt	199	0.349	200.0	0	99.6	80	120				
Copper	202	0.577	200.0	0	101	80	120				
Lead	203	1.53	200.0	0	102	80	120				
Molybdenum	201	0.259	200.0	0	100	80	120				
Nickel	199	0.351	200.0	0	99.4	80	120				
Selenium	200	2.11	200.0	0	99.9	80	120				
Silver	50.3	0.588	50.00	0	101	80	120				
Thallium	202	1.42	200.0	0	101	80	120				
Vanadium	199	0.833	200.0	0	99.5	80	120				
Zinc	199	0.322	200.0	0	99.5	80	120				

Sample ID **1710038-001AMS** SampType: **MS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **22198**
Client ID: **R1 AFC** Batch ID: **18255** TestNo: **SW6010B** **SW3051A** Analysis Date: **11/2/2017** SeqNo: **160840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	817	4.26	790.0	40.14	98.3	75	125				
Arsenic	840	4.52	790.0	75.17	96.8	75	125				
Barium	2290	0.279	197.5	2117	88.3	75	125				
Beryllium	202	0.195	197.5	2.729	101	75	125				
Cadmium	782	0.306	790.0	2.636	98.6	75	125				
Chromium	770	0.563	790.0	1.864	97.3	75	125				
Cobalt	748	0.689	790.0	0	94.7	75	125				
Copper	730	1.14	790.0	28.56	88.8	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID **1710038-001AMS** SampType: **MS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **22198**
Client ID: **R1 AFC** Batch ID: **18255** TestNo: **SW6010B** **SW3051A** Analysis Date: **11/2/2017** SeqNo: **160840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	762	3.03	790.0	11.08	95.0	75	125				
Molybdenum	774	0.512	790.0	0	98.0	75	125				
Nickel	746	0.694	790.0	0.8147	94.3	75	125				
Selenium	778	4.17	790.0	0	98.5	75	125				
Silver	194	1.16	197.5	18.00	89.2	75	125				
Thallium	719	2.80	790.0	0	91.0	75	125				
Vanadium	800	1.64	790.0	4.338	101	75	125				
Zinc	836	0.636	790.0	47.85	99.8	75	125				

Sample ID **1710038-001AMSD** SampType: **MSD** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **22198**
Client ID: **R1 AFC** Batch ID: **18255** TestNo: **SW6010B** **SW3051A** Analysis Date: **11/2/2017** SeqNo: **160841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	819	4.26	790.0	40.14	98.6	75	125	817.1	0.248	20	
Arsenic	852	4.52	790.0	75.17	98.3	75	125	839.5	1.46	20	
Barium	2300	0.279	197.5	2117	92.6	75	125	2292	0.371	20	
Beryllium	201	0.195	197.5	2.729	100	75	125	202.2	0.544	20	
Cadmium	779	0.306	790.0	2.636	98.2	75	125	781.9	0.425	20	
Chromium	767	0.563	790.0	1.864	96.9	75	125	770.2	0.382	20	
Cobalt	744	0.689	790.0	0	94.2	75	125	748.3	0.563	20	
Copper	726	1.14	790.0	28.56	88.3	75	125	729.8	0.473	20	
Lead	772	3.03	790.0	11.08	96.4	75	125	762.0	1.37	20	
Molybdenum	783	0.512	790.0	0	99.1	75	125	774.0	1.12	20	
Nickel	743	0.694	790.0	0.8147	94.0	75	125	745.7	0.316	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

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QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID	**1710038-001AMSD**	SampType:	**MSD**	TestCode:	**6010B_S_OE**	Units:	**mg/Kg**	Prep Date:	**11/1/2017**	RunNo:	**22198**
Client ID:	**R1 AFC**	Batch ID:	**18255**	TestNo:	**SW6010B**	**SW3051A**		Analysis Date:	**11/2/2017**	SeqNo:	**160841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	787	4.17	790.0	0	99.6	75	125	778.0	1.17	20	
Silver	196	1.16	197.5	18.00	90.3	75	125	194.2	1.08	20	
Thallium	728	2.80	790.0	0	92.1	75	125	719.2	1.21	20	
Vanadium	795	1.64	790.0	4.338	100	75	125	799.6	0.569	20	
Zinc	836	0.636	790.0	47.85	99.8	75	125	836.3	0.0374	20	

TestCode: **6020A_HG_STLC**

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**6020A_HG_S**	Units:	**µg/L**	Prep Date:		RunNo:	**22237**
Client ID:	**LCSS**	Batch ID:	**R22237**	TestNo:	**SW6020A**			Analysis Date:	**11/6/2017**	SeqNo:	**162016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.08	0.500	2.000	0	104	80	120				

Sample ID	**1710038-001BMS**	SampType:	**MS**	TestCode:	**6020A_HG_S**	Units:	**µg/L**	Prep Date:		RunNo:	**22237**
Client ID:	**R1 AFC**	Batch ID:	**R22237**	TestNo:	**SW6020A**			Analysis Date:	**11/6/2017**	SeqNo:	**162030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	139	27.8	138.9	1.020	99.1	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

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QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID	**1710038-001BMSD**	SampType:	**MSD**	TestCode:	**6020A_HG_S**	Units:	**µg/L**	Prep Date:		RunNo:	**22237**
Client ID:	**R1 AFC**	Batch ID:	**R22237**	TestNo:	**SW6020A**			Analysis Date:	**11/6/2017**	SeqNo:	**162031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	143	27.8	138.9	1.020	102	75	125	138.6	2.93	20	

TestCode: **6020A_HG_TTLC**

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**6020A_HG_T**	Units:	**µg/Kg**	Prep Date:		RunNo:	**22226**
Client ID:	**LCSS**	Batch ID:	**R22226**	TestNo:	**SW6020A**			Analysis Date:	**11/14/2017**	SeqNo:	**161786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.06	0.0343	2.000	0	103	80	120				

Sample ID	**1710038-001AMS**	SampType:	**MS**	TestCode:	**6020A_HG_T**	Units:	**µg/Kg**	Prep Date:		RunNo:	**22226**
Client ID:	**R1 AFC**	Batch ID:	**R22226**	TestNo:	**SW6020A**			Analysis Date:	**11/14/2017**	SeqNo:	**161789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	12700	2500	12260	299.4	101	75	125				

Sample ID	**1710038-001AMSD**	SampType:	**MSD**	TestCode:	**6020A_HG_T**	Units:	**µg/Kg**	Prep Date:		RunNo:	**22226**
Client ID:	**R1 AFC**	Batch ID:	**R22226**	TestNo:	**SW6020A**			Analysis Date:	**11/14/2017**	SeqNo:	**161790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	12700	2500	12260	299.4	101	75	125	12700	0.176	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

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QC SUMMARY REPORT

WO#: **1710038**

15-Nov-17

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID	**1710038-001AMSD**	SampType:	**MSD**	TestCode:	**6020A_HG_T**	Units:	**µg/Kg**	Prep Date:		RunNo:	**22226**
Client ID:	**R1 AFC**	Batch ID:	**R22226**	TestNo:	**SW6020A**			Analysis Date:	**11/14/2017**	SeqNo:	**161790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY
OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
Analytical Services Department

7030 Gentry Road, Calipatria, CA 92233
Tel: (760) 348-4250
Fax: (760) 348-4222

CHAIN OF CUSTODY RECORD

DATE: 10/30/17

PAGE: 1 OF 1

CUSTOMER/LOCATION: Desert Valley Company
ADDRESS:
CITY:
TEL: FAX: E-MAIL:

CUSTOMER PROJECT NAME/NUMBER: 2017 Annual Filtercake
PROJECT CONTACT: Don Trujillo / Jenny Wu
SAMPLER(S) (SIGNATURE)

P.O. NO.:
CHARGE TO:
LAB USE ONLY:
COC# № 4654

TURNAROUND TIME:
☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS ☒ 14 DAYS ☐ _____

SPECIAL REQUIREMENTS:
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	Preservative	# Containers	6010 B Metals 5 pts (STLC)	6010 B Metals 5 pts (TTLC)
1710038-1	Reg1 2017 Annual Filtercake	10/30/17	0902	S	N	1	X	X
1710038-2	Region2 2017 Annual Filtercake	10/30/17	0947	S	N	1	X	X
1710038-3	Elmore 2017 Annual Filtercake	10/30/17	1033	S	N	1	X	X
1710038-4	Leathers 2017 Annual Filtercake	10/30/17	1118	S	N	1	X	X

RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:
		10/30/17	12:17
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:

ac 10/30/17

MATRIX: W–Water S–Soil SD–Solid L–Liquid SL–Sludge O–Oil FC–Filter Cake SC–Scale

Attachment 2

Ignitability, Corrosivity, Reactivity and Volatile Organic Compounds

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7K01021

Project: 2017 Annual Filtercake Composite

Attn: Antonio Campos

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria, CA 92233

Report Date: 11/27/2017
Received Date: 11/1/2017
Turnaround Time: Normal
Phones: 760-348-4241
Fax: (760) 348-4222
P.O. #:
Billing Code:

Dear Antonio Campos :

Enclosed are the results of analyses for samples received 11/1/2017 with the Chain-of-Custody document. The samples were received in good condition, at 3.2 °C and on ice. All analysis met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Region 1 Filtercake Composite
7K01021-01 (Solid)

Sampled: 10/30/17 9:02 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1010 **Batch ID:** W7K0345 **Instr:** Inst				**Prepared:** 11/07/17 11:12		**Analyst:** sap
Flashpoint	>200		°F	1	11/09/17 13:41	
Method: EPA 8260B **Batch ID:** W7K0236 **Instr:** GCMS17				**Prepared:** 11/06/17 10:33		**Analyst:** DIL
1,1,1,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1,1-Trichloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1,2,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1,2-Trichloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1-Dichloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1-Dichloroethene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,1-Dichloropropene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2,3-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2,3-Trichloropropane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2,4-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2,4-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2-Dibromo-3-chloropropane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2-Dibromoethane (EDB)	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2-Dichloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,3,5-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
1,3-Dichloropropane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
2,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
2-Butanone	ND	1200	ug/kg	50	11/09/17 04:58	M-04

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Sample Results

(Continued)

Sample: Region 1 Filtercake Composite
7K01021-01 (Solid)

Sampled: 10/30/17 9:02 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W7K0236 **Instr:** GCMS17 **Prepared:** 11/06/17 10:33 **Analyst:** DIL						
2-Chloroethyl vinyl ether	ND	1200	ug/kg	50	11/09/17 04:58	M-04
2-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
2-Hexanone	ND	1200	ug/kg	50	11/09/17 04:58	M-04
4-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
4-Methyl-2-pentanone	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Acetone	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Acrolein	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Acrylonitrile	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Benzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Bromobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Bromochloromethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Bromodichloromethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Bromoform	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Bromomethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Carbon tetrachloride	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Chlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Chloroethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Chloroform	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Chloromethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
cis-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
cis-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Dibromochloromethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Dibromomethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Dichlorodifluoromethane (Freon 12)	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Ethylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Hexachlorobutadiene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Isopropylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
m,p-Xylene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
m-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Methyl tert-butyl ether (MTBE)	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Methylene chloride	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Naphthalene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
n-Butylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
n-Propylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
o-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
o-Xylene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
p-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
p-Isopropyltoluene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
sec-Butylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Styrene	ND	1200	ug/kg	50	11/09/17 04:58	M-04

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Sample Results

(Continued)

Sample: Region 1 Filtercake Composite

7K01021-01 (Solid)

Sampled: 10/30/17 9:02 by Alejandro Castillo

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W7K0236 **Instr:** GCMS17 **Prepared:** 11/06/17 10:33 **Analyst:** DIL						
tert-Butylbenzene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Tetrachloroethene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Toluene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
trans-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
trans-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Trichloroethene	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Trichlorofluoromethane	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Vinyl chloride	ND	1200	ug/kg	50	11/09/17 04:58	M-04
Surrogate(s)						
1,2-Dichloroethane-d4	*68%*	*78-140*	*Conc: 163*		*11/09/17 04:58*	*S-11*
4-Bromofluorobenzene	*98%*	*85-116*	*Conc: 236*		*11/09/17 04:58*	
Dibromofluoromethane	*69%*	*84-120*	*Conc: 165*		*11/09/17 04:58*	*S-11*
Toluene-d8	*106%*	*82-120*	*Conc: 253*		*11/09/17 04:58*	
Method: EPA 9045C **Batch ID:** W7K0344 **Instr:** PH01 **Prepared:** 11/07/17 10:58 **Analyst:** stg						
pH	**4.7**		Units	1	11/07/17 17:25	

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Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
7K01021-02 (Solid)

Sampled: 10/30/17 9:47 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1010 **Batch ID:** W7K0345 **Instr:** Inst				**Prepared:** 11/07/17 11:12		**Analyst:** sap
Flashpoint	>200		°F	1	11/09/17 13:41	
Method: EPA 8260B **Batch ID:** W7K0236 **Instr:** GCMS17				**Prepared:** 11/06/17 10:33		**Analyst:** DIL
1,1,1,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1,1-Trichloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1,2,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1,2-Trichloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1-Dichloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1-Dichloroethene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,1-Dichloropropene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2,3-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2,3-Trichloropropane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2,4-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2,4-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2-Dibromo-3-chloropropane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2-Dibromoethane (EDB)	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2-Dichloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,3,5-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
1,3-Dichloropropane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
2,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
2-Butanone	ND	1200	ug/kg	50	11/09/17 05:30	M-04
2-Chloroethyl vinyl ether	ND	1200	ug/kg	50	11/09/17 05:30	M-04
2-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
2-Hexanone	ND	1200	ug/kg	50	11/09/17 05:30	M-04
4-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
4-Methyl-2-pentanone	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Acetone	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Acrolein	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Acrylonitrile	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Benzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Bromobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Bromochloromethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Bromodichloromethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Bromoform	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Bromomethane	**1200**	1200	ug/kg	50	11/09/17 05:30	M-04
Carbon tetrachloride	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Chlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Chloroethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Chloroform	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Chloromethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04

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Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
7K01021-02 (Solid)

Sampled: 10/30/17 9:47 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued)	**Batch ID:** W7K0236	**Instr:** GCMS17		**Prepared:** 11/06/17 10:33		**Analyst:** DIL
cis-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
cis-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Dibromochloromethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Dibromomethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Dichlorodifluoromethane (Freon 12)	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Ethylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Hexachlorobutadiene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Isopropylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
m,p-Xylene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
m-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Methyl tert-butyl ether (MTBE)	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Methylene chloride	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Naphthalene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
n-Butylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
n-Propylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
o-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
o-Xylene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
p-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
p-Isopropyltoluene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
sec-Butylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Styrene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
tert-Butylbenzene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Tetrachloroethene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Toluene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
trans-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
trans-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Trichloroethene	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Trichlorofluoromethane	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Vinyl chloride	ND	1200	ug/kg	50	11/09/17 05:30	M-04
Surrogate(s)						
1,2-Dichloroethane-d4	*99%*	*78-140*	*Conc: 240*		*11/09/17 05:30*	
4-Bromofluorobenzene	*96%*	*85-116*	*Conc: 232*		*11/09/17 05:30*	
Dibromofluoromethane	*94%*	*84-120*	*Conc: 227*		*11/09/17 05:30*	
Toluene-d8	*102%*	*82-120*	*Conc: 245*		*11/09/17 05:30*	
Method: EPA 9045C	**Batch ID:** W7K0344	**Instr:** PH01		**Prepared:** 11/07/17 10:58		**Analyst:** stg
pH	**6.1**		Units	1	11/07/17 17:25	

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Sample Results

(Continued)

Sample: Elmore Filtercake Composite

7K01021-03 (Solid)

Sampled: 10/30/17 10:33 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1010 **Batch ID:** W7K0345 **Instr:** Inst **Prepared:** 11/07/17 11:12 **Analyst:** sap						
Flashpoint	>200		°F	1	11/09/17 13:41	
Method: EPA 8260B **Batch ID:** W7K0236 **Instr:** GCMS17 **Prepared:** 11/06/17 10:33 **Analyst:** DIL						
1,1,1,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1,1-Trichloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1,2,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1,2-Trichloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1-Dichloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,1-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2,3-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2,3-Trichloropropane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2,4-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2,4-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2-Dibromo-3-chloropropane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2-Dibromoethane (EDB)	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2-Dichloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,3,5-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
1,3-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
2,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
2-Butanone	ND	1200	ug/kg	50	11/09/17 06:03	M-04
2-Chloroethyl vinyl ether	ND	1200	ug/kg	50	11/09/17 06:03	M-04
2-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
2-Hexanone	ND	1200	ug/kg	50	11/09/17 06:03	M-04
4-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
4-Methyl-2-pentanone	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Acetone	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Acrolein	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Acrylonitrile	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Benzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Bromobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Bromochloromethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Bromodichloromethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Bromoform	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Bromomethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Carbon tetrachloride	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Chlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Chloroethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Chloroform	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Chloromethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04

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Sample Results

(Continued)

Sample: Elmore Filtercake Composite
7K01021-03 (Solid)

Sampled: 10/30/17 10:33 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W7K0236 **Instr:** GCMS17				**Prepared:** 11/06/17 10:33		**Analyst:** DIL
cis-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
cis-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Dibromochloromethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Dibromomethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Dichlorodifluoromethane (Freon 12)	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Ethylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Hexachlorobutadiene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Isopropylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
m,p-Xylene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
m-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Methyl tert-butyl ether (MTBE)	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Methylene chloride	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Naphthalene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
n-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
n-Propylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
o-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
o-Xylene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
p-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
p-Isopropyltoluene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
sec-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Styrene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
tert-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Tetrachloroethene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Toluene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
trans-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
trans-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Trichloroethene	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Trichlorofluoromethane	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Vinyl chloride	ND	1200	ug/kg	50	11/09/17 06:03	M-04
Surrogate(s)						
1,2-Dichloroethane-d4	*81%*	*78-140*	*Conc: 199*		*11/09/17 06:03*	
4-Bromofluorobenzene	*96%*	*85-116*	*Conc: 236*		*11/09/17 06:03*	
Dibromofluoromethane	*82%*	*84-120*	*Conc: 201*		*11/09/17 06:03*	*S-11*
Toluene-d8	*98%*	*82-120*	*Conc: 239*		*11/09/17 06:03*	
Method: EPA 9045C **Batch ID:** W7K0344 **Instr:** PH01				**Prepared:** 11/07/17 10:58		**Analyst:** stg
pH	**4.9**		Units	1	11/07/17 17:25	

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Sample Results

(Continued)

Sample: Leathers Filtercake Composite

7K01021-04 (Solid)

Sampled: 10/30/17 11:18 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1010 **Batch ID:** W7K0345 **Instr:** Inst				**Prepared:** 11/07/17 11:12		**Analyst:** sap
Flashpoint	>200		°F	1	11/09/17 13:41	
Method: EPA 8260B **Batch ID:** W7K0236 **Instr:** GCMS17				**Prepared:** 11/06/17 10:33		**Analyst:** DIL
1,1,1,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1,1-Trichloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1,2,2-Tetrachloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1,2-Trichloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1-Dichloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,1-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2,3-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2,3-Trichloropropane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2,4-Trichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2,4-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2-Dibromo-3-chloropropane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2-Dibromoethane (EDB)	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2-Dichloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,3,5-Trimethylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
1,3-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
2,2-Dichloropropane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
2-Butanone	ND	1200	ug/kg	50	11/09/17 06:35	M-04
2-Chloroethyl vinyl ether	ND	1200	ug/kg	50	11/09/17 06:35	M-04
2-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
2-Hexanone	ND	1200	ug/kg	50	11/09/17 06:35	M-04
4-Chlorotoluene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
4-Methyl-2-pentanone	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Acetone	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Acrolein	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Acrylonitrile	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Benzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Bromobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Bromochloromethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Bromodichloromethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Bromoform	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Bromomethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Carbon tetrachloride	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Chlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Chloroethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Chloroform	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Chloromethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04

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Sample Results

(Continued)

Sample: Leathers Filtercake Composite
7K01021-04 (Solid)

Sampled: 10/30/17 11:18 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued)	**Batch ID:** W7K0236	**Instr:** GCMS17		**Prepared:** 11/06/17 10:33		**Analyst:** DIL
cis-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
cis-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Dibromochloromethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Dibromomethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Dichlorodifluoromethane (Freon 12)	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Ethylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Hexachlorobutadiene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Isopropylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
m,p-Xylene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
m-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Methyl tert-butyl ether (MTBE)	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Methylene chloride	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Naphthalene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
n-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
n-Propylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
o-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
o-Xylene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
p-Dichlorobenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
p-Isopropyltoluene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
sec-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Styrene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
tert-Butylbenzene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Tetrachloroethene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Toluene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
trans-1,2-Dichloroethene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
trans-1,3-Dichloropropene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Trichloroethene	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Trichlorofluoromethane	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Vinyl chloride	ND	1200	ug/kg	50	11/09/17 06:35	M-04
Surrogate(s)						
1,2-Dichloroethane-d4	*73%*	*78-140*	*Conc: 174*		*11/09/17 06:35*	*S-11*
4-Bromofluorobenzene	*97%*	*85-116*	*Conc: 231*		*11/09/17 06:35*	
Dibromofluoromethane	*74%*	*84-120*	*Conc: 176*		*11/09/17 06:35*	*S-11*
Toluene-d8	*107%*	*82-120*	*Conc: 255*		*11/09/17 06:35*	
Method: EPA 9045C	**Batch ID:** W7K0344	**Instr:** PH01		**Prepared:** 11/07/17 10:58		**Analyst:** stg
pH	**5.1**		Units	1	11/07/17 17:25	

Sample Results Eurofins Calscience, Inc. ELAP #2944

Sample: Region 1 Filtercake Composite
7K01021-01 (Solid)

Sampled: 10/30/17 9:02 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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Sample Results Eurofins Calscience, Inc. ELAP #2944 (Continued)

Sample: Region 1 Filtercake Composite
7K01021-01 (Solid)

Sampled: 10/30/17 9:02 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
CA Fish and Gam						
Method: CA Fish and Game 96-Hour Acute Aquatic Bioassay	**Batch ID:** '[none]'	**Prepared:** 10/30/17 00:00				**Analyst:** WZ1
Bioassay 250 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
Bioassay 750 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
SW-846, Chapter						
Method: SW-846, Chapter 7 Reactive Cyanide	**Batch ID:** 08RCNB1	**Prepared:** 11/08/17 00:00				**Analyst:** PP
Cyanide, Reactive	ND	0.50	mg/kg	*1*	11/08/17	
Method: SW-846, Chapter 7 Reactive Sulfide	**Batch ID:** 106RSB1	**Prepared:** 11/06/17 00:00				**Analyst:** PP
Sulfide, Reactive	ND	2.0	mg/kg	*1*	11/06/17	

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Sample Results Eurofins Calscience, Inc. ELAP #2944 (Continued)

Sample: Region 2 Filtercake Composite
7K01021-02 (Solid)

Sampled: 10/30/17 9:47 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
CA Fish and Gam						
Method: CA Fish and Game 96-Hour Acute Aquatic Bioassay	**Batch ID:** '[none]'	**Prepared:** 10/30/17 00:00				**Analyst:** WZ1
Bioassay 250 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
Bioassay 750 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
SW-846, Chapter						
Method: SW-846, Chapter 7 Reactive Cyanide	**Batch ID:** 08RCNB1	**Prepared:** 11/08/17 00:00				**Analyst:** PP
Cyanide, Reactive	ND	0.50	mg/kg	*1*	11/08/17	
Method: SW-846, Chapter 7 Reactive Sulfide	**Batch ID:** 106RSB1	**Prepared:** 11/06/17 00:00				**Analyst:** PP
Sulfide, Reactive	ND	2.0	mg/kg	*1*	11/06/17	

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Sample Results Eurofins Calscience, Inc. ELAP #2944 (Continued)

Sample: Elmore Filtercake Composite
7K01021-03 (Solid)

Sampled: 10/30/17 10:33 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
CA Fish and Gam						
Method: CA Fish and Game 96-Hour Acute Aquatic Bioassay	**Batch ID:** '[none]'	**Prepared:** 10/30/17 00:00				**Analyst:** WZ1
Bioassay 250 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
Bioassay 750 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
SW-846, Chapter						
Method: SW-846, Chapter 7 Reactive Cyanide	**Batch ID:** 08RCNB1	**Prepared:** 11/08/17 00:00				**Analyst:** PP
Cyanide, Reactive	ND	0.50	mg/kg	*1*	11/08/17	
Method: SW-846, Chapter 7 Reactive Sulfide	**Batch ID:** 106RSB1	**Prepared:** 11/06/17 00:00				**Analyst:** PP
Sulfide, Reactive	ND	2.0	mg/kg	*1*	11/06/17	

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Sample Results Eurofins Calscience, Inc. ELAP #2944 (Continued)

Sample: Leathers Filtercake Composite
7K01021-04 (Solid)

Sampled: 10/30/17 11:18 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
CA Fish and Gam						
Method: CA Fish and Game 96-Hour Acute Aquatic Bioassay	**Batch ID:** '[none]'	**Prepared:** 10/30/17 00:00				**Analyst:** WZ1
Bioassay 250 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
Bioassay 750 mg/L (% Mortality)	0	0	%	*1*	11/05/17	
SW-846, Chapter						
Method: SW-846, Chapter 7 Reactive Cyanide	**Batch ID:** 08RCNB1	**Prepared:** 11/08/17 00:00				**Analyst:** PP
Cyanide, Reactive	ND	0.50	mg/kg	*1*	11/08/17	
Method: SW-846, Chapter 7 Reactive Sulfide	**Batch ID:** 106RSB1	**Prepared:** 11/06/17 00:00				**Analyst:** PP
Sulfide, Reactive	ND	2.0	mg/kg	*1*	11/06/17	

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Notes and Definitions

Item	Definition
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
S-11	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
All results are expressed on wet weight basis unless otherwise specified.
All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

Reviewed by:

Kim G. Tu
Project Manager

DoD-ELAP #L2457 ● ELAP-CA #1132 ● EPA-UCMR #CA00211 ● Guam-EPA #17-008R ● HW-DOH # ● ISO 17025 #L2457.01 ● LACSD #10143 ● NELAP-OR #4047 ● NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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WORK ORDER NUMBER: 17-11-0148

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Analytical Report For

Client: Weck Laboratories, Inc.

Client Project Name: 7K01021

Attention: Kim G. Tu
14859 East Clark Avenue
City of Industry, CA 91745-1396

Approved for release on 11/09/2017 by:
Don Burley
Project Manager

ResultLink

Email your PM

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 7K01021
Work Order Number: 17-11-0148

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Work Order Narrative

Work Order: 17-11-0148 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/02/17. They were assigned to Work Order 17-11-0148.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Weck Laboratories, Inc. 14859 East Clark Avenue City of Industry, CA 91745-1396	Work Order:	17-11-0148
		Project Name:	7K01021
		PO Number:	
		Date/Time Received:	11/02/17 13:10
		Number of Containers:	4
Attn:	Kim G. Tu		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
7K01021-01/Region 1 Filtercake Composite	17-11-0148-1	10/30/17 09:02	1	Solid
7K01021-02/Region 2 Filtercake Composite	17-11-0148-2	10/30/17 09:47	1	Solid
7K01021-03/Elmore Filtercake Composite	17-11-0148-3	10/30/17 10:33	1	Solid
7K01021-04/Leathers Filtercake Composite	17-11-0148-4	10/30/17 11:18	1	Solid

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Analytical Report

Weck Laboratories, Inc.
14859 East Clark Avenue
City of Industry, CA 91745-1396
Project: 7K01021

Date Received: 11/02/17
Work Order: 17-11-0148

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
7K01021-01/Region 1 Filtercake Composite	**17-11-0148-1**	**10/30/17 09:02**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Cyanide, Reactive	ND	0.50	1.00		mg/kg	11/08/17	11/08/17	SW-846, Chapter 7
Sulfide, Reactive	ND	2.0	1.00		mg/kg	11/06/17	11/06/17	SW-846, Chapter 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
7K01021-02/Region 2 Filtercake Composite	**17-11-0148-2**	**10/30/17 09:47**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Cyanide, Reactive	ND	0.50	1.00		mg/kg	11/08/17	11/08/17	SW-846, Chapter 7
Sulfide, Reactive	ND	2.0	1.00		mg/kg	11/06/17	11/06/17	SW-846, Chapter 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
7K01021-03/Elmore Filtercake Composite	**17-11-0148-3**	**10/30/17 10:33**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Cyanide, Reactive	ND	0.50	1.00		mg/kg	11/08/17	11/08/17	SW-846, Chapter 7
Sulfide, Reactive	ND	2.0	1.00		mg/kg	11/06/17	11/06/17	SW-846, Chapter 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
7K01021-04/Leathers Filtercake Composite	**17-11-0148-4**	**10/30/17 11:18**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Cyanide, Reactive	ND	0.50	1.00		mg/kg	11/08/17	11/08/17	SW-846, Chapter 7
Sulfide, Reactive	ND	2.0	1.00		mg/kg	11/06/17	11/06/17	SW-846, Chapter 7

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix
Method Blank		**N/A**	**Solid**

Parameter	Results	RL	DF	Qualifiers	Units	Date Prepared	Date Analyzed	Method
Cyanide, Reactive	ND	0.50	1.00		mg/kg	11/08/17	11/08/17	SW-846, Chapter 7
Sulfide, Reactive	ND	2.0	1.00		mg/kg	11/06/17	11/06/17	SW-846, Chapter 7

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Sample Duplicate

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0148
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	SW-846, Chapter 7
Project: 7K01021			Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
17-11-0334-1	**Sample**	**Solid**	**UV 8**	**11/08/17 00:00**	**11/08/17 16:16**	**H1108RCND1**
17-11-0334-1	**Sample Duplicate**	**Solid**	**UV 8**	**11/08/17 00:00**	**11/08/17 16:16**	**H1108RCND1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Cyanide, Reactive	ND	ND	N/A	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Sample Duplicate

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0148
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	SW-846, Chapter 7
Project: 7K01021			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
17-11-0225-1	**Sample**	**Solid**	**BUR04**	**11/06/17 00:00**	**11/06/17 14:05**	**H1106RSD1**
17-11-0225-1	**Sample Duplicate**	**Solid**	**BUR04**	**11/06/17 00:00**	**11/06/17 14:05**	**H1106RSD1**

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Sulfide, Reactive	ND	ND	N/A	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 17-11-0148 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
SW-846, Chapter 7	N/A	1064	BUR04	1
SW-846, Chapter 7	N/A	1064	UV 8	1

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Glossary of Terms and Qualifiers

Work Order: 17-11-0148 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Subcontract Order

WECK LABORATORIES, INC.

Subcontracted Laboratory:

Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1432
Phone: (714) 895-5494
Fax: (714) 894-7501

Turn Around Time: Normal
Project Manager: Kim G. Tu
Project Name: Brine Pond Samples
Project Number: 2017 Annual Filtercake
Sampler Employed by: _____

Work Order: 7K01021

17-11-0148

Analysis	Due	Expires	Comments
Sample ID: 7K01021-01/Region 1 Filtercake Composite			**Sampled:** 10/30/2017 09:02
Sample comment:			**Matrix:** ~~Water~~ **Sampled By:** Alejandro Casti AG
Sulfide Reactive SUB	11/13/2017	11/06/2017 09:02	sub to Calscience
Cyanide, Reactive_SUB	11/13/2017	11/13/2017 09:02	sub to Calscience
Containers Supplied:			
Sample ID: 7K01021-02/Region 2 Filtercake Composite			**Sampled:** 10/30/2017 09:47
Sample comment:			**Matrix:** ~~Water~~ **Sampled By:** Alejandro Casti AG
Sulfide Reactive SUB	11/13/2017	11/06/2017 09:47	sub to Calscience
Cyanide, Reactive_SUB	11/13/2017	11/13/2017 09:47	sub to Calscience
Containers Supplied:			
Sample ID: 7K01021-03/Elmore Filtercake Composite			**Sampled:** 10/30/2017 10:33
Sample comment:			**Matrix:** ~~Water~~ **Sampled By:** Alejandro Casti AG
Sulfide Reactive SUB	11/13/2017	11/06/2017 10:33	sub to Calscience
Cyanide, Reactive_SUB	11/13/2017	11/13/2017 10:33	sub to Calscience
Containers Supplied:			
Sample ID: 7K01021-04/Leathers Filtercake Composite			**Sampled:** 10/30/2017 11:18
Sample comment:			**Matrix:** ~~Water~~ **Sampled By:** Alejandro Casti AG
Sulfide Reactive SUB	11/13/2017	11/06/2017 11:18	sub to Calscience
Cyanide, Reactive_SUB	11/13/2017	11/13/2017 11:18	sub to Calscience
Containers Supplied:			

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Remarks / Special Comments:

Sample Condition

Temperature: _____
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By	Date / Time	Received By	Date / Time
[signature]	11/2/17 ~~1310~~ AG 1310	[signature]	11/2/17 1310
Relinquished By	Date / Time	Received By	Date / Time

14859 East Clark Avenue, City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

eurofins | Calscience

WORK ORDER NUMBER: 17-11-0148

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Weck

DATE: 11/02/2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: -0.4°C); Temperature (w/o CF): 4.4 °C (w/ CF): 4.0 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: SR

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1017

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☑ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: 1017

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: SR

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Attachment 3

NORM analysis (gross alpha, gross beta and gamma spectroscopy)

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-43036

December 4, 2017

Antonio Campos
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233

CASE NARRATIVE
Work Order # 17-11010-OR

SAMPLE RECEIPT

This work order contains four solid samples received 11/02/2017. All samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
Reg. 1 Annual Filtercake 2017	17-11010-04	Elmore Annual Filtercake 2017	17-11010-06
Reg. 2 Annual Filtercake 2017	17-11010-05	Leathers Ann. Filtercake 2017	17-11010-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

GROSS ALPHA & BETA

Samples demonstrated acceptable results for all Gross Alpha and Beta analyses. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. Gross Gamma results are reported from Potassium-40 due to the non-positive nature of these samples with gamma emitting radionuclides. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Actinium-228 and Bismuth-214 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Potassium-40 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 12/4/2017

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://eberlineanalytical.com/ to provide us with feedback on our services.

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 17-11010
Project: 2017 Annual Filtercake
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-01	LCS	KNOWN	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	2.68E+02	1.15E+01			pCi/g
17-11010-01	LCS	SPIKE	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	2.94E+02	3.83E+00	3.23E+01	3.87E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	8.85E-02	8.22E-02	8.28E-02	1.40E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	2.18E+01	3.43E+00	4.18E+00	2.82E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	2.20E+01	3.53E+00	4.27E+00	3.09E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	4.11E+00	1.95E+00	2.00E+00	3.12E+00	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	7.03E+00	2.76E+00	2.86E+00	4.24E+00	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/7/2017	17-11010	Gross Alpha	LANL MLR-100 Modified	5.77E+00	2.51E+00	2.59E+00	3.90E+00	pCi/g
17-11010-01	LCS	KNOWN	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	2.78E+02	8.35E+00			pCi/g
17-11010-01	LCS	SPIKE	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	2.67E+02	3.08E+00	3.70E+01	6.01E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	2.00E-01	2.31E-01	2.33E-01	4.71E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	1.24E+01	3.32E+00	3.73E+00	5.57E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	2.05E+01	3.30E+00	4.35E+00	4.64E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	2.58E+00	3.02E+00	3.05E+00	6.10E+00	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	8.35E+00	3.29E+00	3.49E+00	6.06E+00	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/7/2017	17-11010	Gross Beta	LANL MLR-100 Modified	7.40E+00	3.16E+00	3.32E+00	5.88E+00	pCi/g
17-11010-01	LCS	KNOWN	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	1.35E+02	5.27E+00			pCi/g
17-11010-01	LCS	KNOWN	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	8.44E+01	3.38E+00			pCi/g
17-11010-01	LCS	SPIKE	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	1.31E+02	7.73E+00	1.02E+01	9.87E-01	pCi/g
17-11010-01	LCS	SPIKE	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	8.44E+01	8.96E+00	9.95E+00	1.20E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 17-11010
Project: 2017 Annual Filtercake
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	6.40E-02	8.12E-02	8.13E-02	1.67E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	-1.74E-03	3.30E-02	3.30E-02	3.38E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	-2.50E-02	4.94E-02	4.95E-02	6.92E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	6.82E-03	3.17E-02	3.17E-02	5.09E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	1.28E-03	1.79E-01	1.79E-01	2.92E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	-2.80E-02	2.58E-01	2.58E-01	3.67E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	4.96E-02	5.77E-02	5.78E-02	1.07E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	-5.29E-02	1.06E-01	1.06E-01	1.51E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	2.27E-02	2.59E-02	2.60E-02	3.99E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	7.21E-03	3.57E-02	3.57E-02	5.56E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	7.97E-03	1.09E-01	1.09E-01	8.86E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	-3.34E-03	2.86E-02	2.86E-02	4.68E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	2.83E-02	4.78E-02	4.78E-02	6.27E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	-1.34E-01	2.96E-01	2.96E-01	4.05E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	-1.34E-01	2.96E-01	2.96E-01	4.05E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	-1.19E-03	1.01E-02	1.01E-02	5.02E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	4.31E-02	2.45E-02	2.46E-02	4.79E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	-3.01E-02	3.98E-02	3.98E-02	5.47E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	3.33E-02	5.03E-02	5.03E-02	8.78E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	9.35E-03	2.84E-02	2.84E-02	4.09E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	4.96E-02	5.77E-02	5.78E-02	1.07E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	6.40E-02	8.12E-02	8.13E-02	1.67E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	-4.47E-03	2.53E-02	2.53E-02	3.93E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	-1.44E-01	3.04E-01	3.04E-01	3.56E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	1.82E-02	6.76E-02	6.76E-02	1.13E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	2.78E-02	2.56E-02	2.56E-02	4.97E-02	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	6.40E-02	8.12E-02	8.13E-02	1.67E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	3.77E-02	7.37E-02	7.38E-02	1.32E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	6.44E-01	4.14E-01	4.15E-01	7.01E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	3.77E-02	7.37E-02	7.38E-02	1.32E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	8.19E-02	1.14E-01	1.14E-01	1.88E-01	pCi/g
17-11010-02	MBL	BLANK	11/02/17 00:00	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	3.01E-03	5.84E-02	5.84E-02	1.04E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 17-11010
Project: 2017 Annual Filtercake
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	1.24E+01	1.11E+00	1.28E+00	1.40E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	1.18E-03	1.43E-01	1.43E-01	2.58E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	2.66E-01	2.97E-01	2.97E-01	4.96E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	-9.74E-03	9.20E-02	9.20E-02	6.17E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	1.28E+00	1.69E+00	1.69E+00	2.58E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	2.11E+00	2.10E+00	2.10E+00	3.47E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	1.43E+01	1.26E+00	1.46E+00	1.02E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	-5.44E-02	5.60E-01	5.60E-01	1.54E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	-1.80E-01	1.98E-01	1.98E-01	2.86E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	-4.10E-02	2.05E-01	2.05E-01	3.92E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	1.45E-01	3.08E-01	3.09E-01	7.44E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	-1.94E-01	6.12E-01	6.12E-01	3.80E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	8.89E-01	5.15E-01	5.17E-01	8.44E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	3.21E+00	3.55E+00	3.55E+00	5.91E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	3.21E+00	3.55E+00	3.55E+00	5.91E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	-6.90E-02	2.18E-01	2.18E-01	3.33E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	-3.98E-02	2.05E-01	2.05E-01	2.97E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	3.65E+00	4.74E-01	5.10E-01	7.93E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	1.52E+01	1.17E+00	1.40E+00	9.82E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	-1.48E-01	2.51E-01	2.51E-01	2.78E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	1.43E+01	1.26E+00	1.46E+00	1.02E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	1.24E+01	1.11E+00	1.28E+00	1.40E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	-4.65E-02	1.95E-01	1.95E-01	2.84E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	2.23E-01	1.87E+00	1.87E+00	2.78E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	6.69E-02	5.49E-01	5.49E-01	8.14E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	-3.65E-02	2.61E-01	2.61E-01	3.79E-01	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	1.24E+01	1.11E+00	1.28E+00	1.40E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	4.22E+00	1.19E+00	1.21E+00	1.70E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	2.57E+00	2.91E+00	2.92E+00	5.50E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	4.22E+00	1.19E+00	1.21E+00	1.70E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	-3.95E-01	1.16E+00	1.16E+00	1.66E+00	pCi/g
17-11010-03	DUP	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	1.78E-02	1.34E-01	1.34E-01	1.01E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 17-11010
Project: 2017 Annual Filtercake
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	1.21E+01	1.15E+00	1.31E+00	1.98E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	5.29E-02	1.49E-01	1.49E-01	2.56E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	-1.27E-01	4.07E-01	4.07E-01	5.75E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	-2.90E-01	1.95E-01	1.96E-01	6.24E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	5.78E-01	1.64E+00	1.64E+00	2.48E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	2.17E+00	2.07E+00	2.07E+00	3.42E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	1.44E+01	1.22E+00	1.43E+00	9.44E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	-2.39E-02	5.82E-01	5.82E-01	1.55E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	-1.09E-03	1.93E-01	1.93E-01	3.02E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	-1.86E-02	1.50E-01	1.50E-01	4.12E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	-5.65E+00	1.33E+00	1.36E+00	7.47E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	-6.02E-03	5.35E-01	5.35E-01	3.85E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	6.57E-01	4.58E-01	4.59E-01	7.55E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	1.48E+00	1.87E+00	1.87E+00	3.27E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	1.48E+00	1.87E+00	1.87E+00	3.27E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	-2.14E-03	1.90E-01	1.90E-01	3.21E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	-8.51E-02	2.43E-01	2.43E-01	3.19E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	3.68E+00	4.83E-01	5.18E-01	7.37E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	1.52E+01	1.11E+00	1.36E+00	9.92E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	-8.63E-02	2.69E-01	2.69E-01	2.70E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	1.44E+01	1.22E+00	1.43E+00	9.44E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	1.21E+01	1.15E+00	1.31E+00	1.98E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	6.56E-02	1.96E-01	1.96E-01	2.95E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	-8.42E-02	1.87E+00	1.87E+00	2.76E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	2.70E-01	5.68E-01	5.68E-01	8.52E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	3.83E-03	1.28E-01	1.28E-01	3.58E-01	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	1.21E+01	1.15E+00	1.31E+00	1.98E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	3.10E+00	9.61E-01	9.74E-01	1.39E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	3.67E+00	3.79E+00	3.79E+00	5.54E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	3.10E+00	9.61E-01	9.74E-01	1.39E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	-2.27E-01	1.15E+00	1.15E+00	1.65E+00	pCi/g
17-11010-04	DO	Reg. 1 Annual Filtercake 2017	10/30/17 09:02	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	1.20E-01	1.77E-01	1.77E-01	1.04E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 17-11010
Project: 2017 Annual Filtercake
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	4.98E+00	4.57E-01	5.23E-01	9.50E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	-1.64E-01	1.17E-01	1.17E-01	1.16E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	-1.45E-01	2.12E-01	2.13E-01	2.56E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	-3.95E-01	5.77E-01	5.78E-01	3.08E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	3.64E-01	7.04E-01	7.04E-01	1.10E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	1.17E+00	6.14E-01	6.17E-01	1.74E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	5.59E+00	4.78E-01	5.57E-01	3.86E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	3.18E-01	4.26E-01	4.26E-01	8.22E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	5.59E-03	7.10E-02	7.10E-02	1.12E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	-5.68E-03	3.76E-02	3.76E-02	1.48E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	-8.70E-01	4.38E-01	4.40E-01	4.16E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	-4.30E-02	1.88E-01	1.88E-01	2.06E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	3.98E-01	2.56E-01	2.57E-01	3.67E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	7.89E+00	1.75E+00	1.80E+00	2.13E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	7.89E+00	1.75E+00	1.80E+00	2.13E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	-1.53E-02	6.69E-02	6.69E-02	1.11E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	-2.44E-02	7.68E-02	7.68E-02	1.12E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	1.16E+00	1.84E-01	1.93E-01	6.18E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	5.85E+00	4.68E-01	5.56E-01	5.34E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	6.88E-02	7.63E-02	7.64E-02	1.24E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	5.59E+00	4.78E-01	5.57E-01	3.86E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	4.98E+00	4.57E-01	5.23E-01	9.50E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	3.29E-02	7.99E-02	7.99E-02	1.24E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	2.45E-01	7.42E-01	7.42E-01	1.15E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	5.06E-02	2.45E-01	2.45E-01	3.70E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	4.61E-03	1.19E-01	1.19E-01	1.76E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	4.98E+00	4.57E-01	5.23E-01	9.50E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	7.97E-01	1.90E-01	1.94E-01	1.81E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	3.10E+00	1.97E+00	1.98E+00	2.67E+00	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	7.97E-01	1.90E-01	1.94E-01	1.81E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	3.67E-01	5.43E-01	5.43E-01	8.87E-01	pCi/g
17-11010-05	TRG	Reg. 2 Annual Filtercake 2017	10/30/17 09:47	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	-2.01E-02	8.41E-02	8.41E-02	2.68E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Antonio Campos	SDG:	17-11010
CalEnergy Operating Corp	Project:	2017 Annual Filtercake
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	3.24E-01	1.34E-01	1.35E-01	2.01E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	-4.18E-02	4.26E-02	4.26E-02	4.22E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	-6.49E-03	5.78E-02	5.78E-02	8.22E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	-2.64E-02	6.37E-02	6.37E-02	7.02E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	6.79E-02	2.74E-01	2.74E-01	4.51E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	2.83E-02	3.33E-01	3.33E-01	5.04E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	2.71E-01	8.92E-02	9.03E-02	1.54E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	-9.67E-02	1.55E-01	1.55E-01	2.27E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	1.81E-02	3.85E-02	3.85E-02	7.01E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	2.40E-02	4.62E-02	4.62E-02	7.72E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	8.69E-02	1.21E-01	1.21E-01	1.14E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	2.82E-02	9.06E-02	9.06E-02	6.07E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	2.01E-02	7.54E-02	7.54E-02	9.46E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	6.96E+00	1.20E+00	1.26E+00	6.73E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	6.96E+00	1.20E+00	1.26E+00	6.73E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	1.00E-02	3.23E-02	3.23E-02	5.82E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	3.78E-02	2.46E-02	2.47E-02	5.61E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	1.11E-01	6.06E-02	6.08E-02	1.78E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	2.40E-01	8.59E-02	8.68E-02	2.22E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	6.85E-03	3.82E-02	3.82E-02	5.50E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	2.71E-01	8.92E-02	9.03E-02	1.54E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	3.24E-01	1.34E-01	1.35E-01	2.01E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	-1.77E-02	3.09E-02	3.10E-02	4.72E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	-2.04E-01	3.63E-01	3.63E-01	5.06E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	-7.22E-02	1.18E-01	1.18E-01	1.30E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	1.83E-02	4.49E-02	4.49E-02	6.62E-02	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	3.24E-01	1.34E-01	1.35E-01	2.01E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	5.98E-02	9.46E-02	9.46E-02	1.77E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	9.87E-01	5.53E-01	5.55E-01	9.68E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	5.98E-02	9.46E-02	9.46E-02	1.77E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	4.12E-02	2.55E-01	2.55E-01	3.46E-01	pCi/g
17-11010-06	TRG	Elmore Annual Filtercake 2017	10/30/17 10:33	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	-1.49E-01	1.28E-01	1.28E-01	1.16E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Antonio Campos	SDG:	17-11010
CalEnergy Operating Corp	Project:	2017 Annual Filtercake
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Actinium-228	EPA 901.1 Modified	1.42E-01	2.36E-01	2.36E-01	4.07E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Silver-108m	EPA 901.1 Modified	-3.22E-02	6.35E-02	6.36E-02	6.60E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Americium-241	EPA 901.1 Modified	-1.35E-01	1.29E-01	1.29E-01	1.54E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Barium-133	EPA 901.1 Modified	6.12E-04	3.38E-02	3.38E-02	1.31E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Beryllium-7	EPA 901.1 Modified	3.46E-01	3.40E-01	3.41E-01	6.24E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Bismuth-212	EPA 901.1 Modified	3.25E-01	4.10E-01	4.11E-01	7.25E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Bismuth-214	EPA 901.1 Modified	4.13E-01	1.37E-01	1.39E-01	2.96E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Cerium-144	EPA 901.1 Modified	7.00E-02	2.07E-01	2.07E-01	3.53E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Cobalt-60	EPA 901.1 Modified	9.66E-03	3.27E-02	3.27E-02	8.55E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Cesium-137	EPA 901.1 Modified	4.56E-03	5.79E-02	5.79E-02	9.23E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Europium-152	EPA 901.1 Modified	-5.04E-02	1.45E-01	1.45E-01	1.72E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Europium-154	EPA 901.1 Modified	-2.46E-02	1.47E-01	1.47E-01	8.70E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Europium-155	EPA 901.1 Modified	8.92E-03	1.26E-01	1.26E-01	1.57E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Gross Gamma	EPA 901.1 Modified	7.91E+00	1.61E+00	1.66E+00	1.47E+00	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Potassium-40	EPA 901.1 Modified	7.91E+00	1.61E+00	1.66E+00	1.47E+00	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Sodium-22	EPA 901.1 Modified	-8.77E-03	5.23E-02	5.23E-02	8.26E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Niobium-94	EPA 901.1 Modified	-2.59E-02	3.47E-02	3.47E-02	6.64E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Lead-212	EPA 901.1 Modified	1.07E-01	8.00E-02	8.01E-02	1.76E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Lead-214	EPA 901.1 Modified	4.63E-01	1.15E-01	1.17E-01	1.57E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Promethium-144	EPA 901.1 Modified	1.23E-02	5.33E-02	5.33E-02	8.06E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Radium-226	EPA 901.1 Modified	4.13E-01	1.37E-01	1.39E-01	2.96E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Radium-228	EPA 901.1 Modified	1.42E-01	2.36E-01	2.36E-01	4.07E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Ruthenium-103	EPA 901.1 Modified	5.85E-03	1.85E-02	1.85E-02	7.82E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Ruthenium-106	EPA 901.1 Modified	-7.42E-02	1.96E-01	1.96E-01	6.24E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Antimony-125	EPA 901.1 Modified	1.26E-01	1.26E-01	1.26E-01	2.23E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Tin-113	EPA 901.1 Modified	-2.03E-02	6.06E-02	6.06E-02	8.82E-02	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Thorium-228	EPA 901.1 Modified	1.42E-01	2.36E-01	2.36E-01	4.07E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Thorium-232	EPA 901.1 Modified	1.32E-01	1.42E-01	1.42E-01	2.56E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Thorium-234	EPA 901.1 Modified	2.73E+00	1.46E+00	1.46E+00	2.35E+00	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Thallium-208	EPA 901.1 Modified	1.32E-01	1.42E-01	1.42E-01	2.56E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Uranium-235	EPA 901.1 Modified	-4.57E-03	2.28E-01	2.28E-01	3.78E-01	pCi/g
17-11010-07	TRG	Leathers Ann. Filtercake 2017	10/30/17 11:18	11/2/2017	11/3/2017	17-11010	Zinc-65	EPA 901.1 Modified	-1.16E-01	1.39E-01	1.39E-01	1.75E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Chain of Custody Record

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Page 1 of 1

Project Name: 2017 Annual Filtercake	Project Number:
Send Report To: CalEnergy Operating Co.	Sampler (Print Name): Alejandro Castillo
Address: 7030 Gentry Rd	Sampler (Print Name):
Calipatria, CA 92233	Shipment Method: Next day
	Airbill Number:
Phone: 760-348-4241	Laboratory Receiving:
Fax: 760 348 -4222	

17-11010
CPA# 235250
Purchase Order #: ask for PO#
send invoice w/ request.

	Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested: gross Alpha	gross Beta	gamma Spectroscopy	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
4.	Region 1 Annual Filtercake	10/30/17	0902	S	1	X	X	X		
5.	Region 2 Annual Filtercake	10/30/17	0947	S	1	X	X	X		
6.	Eldore Annual Filtercake	10/30/17	1033	S	1	X	X	X	REC'D NOV 02 2017	
7.	Leathers Annual Filtercake	10/30/17	1118	S	1	X	X	X		

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	Elizabeth Towery	11/02/17	10:00
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other _____	Received Containers Intact?	
		Temperature?	

Attachment 4

Hazardous Waste Bioassay Analysis

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WORK ORDER NUMBER: 17-11-0115

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Weck Laboratories, Inc.

Client Project Name: 7K01021

Attention: Kim G. Tu
14859 East Clark Avenue
City of Industry, CA 91745-1396

Approved for release on 11/17/2017 by:
Don Burley
Project Manager

ResultLink

Email your PM

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: 7K01021
Work Order Number: 17-11-0115

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6 Chain-of-Custody/Sample Receipt Form. 11

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Work Order Narrative

Work Order: 17-11-0115 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 11/02/17. They were assigned to Work Order 17-11-0115.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	Weck Laboratories, Inc. 14859 East Clark Avenue City of Industry, CA 91745-1396	Work Order:	17-11-0115
		Project Name:	7K01021
		PO Number:	
		Date/Time Received:	11/02/17 10:00
		Number of Containers:	4
Attn:	Kim G. Tu		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
7K01021-01/Region 1 Filtercake Composite	17-11-0115-1	10/30/17 09:02	1	Solid
7K01021-02/Region 2 Filtercake Composite	17-11-0115-2	10/30/17 09:47	1	Solid
7K01021-03/Elmore Filtercake Composite	17-11-0115-3	10/30/17 10:33	1	Solid
7K01021-04/Leathers Filtercake Composite	17-11-0115-4	10/30/17 11:18	1	Solid

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Analytical Report

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0115
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	CA Fish and Game
Project: 7K01021			Page 1 of 4

Test Species:	Fathead Minnow (Pimephales Promelas)	Mean Length:	43 mm	Mean Weight:	0.46 g
Sample Collected:	10/30/17 09:02:00	Sample Received:	11/02/17 10:00:00		
Test Start:	11/05/17 18:00:00	Test End:	11/09/17 18:00:00		

Initial Water Quality Parameters

Residual Chlorine:	< 0.01 mg/L	Temperature:	19.9 °C
pH:	7.84 units	Conductivity:	910 umhos/cm
Dissolved Oxygen (D.O.):	7.15 mg/L	Alkanlinity:	196 mg/L
Hardness:	42 mg/L	Ammonia:	N/A

Sample Preparation

The sample was adjusted to test temperature.

Sample Adjustment During Analysis

No Supplemental aeration needed.

If needed, supplemental aeration to maintain required Dissolved Oxygen level is supplied via a low pressure oil-free pump connected to individual lines for each tank/chamber from a common manifold. Individual valves at each tank/chamber control the flow rate as required.

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date/Time Analyzed	QC Batch ID
7K01021-01/Region 1 Filtercake Composite	**17-11-0115-1**	**10/30/17**	**Solid**	**11/05/17**	**11/09/17 18:00:00**	

Parameter	Result	Units
Bioassay 750 mg/L (% Mortality)	0	%
Bioassay 250 mg/L (% Mortality)	0	%

Laboratory Notes

Sample was received within recommended holding time.

All testing was within method protocol.

LC 50 Results

SRT sample (mg/L):	25.10
Upper 95% confidence limit:	26.60
Lower 95% confidence limit:	23.60

SRT: Standard Reference Toxicant.

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Analytical Report

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0115
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	CA Fish and Game
Project: 7K01021			Page 2 of 4

Test Species:	Fathead Minnow (Pimephales Promelas)	Mean Length:	43 mm	Mean Weight:	0.46 g
Sample Collected:	10/30/17 09:47:00	Sample Received:	11/02/17 10:00:00		
Test Start:	11/05/17 18:00:00	Test End:	11/09/17 18:00:00		

Initial Water Quality Parameters

Residual Chlorine:	< 0.01 mg/L	Temperature:	19.9 °C
pH:	7.79 units	Conductivity:	910 umhos/cm
Dissolved Oxygen (D.O.):	7.18 mg/L	Alkanlinity:	194 mg/L
Hardness:	42 mg/L	Ammonia:	N/A

Sample Preparation

The sample was adjusted to test temperature.

Sample Adjustment During Analysis

No Supplemental aeration needed.

If needed, supplemental aeration to maintain required Dissolved Oxygen level is supplied via a low pressure oil-free pump connected to individual lines for each tank/chamber from a common manifold. Individual valves at each tank/chamber control the flow rate as required.

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date/Time Analyzed	QC Batch ID
7K01021-02/Region 2 Filtercake Composite	**17-11-0115-2**	**10/30/17**	**Solid**	**11/05/17**	**11/09/17 18:00:00**	

Parameter	Result	Units
Bioassay 750 mg/L (% Mortality)	0	%
Bioassay 250 mg/L (% Mortality)	0	%

Laboratory Notes

Sample was received within recommended holding time.

All testing was within method protocol.

LC 50 Results

SRT sample (mg/L):	25.10
Upper 95% confidence limit:	26.60
Lower 95% confidence limit:	23.60

SRT: Standard Reference Toxicant.

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Analytical Report

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0115
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	CA Fish and Game
Project: 7K01021			Page 3 of 4

Test Species:	Fathead Minnow (Pimephales Promelas)	Mean Length:	43 mm	Mean Weight:	0.46 g
Sample Collected:	10/30/17 10:33:00	Sample Received:	11/02/17 10:00:00		
Test Start:	11/05/17 18:00:00	Test End:	11/09/17 18:00:00		

Initial Water Quality Parameters

Residual Chlorine:	< 0.01 mg/L	Temperature:	19.9 °C
pH:	7.8 units	Conductivity:	910 umhos/cm
Dissolved Oxygen (D.O.):	7.12 mg/L	Alkanlinity:	194 mg/L
Hardness:	42 mg/L	Ammonia:	N/A

Sample Preparation

The sample was adjusted to test temperature.

Sample Adjustment During Analysis

No Supplemental aeration needed.

If needed, supplemental aeration to maintain required Dissolved Oxygen level is supplied via a low pressure oil-free pump connected to individual lines for each tank/chamber from a common manifold. Individual valves at each tank/chamber control the flow rate as required.

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date/Time Analyzed	QC Batch ID
7K01021-03/Elmore Filtercake Composite	**17-11-0115-3**	**10/30/17**	**Solid**	**11/05/17**	**11/09/17 18:00:00**	

Parameter	Result	Units
Bioassay 750 mg/L (% Mortality)	0	%
Bioassay 250 mg/L (% Mortality)	0	%

Laboratory Notes

Sample was received within recommended holding time.

All testing was within method protocol.

LC 50 Results

SRT sample (mg/L):	25.10
Upper 95% confidence limit:	26.60
Lower 95% confidence limit:	23.60

SRT: Standard Reference Toxicant.

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Analytical Report

Weck Laboratories, Inc.		Date Received:	11/02/17
14859 East Clark Avenue		Work Order:	17-11-0115
City of Industry, CA 91745-1396		Preparation:	N/A
		Method:	CA Fish and Game
Project: 7K01021			Page 4 of 4

Test Species:	Fathead Minnow (Pimephales Promelas)	Mean Length:	43 mm	Mean Weight:	0.46 g
Sample Collected:	10/30/17 11:18:00	Sample Received:	11/02/17 10:00:00		
Test Start:	11/05/17 18:00:00	Test End:	11/09/17 18:00:00		

Initial Water Quality Parameters

Residual Chlorine:	< 0.01 mg/L	Temperature:	19.9 °C
pH:	7.8 units	Conductivity:	910 umhos/cm
Dissolved Oxygen (D.O.):	7.15 mg/L	Alkanlinity:	194 mg/L
Hardness:	42 mg/L	Ammonia:	N/A

Sample Preparation

The sample was adjusted to test temperature.

Sample Adjustment During Analysis

No Supplemental aeration needed.

If needed, supplemental aeration to maintain required Dissolved Oxygen level is supplied via a low pressure oil-free pump connected to individual lines for each tank/chamber from a common manifold. Individual valves at each tank/chamber control the flow rate as required.

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date/Time Analyzed	QC Batch ID
7K01021-04/Leathers Filtercake Composite	**17-11-0115-4**	**10/30/17**	**Solid**	**11/05/17**	**11/09/17 18:00:00**	

Parameter	Result	Units
Bioassay 750 mg/L (% Mortality)	0	%
Bioassay 250 mg/L (% Mortality)	0	%

Laboratory Notes

Sample was received within recommended holding time.

All testing was within method protocol.

LC 50 Results

SRT sample (mg/L):	25.10
Upper 95% confidence limit:	26.60
Lower 95% confidence limit:	23.60

SRT: Standard Reference Toxicant.

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Sample Analysis Summary Report

Work Order: 17-11-0115 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
CA Fish and Game	N/A	691	TANK	1

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Glossary of Terms and Qualifiers

Work Order: 17-11-0115 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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Subcontract Order

WECK LABORATORIES, INC.

Subcontracted Laboratory:

Aquatic Bioassay & Consulting Labs, Inc.
29 North Olive Street
Ventura, CA 93001
Phone: (805) 643-5621
Fax: (805) 643-2930

Turn Around Time: Normal
Project Manager: Kim G. Tu
Project Name: Brine Pond Samples
Project Number: 2017 Annual Filtercake
Sampler Employed by:

17-11-0115

Work Order: 7K01021

Analysis	Due	Expires	Comments
1 **Sample ID:** 7K01021-01/Region 1 Filtercake Composite			**Sampled:** 10/30/2017 09:02
Sample comment:			**Matrix:** Water **Sampled By:** Alejandro Casti
Bioassay 22CCR66261.24 Hazardous Was	11/13/2017	10/30/2018 09:02	
Containers Supplied:			
2 **Sample ID:** 7K01021-02/Region 2 Filtercake Composite			**Sampled:** 10/30/2017 09:47
Sample comment:			**Matrix:** Water **Sampled By:** Alejandro Casti
Bioassay 22CCR66261.24 Hazardous Was	11/13/2017	10/30/2018 09:47	
Containers Supplied:			
3 **Sample ID:** 7K01021-03/Elmore Filtercake Composite			**Sampled:** 10/30/2017 10:33
Sample comment:			**Matrix:** Water **Sampled By:** Alejandro Casti
Bioassay 22CCR66261.24 Hazardous Was	11/13/2017	10/30/2018 10:33	
Containers Supplied:			
4 **Sample ID:** 7K01021-04/Leathers Filtercake Composite			**Sampled:** 10/30/2017 11:18
Sample comment:			**Matrix:** Water **Sampled By:** Alejandro Casti
Bioassay 22CCR66261.24 Hazardous Was	11/13/2017	10/30/2018 11:18	
Containers Supplied:			

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Remarks / Special Comments:

Sample Condition

Temperature:
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By	Date / Time	Received By	Date / Time
Guanglian	11/01/17 1320	Fedex	
FedEx	11/02/17 1000		10/07 11/02/17 1000

14859 East Clark Avenue, City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

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0115

ORIGIN ID:POCA (626) 336-2139
SAMPLE RECEIVING WECK LABS
WECK LABORATORIES INC
14859 CLARK AVE

HACIENDA HEIGHTS, CA 91745
UNITED STATES US

SHIP DATE: 01NOV17
ACTWGT: 5.00 LB
CAD: 8766038/INET3920
DIMS: 12x9x10 IN

BILL THIRD PARTY

TO STEPHEN NOWAK
EUROFINS CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF:
INV:
PO: DEPT:

549J3F877/1104C

FedEx Express

J172117091301uv

THU - 02 NOV 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7706 4786 6863

92 APVA

92841
CA-US SNA

RT 349 5 10:30 C 6863 11.02

ST 12

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WORK ORDER NUMBER: 17-11-0115

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Week

DATE: 11/02/2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: -0.4°C); Temperature (w/o CF): 24.1 °C (w/ CF): 23.7 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 300

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 300

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1053

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑ 11/2/17	☑	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☐	☐	☑
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☑ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: 1053

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: 1017

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WORK ORDER NUMBER: 17-11- 0115

SAMPLE ANOMALY REPORT

DATE: 11 / 02 / 2017

SAMPLES, CONTAINERS, AND LABELS:

Comments

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☐ Improper preservative used (list analysis)
- ☐ pH outside acceptable range (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☐ Client sample label(s) do not match COC (comment)
  - ☐ Project information
  - ☐ Client sample ID
  - ☐ Sampling date and/or time
  - ☐ Number of container(s)
  - ☐ Requested analysis
- ☐ Sample container(s) compromised (comment)
  - ☐ Broken
  - ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (not transferred; duplicate bag submitted)
  - ☐ Leaking (transferred into ECI Tedlar™ bags*)
  - ☐ Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

*(-1 thru -4) Matrix is Soil.

MISCELLANEOUS: (Describe)

*Matrix

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments: _____

Reported by: 1053

Reviewed by: 1017

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

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CalEnergy DVC- 2017 Reanalysis of Filter Cake for VOCs

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 8A05034

Project: 2017 Annual Filtercake Composite

Attn: CalEnergy Corporation

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria, CA 92233

Report Date: 1/15/2018
Received Date: 1/5/2018
Turnaround Time: 5 workdays
Phones: (760) 348-4270
Fax: (760) 348-4222
P.O. #:
Billing Code:

Dear CalEnergy Corporation :

Enclosed are the results of analyses for samples received 1/5/2018 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analysis met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Region 1 Filtercake Composite
8A05034-01 (Solid)

Sampled: 01/04/18 14:00 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48	**Analyst:** rhr	
1,1,1,2-Tetrachloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1,1-Trichloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1,2,2-Tetrachloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1,2-Trichloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1-Dichloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,1-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2,3-Trichlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2,3-Trichloropropane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2,4-Trichlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2,4-Trimethylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2-Dibromo-3-chloropropane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2-Dibromoethane (EDB)	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2-Dichloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,2-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 04:37	
1,3,5-Trimethylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
1,3-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 04:37	
2,2-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 04:37	
2-Butanone	ND	9.9	ug/kg	1	01/11/18 04:37	
2-Chloroethyl vinyl ether	ND	9.9	ug/kg	1	01/11/18 04:37	
2-Chlorotoluene	ND	9.9	ug/kg	1	01/11/18 04:37	

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Sample Results

(Continued)

Sample: Region 1 Filtercake Composite
8A05034-01 (Solid)

Sampled: 01/04/18 14:00 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W8A0485 **Instr:** GCMS17 **Prepared:** 01/10/18 08:48 **Analyst:** rhr						
2-Hexanone	ND	9.9	ug/kg	1	01/11/18 04:37	
4-Chlorotoluene	ND	9.9	ug/kg	1	01/11/18 04:37	
4-Methyl-2-pentanone	ND	9.9	ug/kg	1	01/11/18 04:37	
Acetone	ND	9.9	ug/kg	1	01/11/18 04:37	
Acrolein	ND	9.9	ug/kg	1	01/11/18 04:37	
Acrylonitrile	ND	9.9	ug/kg	1	01/11/18 04:37	
Benzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Bromobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Bromochloromethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Bromodichloromethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Bromoform	ND	9.9	ug/kg	1	01/11/18 04:37	
Bromomethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Carbon tetrachloride	ND	9.9	ug/kg	1	01/11/18 04:37	
Chlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Chloroethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Chloroform	ND	9.9	ug/kg	1	01/11/18 04:37	
Chloromethane	ND	9.9	ug/kg	1	01/11/18 04:37	
cis-1,2-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 04:37	
cis-1,3-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 04:37	
Dibromochloromethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Dibromomethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Dichlorodifluoromethane (Freon 12)	ND	9.9	ug/kg	1	01/11/18 04:37	
Ethylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Hexachlorobutadiene	ND	9.9	ug/kg	1	01/11/18 04:37	
Isopropylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
m,p-Xylene	ND	9.9	ug/kg	1	01/11/18 04:37	
m-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Methyl tert-butyl ether (MTBE)	ND	9.9	ug/kg	1	01/11/18 04:37	
Methylene chloride	ND	9.9	ug/kg	1	01/11/18 04:37	
Naphthalene	ND	9.9	ug/kg	1	01/11/18 04:37	
n-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
n-Propylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
o-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
o-Xylene	ND	9.9	ug/kg	1	01/11/18 04:37	
p-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
p-Isopropyltoluene	ND	9.9	ug/kg	1	01/11/18 04:37	
sec-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Styrene	ND	9.9	ug/kg	1	01/11/18 04:37	
tert-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 04:37	
Tetrachloroethene	ND	9.9	ug/kg	1	01/11/18 04:37	

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Sample Results

(Continued)

Sample: Region 1 Filtercake Composite

8A05034-01 (Solid)

Sampled: 01/04/18 14:00 by Alejandro Castillo

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W8A0485 **Instr:** GCMS17 **Prepared:** 01/10/18 08:48 **Analyst:** rhr						
Toluene	ND	9.9	ug/kg	1	01/11/18 04:37	
trans-1,2-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 04:37	
trans-1,3-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 04:37	
Trichloroethene	ND	9.9	ug/kg	1	01/11/18 04:37	
Trichlorofluoromethane	ND	9.9	ug/kg	1	01/11/18 04:37	
Vinyl chloride	ND	9.9	ug/kg	1	01/11/18 04:37	
Surrogate(s)						
1,2-Dichloroethane-d4	*93%*	*78-140*	*Conc: 91.9*		*01/11/18 04:37*	
4-Bromofluorobenzene	*101%*	*85-116*	*Conc: 99.8*		*01/11/18 04:37*	
Dibromofluoromethane	*98%*	*84-120*	*Conc: 97.6*		*01/11/18 04:37*	
Toluene-d8	*98%*	*82-120*	*Conc: 97.6*		*01/11/18 04:37*	

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Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
8A05034-02 (Solid)

Sampled: 01/04/18 14:07 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
1,1,1,2-Tetrachloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1,1-Trichloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1,2,2-Tetrachloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1,2-Trichloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1-Dichloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,1-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2,3-Trichlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2,3-Trichloropropane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2,4-Trichlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2,4-Trimethylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2-Dibromo-3-chloropropane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2-Dibromoethane (EDB)	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2-Dichloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,2-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 05:09	
1,3,5-Trimethylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
1,3-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 05:09	
2,2-Dichloropropane	ND	9.9	ug/kg	1	01/11/18 05:09	
2-Butanone	ND	9.9	ug/kg	1	01/11/18 05:09	
2-Chloroethyl vinyl ether	ND	9.9	ug/kg	1	01/11/18 05:09	
2-Chlorotoluene	ND	9.9	ug/kg	1	01/11/18 05:09	
2-Hexanone	ND	9.9	ug/kg	1	01/11/18 05:09	
4-Chlorotoluene	ND	9.9	ug/kg	1	01/11/18 05:09	
4-Methyl-2-pentanone	ND	9.9	ug/kg	1	01/11/18 05:09	
Acetone	ND	9.9	ug/kg	1	01/11/18 05:09	
Acrolein	ND	9.9	ug/kg	1	01/11/18 05:09	
Acrylonitrile	ND	9.9	ug/kg	1	01/11/18 05:09	
Benzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Bromobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Bromochloromethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Bromodichloromethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Bromoform	ND	9.9	ug/kg	1	01/11/18 05:09	
Bromomethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Carbon tetrachloride	ND	9.9	ug/kg	1	01/11/18 05:09	
Chlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Chloroethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Chloroform	ND	9.9	ug/kg	1	01/11/18 05:09	
Chloromethane	ND	9.9	ug/kg	1	01/11/18 05:09	
cis-1,2-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 05:09	
cis-1,3-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 05:09	

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Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
8A05034-02 (Solid)

Sampled: 01/04/18 14:07 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
Dibromochloromethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Dibromomethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Dichlorodifluoromethane (Freon 12)	ND	9.9	ug/kg	1	01/11/18 05:09	
Ethylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Hexachlorobutadiene	ND	9.9	ug/kg	1	01/11/18 05:09	
Isopropylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
m,p-Xylene	ND	9.9	ug/kg	1	01/11/18 05:09	
m-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Methyl tert-butyl ether (MTBE)	ND	9.9	ug/kg	1	01/11/18 05:09	
Methylene chloride	ND	9.9	ug/kg	1	01/11/18 05:09	
Naphthalene	ND	9.9	ug/kg	1	01/11/18 05:09	
n-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
n-Propylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
o-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
o-Xylene	ND	9.9	ug/kg	1	01/11/18 05:09	
p-Dichlorobenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
p-Isopropyltoluene	ND	9.9	ug/kg	1	01/11/18 05:09	
sec-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Styrene	ND	9.9	ug/kg	1	01/11/18 05:09	
tert-Butylbenzene	ND	9.9	ug/kg	1	01/11/18 05:09	
Tetrachloroethene	ND	9.9	ug/kg	1	01/11/18 05:09	
Toluene	ND	9.9	ug/kg	1	01/11/18 05:09	
trans-1,2-Dichloroethene	ND	9.9	ug/kg	1	01/11/18 05:09	
trans-1,3-Dichloropropene	ND	9.9	ug/kg	1	01/11/18 05:09	
Trichloroethene	ND	9.9	ug/kg	1	01/11/18 05:09	
Trichlorofluoromethane	ND	9.9	ug/kg	1	01/11/18 05:09	
Vinyl chloride	ND	9.9	ug/kg	1	01/11/18 05:09	
Surrogate(s)						
1,2-Dichloroethane-d4	*89%*	*78-140*	*Conc: 88.3*		*01/11/18 05:09*	
4-Bromofluorobenzene	*99%*	*85-116*	*Conc: 98.7*		*01/11/18 05:09*	
Dibromofluoromethane	*94%*	*84-120*	*Conc: 93.6*		*01/11/18 05:09*	
Toluene-d8	*98%*	*82-120*	*Conc: 97.5*		*01/11/18 05:09*	

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Sample Results

(Continued)

Sample: Elmore Filtercake Composite

8A05034-03 (Solid)

Sampled: 01/04/18 14:15 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
1,1,1,2-Tetrachloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1,1-Trichloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1,2,2-Tetrachloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1,2-Trichloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1-Dichloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,1-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2,3-Trichlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2,3-Trichloropropane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2,4-Trichlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2,4-Trimethylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2-Dibromo-3-chloropropane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2-Dibromoethane (EDB)	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2-Dichloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,2-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 05:42	
1,3,5-Trimethylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
1,3-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 05:42	
2,2-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 05:42	
2-Butanone	ND	9.8	ug/kg	1	01/11/18 05:42	
2-Chloroethyl vinyl ether	ND	9.8	ug/kg	1	01/11/18 05:42	
2-Chlorotoluene	ND	9.8	ug/kg	1	01/11/18 05:42	
2-Hexanone	ND	9.8	ug/kg	1	01/11/18 05:42	
4-Chlorotoluene	ND	9.8	ug/kg	1	01/11/18 05:42	
4-Methyl-2-pentanone	**10**	9.8	ug/kg	1	01/11/18 05:42	
Acetone	**18**	9.8	ug/kg	1	01/11/18 05:42	
Acrolein	ND	9.8	ug/kg	1	01/11/18 05:42	
Acrylonitrile	ND	9.8	ug/kg	1	01/11/18 05:42	
Benzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Bromobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Bromochloromethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Bromodichloromethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Bromoform	ND	9.8	ug/kg	1	01/11/18 05:42	
Bromomethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Carbon tetrachloride	ND	9.8	ug/kg	1	01/11/18 05:42	
Chlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Chloroethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Chloroform	ND	9.8	ug/kg	1	01/11/18 05:42	
Chloromethane	ND	9.8	ug/kg	1	01/11/18 05:42	
cis-1,2-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 05:42	
cis-1,3-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 05:42	

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Sample Results

(Continued)

Sample: Elmore Filtercake Composite
8A05034-03 (Solid)

Sampled: 01/04/18 14:15 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
Dibromochloromethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Dibromomethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Dichlorodifluoromethane (Freon 12)	ND	9.8	ug/kg	1	01/11/18 05:42	
Ethylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Hexachlorobutadiene	ND	9.8	ug/kg	1	01/11/18 05:42	
Isopropylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
m,p-Xylene	ND	9.8	ug/kg	1	01/11/18 05:42	
m-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Methyl tert-butyl ether (MTBE)	ND	9.8	ug/kg	1	01/11/18 05:42	
Methylene chloride	ND	9.8	ug/kg	1	01/11/18 05:42	
Naphthalene	ND	9.8	ug/kg	1	01/11/18 05:42	
n-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
n-Propylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
o-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
o-Xylene	ND	9.8	ug/kg	1	01/11/18 05:42	
p-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
p-Isopropyltoluene	ND	9.8	ug/kg	1	01/11/18 05:42	
sec-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Styrene	ND	9.8	ug/kg	1	01/11/18 05:42	
tert-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 05:42	
Tetrachloroethene	ND	9.8	ug/kg	1	01/11/18 05:42	
Toluene	ND	9.8	ug/kg	1	01/11/18 05:42	
trans-1,2-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 05:42	
trans-1,3-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 05:42	
Trichloroethene	ND	9.8	ug/kg	1	01/11/18 05:42	
Trichlorofluoromethane	ND	9.8	ug/kg	1	01/11/18 05:42	
Vinyl chloride	ND	9.8	ug/kg	1	01/11/18 05:42	
Surrogate(s)						
1,2-Dichloroethane-d4	*98%*	*78-140*	*Conc: 96.1*		*01/11/18 05:42*	
4-Bromofluorobenzene	*97%*	*85-116*	*Conc: 95.2*		*01/11/18 05:42*	
Dibromofluoromethane	*100%*	*84-120*	*Conc: 97.7*		*01/11/18 05:42*	
Toluene-d8	*97%*	*82-120*	*Conc: 95.3*		*01/11/18 05:42*	

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Sample Results

(Continued)

Sample: Leathers Filtercake Composite
8A05034-04 (Solid)

Sampled: 01/04/18 14:27 by Alejandro Castillo

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
1,1,1,2-Tetrachloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1,1-Trichloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1,2,2-Tetrachloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1,2-Trichloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1-Dichloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,1-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2,3-Trichlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2,3-Trichloropropane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2,4-Trichlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2,4-Trimethylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2-Dibromo-3-chloropropane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2-Dibromoethane (EDB)	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2-Dichloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,2-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 06:14	
1,3,5-Trimethylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
1,3-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 06:14	
2,2-Dichloropropane	ND	9.8	ug/kg	1	01/11/18 06:14	
2-Butanone	ND	9.8	ug/kg	1	01/11/18 06:14	
2-Chloroethyl vinyl ether	ND	9.8	ug/kg	1	01/11/18 06:14	
2-Chlorotoluene	ND	9.8	ug/kg	1	01/11/18 06:14	
2-Hexanone	ND	9.8	ug/kg	1	01/11/18 06:14	
4-Chlorotoluene	ND	9.8	ug/kg	1	01/11/18 06:14	
4-Methyl-2-pentanone	ND	9.8	ug/kg	1	01/11/18 06:14	
Acetone	ND	9.8	ug/kg	1	01/11/18 06:14	
Acrolein	ND	9.8	ug/kg	1	01/11/18 06:14	
Acrylonitrile	ND	9.8	ug/kg	1	01/11/18 06:14	
Benzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Bromobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Bromochloromethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Bromodichloromethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Bromoform	ND	9.8	ug/kg	1	01/11/18 06:14	
Bromomethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Carbon tetrachloride	ND	9.8	ug/kg	1	01/11/18 06:14	
Chlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Chloroethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Chloroform	ND	9.8	ug/kg	1	01/11/18 06:14	
Chloromethane	ND	9.8	ug/kg	1	01/11/18 06:14	
cis-1,2-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 06:14	
cis-1,3-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 06:14	

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Sample Results

(Continued)

Sample: Leathers Filtercake Composite
8A05034-04 (Solid)

Sampled: 01/04/18 14:27 by Alejandro Castillo
(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8260B (Continued) **Batch ID:** W8A0485 **Instr:** GCMS17				**Prepared:** 01/10/18 08:48		**Analyst:** rhr
Dibromochloromethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Dibromomethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Dichlorodifluoromethane (Freon 12)	ND	9.8	ug/kg	1	01/11/18 06:14	
Ethylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Hexachlorobutadiene	ND	9.8	ug/kg	1	01/11/18 06:14	
Isopropylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
m,p-Xylene	ND	9.8	ug/kg	1	01/11/18 06:14	
m-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Methyl tert-butyl ether (MTBE)	ND	9.8	ug/kg	1	01/11/18 06:14	
Methylene chloride	ND	9.8	ug/kg	1	01/11/18 06:14	
Naphthalene	ND	9.8	ug/kg	1	01/11/18 06:14	
n-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
n-Propylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
o-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
o-Xylene	ND	9.8	ug/kg	1	01/11/18 06:14	
p-Dichlorobenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
p-Isopropyltoluene	ND	9.8	ug/kg	1	01/11/18 06:14	
sec-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Styrene	ND	9.8	ug/kg	1	01/11/18 06:14	
tert-Butylbenzene	ND	9.8	ug/kg	1	01/11/18 06:14	
Tetrachloroethene	ND	9.8	ug/kg	1	01/11/18 06:14	
Toluene	ND	9.8	ug/kg	1	01/11/18 06:14	
trans-1,2-Dichloroethene	ND	9.8	ug/kg	1	01/11/18 06:14	
trans-1,3-Dichloropropene	ND	9.8	ug/kg	1	01/11/18 06:14	
Trichloroethene	ND	9.8	ug/kg	1	01/11/18 06:14	
Trichlorofluoromethane	ND	9.8	ug/kg	1	01/11/18 06:14	
Vinyl chloride	ND	9.8	ug/kg	1	01/11/18 06:14	
Surrogate(s)						
1,2-Dichloroethane-d4	*92%*	*78-140*	*Conc: 89.8*		*01/11/18 06:14*	
4-Bromofluorobenzene	*97%*	*85-116*	*Conc: 95.2*		*01/11/18 06:14*	
Dibromofluoromethane	*96%*	*84-120*	*Conc: 94.2*		*01/11/18 06:14*	
Toluene-d8	*101%*	*82-120*	*Conc: 98.6*		*01/11/18 06:14*	

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Notes and Definitions

Item	Definition
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
All results are expressed on wet weight basis unless otherwise specified.
All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.

Reviewed by:

Kim G. Tu
Project Manager

DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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CHAIN OF CUSTODY RECORD

8A05034

STANDARD

Page 1 Of 1

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CLIENT NAME: CalEnergy Operating Corporation

PROJECT: 2017 Annual Filtercake Composite

ADDRESS: 7030 Gentry Road, Calipatria, CA 92233

PHONE: (760) 348-4241
FAX: (760) 348-4222
EMAIL: Mahesh.Kaur@calenergy.com

PROJECT MANAGER Jenny Wu

SAMPLER: **Alejandro Castillo**

ANALYSES REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: next day

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	EPA 8260B VOC	COMMENTS
	01/04/18	2:00 PM	SW	Region 1 Filtercake Composite	1	x	8oz glass jars
	01/04/18	2:07 PM	SW	Region 2 Filtercake Composite	1	x	8oz glass jars
	01/04/18	2:15 PM	SW	Elmore Filtercake Composite	1	x	8oz glass jars
	01/04/18	2:27 PM	SW	Leathers Filtercake Composite	1	x	8oz glass jars

RELINQUISHED BY	DATE / TIME	RECEIVED BY
	1/4/2018	1/5/18 10:04
RELINQUISHED BY		RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature: 2.4

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

Fedex

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

Send Electronic invocies to payables@calenergy.com

COC version 042707

ATTACHMENT D

Imperial County Air Pollution District's Authority to Construct and Permit to Operate No. 2120 B-3 for Desert Valley Company

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

CONDITIONS FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE #2120B-3

I.H.

CALENERGY OPERATING CORPORATION
7030 GENTRY ROAD
CALIPATRIA, CA 92233

LOCATION: 3301 WEST HIGHWAY 86, BRAWLEY, CA

A. GENERAL CONDITIONS

1. This Permit to Operate with Conditions is applicable to the Desert Valley Company Landfill facility and supersedes all other past permit emissions limitations.

2. The facility shall be constructed and operated in substantial compliance with the project description, and operating parameters of Application (FR#565898) dated February 26, 2008, and with earlier applications the Authority to Construct Permit and supporting documents, except as may be modified by more stringent requirements of law or these conditions.

3. Operation of the Landfill shall be in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

4. Operation of the Landfill shall be in compliance with applicable APCD Rules and Regulations.

5. This permit does not authorize the emissions of air contaminants in excess of those allowed by the USEPA (title 40 of the Code of Federal Regulation), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

6. This permit cannot be considered permission to violate applicable existing laws, regulations, rules or statues of other governmental agencies.

7. No air contaminant shall be released into the atmosphere which causes a public nuisance (Rule 407).

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

8. Disturbances of soil related to any construction, demolition, excavation, or other earthmoving activities shall comply with the requirements for fugitive dust control (Rule 801).

9. Any unpaved and paved road, and open areas subject to be disturbed by vehicles traffic shall comply with the requirements for fugitive dust control (Rule 805).

10. The permittee shall prevent or cleanup any carry-out or track-out (Rule803).

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann Chart 1 or 20% opacity (Rule 401).

B. Disposal Wastes Permitted

1. The annual total geothermal waste delivered to the site shall not exceed 750 tons per day average.

2. Wastes disposed in the Monofill (landfill) shall be confined to geothermal drilling mud and cuttings; geothermal filter cake; Solids contaminated with geothermal material; and Incidental plastic sheeting (truck bed liner)/materials.

C. Waste Condition

1. Geothermal wastes shall contain adequate moisture, sealant, or a combination thereof to prevent any visible dust emissions beyond the Monofill when wastes are unloaded, piled, leveled and compacted.

D. Mitigation of Fugitive Emissions

1. Traveled roadways on and approaching the site will be paved or covered with gravel. Unpaved areas on site will be sprayed with water and/or sealant. Construction, earth moving, and similar operations shall not be conducted when the wind speed reaches 21 MPH or greater.

2. All incoming geothermal waste trucks shall be covered.

3. Disposal activities shall cease when wind speed reaches 13 MPH or greater.

4. Geothermal filter cake solids shall be spray misted with sealant during unloading as necessary.

5. All working geothermal waste shall be covered with sealant after each working day.

6. Opacity of fugitive emissions shall not exceed 20% at any point for a period or periods aggregating more than three (3) minutes in any one hour. (Rule 401).

E. Monitoring Equipment

1. DVC shall install and maintain a continuous on-line meteorological station capable of measuring wind speed, direction, humidity, and temperature.

2. DVC shall install, maintain, and operate three (3) high volume air samplers upon commencing waste disposal. Site location for samplers shall be approved by the APCD.

3. DVC shall install, maintain and operate one (1) high volume air sampler for background ambient air concentration measurement. Site location shall be approved by the APCD.

F. Monitoring

1. DVC shall measure ambient particulate concentrations for 24 hours, on a six day interval. The particulate filter loading from the high volume air sampler, the highest concentration measured for the quarter, shall be analyzed for gross radionuclides (Ra 226 and 228) and speciated for heavy metal concentrations (Pb, Zn, Cd, Cu, As). The heavy metal speciation shall be conducted quarterly the first year and twice yearly thereafter.

2. DVC shall measure every (3) three years for Radon gas emissions commencing one (1) year after closure of a cell.

3. The APCD may collect at least (1) particulate sample quarterly for analysis or any other analysis it may require.

4. DVC shall incur all costs for the APCD particulate filter and or gas analysis including, travel, and administration costs above annual Permit to Operate fees.

5. DVC shall maintain proper calibration of monitoring equipment for precision and accuracy of all data submitted to APCD.

G. Reporting

DVC shall quarterly and thereafter;

1. Submit total ambient concentrations of particulates (micrograms/cubic meter/24 hours) measured from hi-volume air samplers and heavy metal speciation concentrations and gross radionuclides including, the method procedures for heavy metal and radionuclides analysis. In addition, DVC shall submit an annual gas speciation analysis.

2. Report the total wastes received at the Monofill site. The report shall include the total tonnage, the type of waste(s), and origin of wastes.

3. Report the quarterly film badge radiological exposure for Monofill workers, and truck drivers.

H. Right to Entry

The APCD or any authorized representative shall be permitted to:

1. Enter the DVC site during regular business hours with or without advance notice for purposes of site inspection.

2. Obtain samples of wastes from trucks, cells or elsewhere on or about the site.

3. Review record of all disposed wastes.

4. Witness calibration of monitoring equipment.

I. Equipment List

181.5 Acres
Two (2) Front Loaders
One (1) Water Truck,
One (1) Vibratory Compactor
One (1) Motor Grader
Thirty Eight (38) Hauling Trucks in and out

SOURCE TEST REPORT
VENTS AV1 – AV6
EMISSIONS TESTING
CALENERGY OPERATING CORPORATION
DESERT VALLEY MONOFILL
3301 WEST HIGHWAY 86
WESTMORLAND, CALIFORNIA
ICAPCD PERMIT NO. 2120-B

Prepared For:

CALENERGY OPERATING CORPORATION
7030 Gentry Road
Calipatria, CA 92233

For Submittal To:

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT
150 S. 9th Street
El Centro, CA 92243-2839

Prepared By:

MONTROSE AIR QUALITY SERVICES, LLC
990 West 43rd Avenue
Denver, Colorado 80211

Document Number: 043AS-360002-RT-206
Testing Performed on July 18, 2018
Date Test Report Issued: August 24, 2018

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Field Data
Calibration Data

SOURCE TEST REPORT:

2018 COMPLIANCE TESTING OF VENTS AV1 – AV6 AT THE DESERT VALLEY MONOFILL CAL ENERGY CORPORATION SALTON SEA POWER GENERATION, L.P.

GENERAL INFORMATION

Source Owner:	Cal Energy Operating Corporation 7030 Gentry Road Calipatria, California 92233
Equipment Location:	Desert Valley Monofill 3301 West Highway 86 Westmorland, California
Contact:	Ms. Yanqiu (Jenny) Wu Telephone: 760-348-4296 Fax: 760-348-4233 Email: yanqiu.wu@calenergy.com
Source Description:	Soil gas vents
Permit Number:	2120-B
Cognizant Agency:	Imperial County Air Pollution Control District 150 South Ninth Street El Centro, California 92243-2850
Contact:	Mr. Emmanuel Sanchez Telephone: 760-482-4606
Source Test Contractor:	Montrose Air Quality Services, LLC 990 West 43rd Avenue Denver, Colorado 80211
Contact:	Mr. Patrick Clark Telephone: (303) 670-0530 Email: pclark@montrose-env.com
Test Dates:	July 18, 2018
Agency Observers	Mr. Chris Marcus (ICAPCD)

Project Overview

General

Montrose Air Quality Services, LLC (Montrose) was contracted by CalEnergy Operating Corporation (CalEnergy) to conduct annual compliance measurements of radon gas from six (6) soil gas vents. These gas vents are from Cells 1 and 2 at the Desert Valley Monofill operated by CalEnergy. The facility is located at 3301 West Highway 86, Westmorland, California.

The soil gas vents are vent pipes equipped with valves which are normally in the closed position and padlocked. The vent pipes are made of PVC and are approximately one (1) inch in diameter and six (6) feet deep. The below grade tip of each vent pipe is positioned at about six (6) inches into a bed pea gravel over the landfill.

Testing was performed on July 18, 2018. Coordinating the field aspects of the test program were:

Yanqiu (Jenny) Wu – CalEnergy Operating Corporation
Jeff Goldfine – Montrose Air Quality Services, LLC

Methodology

Volumetric Flow Rate

The total volume of exhaust gas, if any, released from each soil vent was determined using EPA Method 2A. A dry gas meter was connected to the exhaust end of each pipe and the vent valve was carefully opened. The gas meter movement was observed for five to ten (5-10) minutes.

Results

A summary of test results is shown in Table 1 on Page 3.

Prepared by:

Patrick Clark, P.E.

Reviewed by:

Timothy Wojtach

Summary of Results

Table 1 – Soil Gas Vent Results

Test Parameters	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**
Date	7/18/18	7/18/18	7/18/18	7/18/18	7/18/18	7/18/18
Start Time	9:38	9:30	9:15	10:15	10:04	9:55
Stop Time	9:43	9:35	9:25	10:20	10:09	10:00
Sample Conditions						
Flow Rate (liters/minute)	0.00	0.00	0.00	0.00	0.00	0.00

Test Procedures

Method Listing

The following test methods were referenced for the test program:

EPA Method 2A Direct measurement of gas volume through small pipes and ducts

Method Descriptions

EPA Method 2A

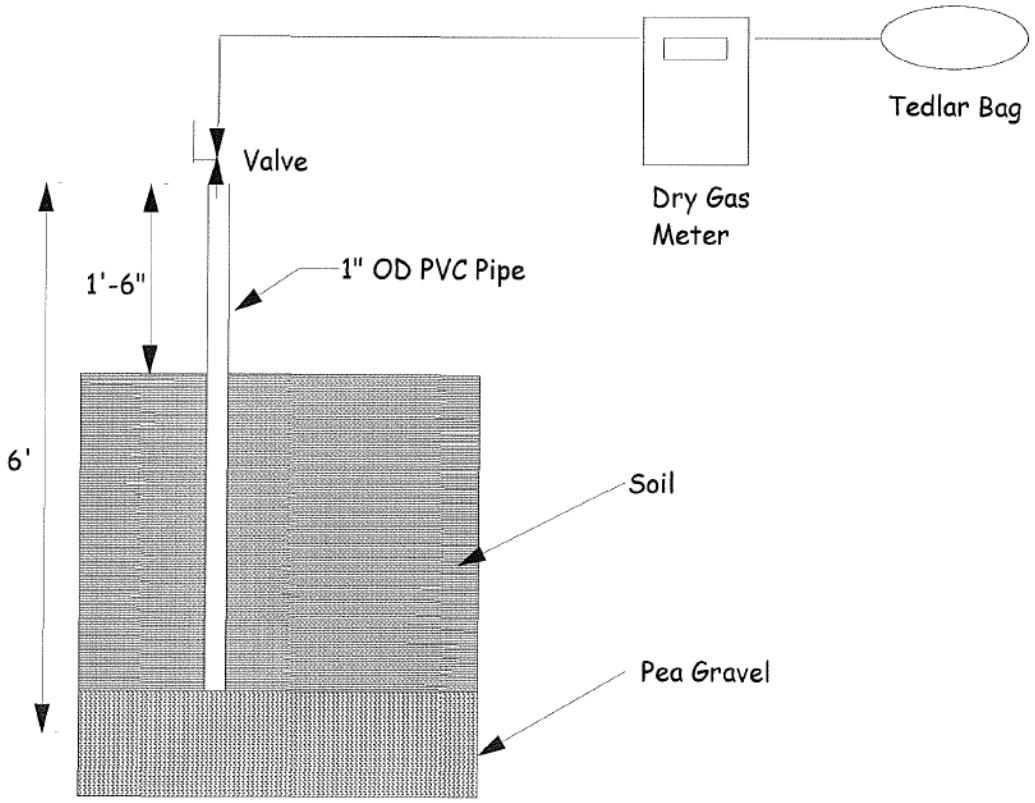
EPA Method 2A was used to determine the existence of volumetric flow through each test location. A dry gas meter was used. The dry gas meter was calibrated according to the guidelines and procedures in EPA Method 5. The meter was equipped with a thermocouple at the inlet to the instrument to monitor the temperature of the gasses entering it.

The dry gas meter was connected to the exhaust end of each pipe and the vent valve was carefully opened. The gas meter movement was observed for five (5) or ten (10) minutes and the volume observed.

Description of Installation

The soil gas vents are from Cells 1 and 2 at the Desert Valley Monofill operated by CalEnergy. The facility is located at 3301 West Highway 86, Westmorland, California.

A sketch showing a typical soil gas vent connected to the dry meter and Tedlar Bag is shown in the figure below:



Appendix

Field Data

MONTROSE
AIR QUALITY SERVICES

INTEGRATED GAS SAMPLING FIELD DATA

CLIENT Cal Energy
FACILITY
SAMPLE LOCATION
PROCESS
DATE 7/18/18
RUN NO.

LEAK CHECK
Pre
Post

CLOCK TIME hours:minutes	RUN TIME minutes	FLOW METER SETTING liters/minute	COMMENTS
V-3 9:15	10	0.00	NO Flow
V-2 9:30	5	0.00	No Flow
V-1 9:38	5	0.00	No Flow
V-6 9:55	5	0.00	No Flow
V-5 10:04	5	0.00	No Flow
V-4 10:15	5	0.00	No Flow

FORM FDF 4009.00

Calibration Data

METHOD 6 DRY GAS METER POST-CALIBRATION USING METRIC REFERENCE METER

MONTROSE AIR QUALITY SERVICES

1) Connect meterbox to Reference Meter.
2) Record barometric pressure before and after calibration procedure.
3) Run at (approx.) 0.5, 1.0 & 2.0 LPM sample rate for as long as it takes to collect at least 10 cubic liters at each rate (approx. 20, 10 & 5 min)
4) Record data and information in the **GREEN** cells; YELLOW cells are calculated.
5) If the Post-Cal Y differs from the Pre-Cal by less than 5%, no adjustments are necessary.

DATE:	3/22/2018	METER ID #:	M-21		INITIAL	FINAL
OPERATOR:	DB	REFERENCE METER Y:	1.0082	BAROMETRIC PRESSURE (in Hg):	24.75	24.75

	REFERENCE METER				30B DRY GAS METER					ELAPSED	(1)	(2)	(3)
	DGM TEMP.	DGM READINGS (m^3)			FLOW	DGM TEMP.	DGM READINGS (L)			TIME (MIN)	V_{cr} (STD)	V_m (STD)	Y
RUN #	(°F)	INITIAL	FINAL	NET (V_{cr})	RATE (LPM)	(°F)	INITIAL	FINAL	NET (V_m)	θ	(m^3)	(m^3)	(unitless)
1	68	18.3640	18.3739	0.0099	0.5	67	0.000	10.023	10.023	20.00	0.0083	0.0083	0.994
2	69	18.3739	18.3839	0.0100	1	78	0.000	10.007	10.007	10.00	0.0083	0.0081	1.025
3	69	18.3839	18.3940	0.0101	2	79	0.000	10.048	10.048	5.00	0.0084	0.0081	1.033

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.017**

PRE-TEST CALIBRATION FACTOR, Y = 0.997

DIFFERENCE = 2.05% (<5%)

DATE:	3/22/2018	METER ID #:	M-21		INITIAL	FINAL
OPERATOR:	DB	REFERENCE METER Y:	1.0082	BAROMETRIC PRESSURE (in Hg):	24.75	

	REFERENCE METER				30B DRY GAS METER					ELAPSED	(1)	(2)	(3)
	DGM TEMP.	DGM READINGS (m^3)			FLOW	DGM TEMP.	DGM READINGS (L)			TIME (MIN)	V_{cr} (STD)	V_m (STD)	Y
RUN #	(°F)	INITIAL	FINAL	NET (V_{cr})	RATE (LPM)	(°F)	INITIAL	FINAL	NET (V_m)	θ	(m^3)	(m^3)	(unitless)
1	70	18.3940	18.4040	0.0100	0.5	77	0.000	10.005	10.005	20.00	0.0083	0.0081	1.021
2	70	18.4040	18.4140	0.0100	1	77	0.000	10.009	10.009	10.00	0.0083	0.0081	1.021
3	70	18.4140	18.4241	0.0101	2	77	0.000	10.015	10.015	5.00	0.0084	0.0081	1.030

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = **1.024**

PRE-TEST CALIBRATION FACTOR, Y = 1.001

DIFFERENCE = 2.34% (<5%)

DESERT VALLEY COMPANY

7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

June 22, 2018

Mr. Emmanuel Sanchez
Imperial County Air Pollution Control District
150 South Ninth Street
El Centro, California 92243

Subject: **Quarterly Report (January – March 2018)**
Permit to Operate (PTO) #2120

Dear Mr. Sanchez,

Pursuant to PTO #2120 Condition G.1, G.2 and G.3 for the Desert Valley Company monofill, please find the enclosed attachments:

Attachment	A:	Total ambient concentrations of particulates measured from hi-volume air samplers and heavy metal speciation concentrations and gross radionuclides.
Attachment	B:	Quarterly report for all waste received at Desert Valley Monofill.
Attachment	C:	Quarterly film badge radiological exposure for employees.

CalEnergy analytical services laboratory procedures and calculations were reviewed and data was validated.

Should you have any question regarding this report, please contact me at (760) 348-4200 or by email at Anetha.Lue@calenergy.com.

Sincerely,

mi C/g for Anetha Lue

Anetha Lue
Director, IPP Environmental Services

Cc: Jeff Lamoure, Imperial County Environmental Health Services, via Email
Lenie Sarion
Jon Trujillo
Yanqiu Wu
Sam Rubin
Min Yang
Osvaldo Flores
Environmental File

Attachment A

Total ambient concentrations of particulates measured from hi-volume air samplers and heavy metal speciation concentrations and gross radionuclides.

Desert Valley Company: High Volume Air Data For 1st Quarter Metals 2018

Date	STATION No.	Description	TSP ug/m^3	Total flow in m^3	Arsenic ug/1" strip of filter	Cadmium ug/1" strip of filter	Copper ug/1" strip of filter	Lead ug/1" strip of filter	Zinc ug/1" strip of filter	Arsenic ug/m^3	Cadmium ug/m^3	Copper ug/m^3	Lead ug/m^3	Zinc ug/m^3
19-Feb-18	4	Background	2339.2	1727.62	0.715	<0.0554	12.0	1.17	6.78	0.003	ND	0.056	0.005	0.031
19-Feb-18	2	Impacted	221.1	1645.35	<0.607	<0.0554	4.70	0.491	3.32	ND	ND	0.023	0.002	0.016
26-Apr-18		Blank			<0.607	<0.0554	<0.289	<0.460	1.66					

Desert Valley Company: High Volume Air Data For Radionuclides 1st Quarter 2018

Date	STATION #	Description	TSP ug/m^3	Total flow in m^3	Radium 226 (pCi/s) 3" Strip of Filter	Radium 228 (pCi/s) 3" Strip of Filter	Radium 226 pCi/m^3	Radium 228 pCi/m^3
19-Feb-18	4	Background	2339.2	1727.62	2.16	1.72	0.0033	0.0027
19-Feb-18	2	Impacted	221.1	1645.35	2.01	1.27	0.0033	0.0021
26-Apr-18		Blank			2.82	<2.16		

N/A **Not applicable because the concentration is below the Minimum Detectable Activity (MDA)**

Desert Valley Air Data First Quarter 2018

Date	STATION Number	TSP ug/m^3	**Comments**
1/2/2018	1	58.5	
	2	64.5	
	3	62.7	
	4	51.1	
1/8/2018	1	33.6	
	2	42.6	
	3	63.2	
	4	42.2	
1/14/2018	1	19.5	
	2	21.1	
	3	21.5	
	4	22.7	
1/20/2018	1	**144.2**	
	2	**115.2**	
	3	**218.5**	
	4	**230.7**	
1/26/2018	1	25.9	
	2	19.6	
	3	54.9	
	4	44.0	
2/1/2018	1	35.6	
	2	37.8	
	3	41.8	
	4	38.3	
2/7/2018	1	15.2	
	2	19.9	
	3	26.5	
	4	19.2	
2/13/2018	1	19.5	
	2	26.9	
	3	60.2	
	4	43.1	
2/19/2018	1	**208.1**	
	2	**221.1**	Impacted
	3	**2044.3**	
	4	**2339.2**	Background
2/25/2018	1	28.5	
	2	34.4	
	3	51.7	
	4	49.3	
3/3/2018	1	53.8	
	2	59.8	
	3	183.2	
	4	276.6	
3/9/2018	1	26.5	
	2	44.7	
	3	49.2	
	4	65.2	
3/15/2018	1	**38.3**	
	2	**46.5**	
	3	**401.7**	
	4	**195.2**	
3/21/2018	1	314.1	
	2	36.5	
	3	141.8	
	4	430.5	
3/27/2018	1	89.7	
	2	229.2	
	3	556.3	
	4	449.5	

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

May 08, 2018

Anetha Lue
CalEnergy
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL:
FAX

RE: Quarterly DVC Air Filter Stations Order No.: 1805002

Dear Anetha Lue:

CalEnergy Operating Corporation received 4 sample(s) on 4/26/2018 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative. Analytical results designated with a "J" qualifier are estimated and represent a detection above the Method Detection Limit (MDL) and less than the Reporting Limit (PQL). These analytes are not reviewed nor narrated as to whether they are laboratory artifacts.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Yanqiu Wu
Director, Engineering & Laboratory Service
7030 Gentry Road
Calipatria, CA 92233

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Case Narrative

WO#: **1805002**
Date: **5/8/2018**

CLIENT: CalEnergy
Project: Quarterly DVC Air Filter Stations

This report in its entirety consists of the documents listed below. All documents contain the CalEnergy Operating Corporation Work Order Number assigned to this report.

1. Paginated Report including: Case Narrative, Analytical Results and Applicable Quality Control Summary Reports.

2. A Cover Letter that immediately precedes the Paginated Report.

3. Paginated copies of the Chain of Custody Documents supplied with this sample set.

Concentrations reported with a J flag in the Qual field are values below the reporting limit (RL) but greater than the established method detection limit (MDL). There is greater uncertainty associated with these results and data should be considered as estimated.

Concentrations reported with an E flag in the Qual field are values that exceed the upper quantification range. There is greater uncertainty associated with these results and data should be considered as estimated.

Any comments or problems with the analytical events associated with this report are noted below.

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1805002**

Date Reported: **5/8/2018**

CLIENT: CalEnergy **Collection Date:** 4/26/2018

Project: Quarterly DVC Air Filter Stations

Lab ID: 1805002-001 **Matrix:** FILTER

Client Sample ID Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TSP ANALYSIS				**E200.7**		Analyst: **Acjr**
TRACE ELEMENTS IN WATER AND WASTES BY ICP-OES						
Arsenic	ND	0.000607	U	mg, Total	1	5/7/2018 1:07:52 PM
Cadmium	ND	0.0000554	U	mg, Total	1	5/7/2018 1:07:52 PM
Copper	ND	0.000289		mg, Total	1	5/7/2018 1:07:52 PM
Lead	ND	0.000460	U	mg, Total	1	5/7/2018 1:07:52 PM
Zinc	0.00166	0.000172		mg, Total	1	5/7/2018 1:07:52 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1805002**

Date Reported: **5/8/2018**

CLIENT: CalEnergy **Collection Date:** 4/26/2018

Project: Quarterly DVC Air Filter Stations

Lab ID: 1805002-002 **Matrix:** FILTER

Client Sample ID Blank Duplicate

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TSP ANALYSIS				**E200.7**		Analyst: **Acjr**
TRACE ELEMENTS IN WATER AND WASTES BY ICP-OES						
Arsenic	ND	0.000607	U	mg, Total	1	5/7/2018 1:11:14 PM
Cadmium	ND	0.0000554	U	mg, Total	1	5/7/2018 1:11:14 PM
Copper	ND	0.000289		mg, Total	1	5/7/2018 1:11:14 PM
Lead	ND	0.000460	U	mg, Total	1	5/7/2018 1:11:14 PM
Zinc	0.00205	0.000172		mg, Total	1	5/7/2018 1:11:14 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1805002**

Date Reported: **5/8/2018**

CLIENT: CalEnergy **Collection Date:** 2/19/2018

Project: Quarterly DVC Air Filter Stations

Lab ID: 1805002-003 **Matrix:** FILTER

Client Sample ID Station II

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TSP ANALYSIS				**E200.7**		Analyst: **Acjr**
TRACE ELEMENTS IN WATER AND WASTES BY ICP-OES						
Arsenic	ND	0.000607		mg, Total	1	5/7/2018 1:12:30 PM
Cadmium	ND	0.0000554	U	mg, Total	1	5/7/2018 1:12:30 PM
Copper	0.00470	0.000289		mg, Total	1	5/7/2018 1:12:30 PM
Lead	0.000491	0.000460		mg, Total	1	5/7/2018 1:12:30 PM
Zinc	0.00332	0.000172		mg, Total	1	5/7/2018 1:12:30 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

Analytical Report

(consolidated)

WO#: **1805002**

Date Reported: **5/8/2018**

CLIENT: CalEnergy **Collection Date:** 2/19/2018

Project: Quarterly DVC Air Filter Stations

Lab ID: 1805002-004 **Matrix:**

Client Sample ID Station IV

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TSP ANALYSIS				**E200.7**		Analyst: **Acjr**
TRACE ELEMENTS IN WATER AND WASTES BY ICP-OES						
Arsenic	0.000715	0.000607		mg, Total	1	5/7/2018 1:13:46 PM
Cadmium	ND	0.0000554	U	mg, Total	1	5/7/2018 1:13:46 PM
Copper	0.0120	0.000289		mg, Total	1	5/7/2018 1:13:46 PM
Lead	0.00117	0.000460		mg, Total	1	5/7/2018 1:13:46 PM
Zinc	0.00678	0.000172		mg, Total	1	5/7/2018 1:13:46 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

Original

CALENERGY OPERATING CORPORATION

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1805002**

08-May-18

Client: CalEnergy
Project: Quarterly DVC Air Filter Stations

TestCode: **EPA_200.7**

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA_200.7**	Units:	**mg/L**	Prep Date:		RunNo:	**28991**
Client ID:	**LCSW**	Batch ID:	**R28991**	TestNo:	**E200.7**			Analysis Date:	**5/7/2018**	SeqNo:	**187975**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.92	0.0121	2.000	0	96.2	85	115				
Cadmium	1.94	0.00111	2.000	0	97.2	85	115				
Copper	1.95	0.00577	2.000	0	97.7	85	115				
Lead	1.95	0.00920	2.000	0	97.6	85	115				
Zinc	1.94	0.00343	2.000	0	97.1	85	115				

Sample ID	**1805002-001AMS**	SampType:	**MS**	TestCode:	**EPA_200.7**	Units:	**mg/L**	Prep Date:		RunNo:	**28991**
Client ID:	**Blank**	Batch ID:	**R28991**	TestNo:	**E200.7**			Analysis Date:	**5/7/2018**	SeqNo:	**187979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.000607	0.1000	0	107	75	125				
Cadmium	0.106	0.0000554	0.1000	0	106	75	125				
Copper	0.0977	0.000289	0.1000	0.00006718	97.6	75	125				
Lead	0.102	0.000460	0.1000	0	102	75	125				
Zinc	0.105	0.000172	0.1000	0.001657	104	75	125				

Sample ID	**1805002-001AMSD**	SampType:	**MSD**	TestCode:	**EPA_200.7**	Units:	**mg/L**	Prep Date:		RunNo:	**28991**
Client ID:	**Blank**	Batch ID:	**R28991**	TestNo:	**E200.7**			Analysis Date:	**5/7/2018**	SeqNo:	**187980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.105	0.000607	0.1000	0	105	75	125	0.1066	1.96	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits	W	Sample container temperature is out of limit as sp

Original

CALENERGY OPERATING CORPORATION

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1805002**

08-May-18

Client: CalEnergy
Project: Quarterly DVC Air Filter Stations

Sample ID **1805002-001AMSD** SampType: **MSD** TestCode: **EPA_200.7** Units: **mg/L** Prep Date: RunNo: **28991**
Client ID: **Blank** Batch ID: **R28991** TestNo: **E200.7** Analysis Date: **5/7/2018** SeqNo: **187980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.106	0.0000554	0.1000	0	106	75	125	0.1056	0.205	20	
Copper	0.0976	0.000289	0.1000	0.00006718	97.6	75	125	0.09769	0.0492	20	
Lead	0.101	0.000460	0.1000	0	101	75	125	0.1021	1.44	20	
Zinc	0.106	0.000172	0.1000	0.001657	104	75	125	0.1054	0.434	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits	W	Sample container temperature is out of limit as sp

Original

CALENERGY OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
Analytical Services Department

7030 Gentry Road, Calipatria, CA 92233
Tel: (760) 348-4250
Fax: (760) 348-4222

CHAIN OF CUSTODY RECORD

DATE: ~~5/11/18~~ 4/26/18

PAGE: 1 OF 1

CUSTOMER/LOCATION: DESERT VALLEY COMPANY		CUSTOMER PROJECT NAME/NUMBER: DVC-2018 1st Qtr. Hi-Vol	P.O. NO.:
ADDRESS:		PROJECT CONTACT: JON TENJILO	CHARGE TO:
CITY:		SAMPLER(S) (SIGNATURE) SAM RUBIN	LAB USE ONLY: COC# Nº 3434
TEL:	FAX:	E-MAIL:	

TURNAROUND TIME:
☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS ☒ 14 DAYS ☐ _____

SPECIAL REQUIREMENTS:
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:
WO # 1805002

REQUESTED ANALYSIS

SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	Preservative	# Containers	EPA 200.7 (As, Cd, Cu, Pb, Zn)
1805002-001A	BLANK	4/26/18		SD	N	1	X
1805002-002A	BLANK DUPLICATE	4/26/18		SD	N	1	X
1805002-003A	DVC-TSP STATION II	2/19/18		SD	N	1	X
1805002-004A	DVC-TSP STATION IV	2/19/18		SD	N	1	X

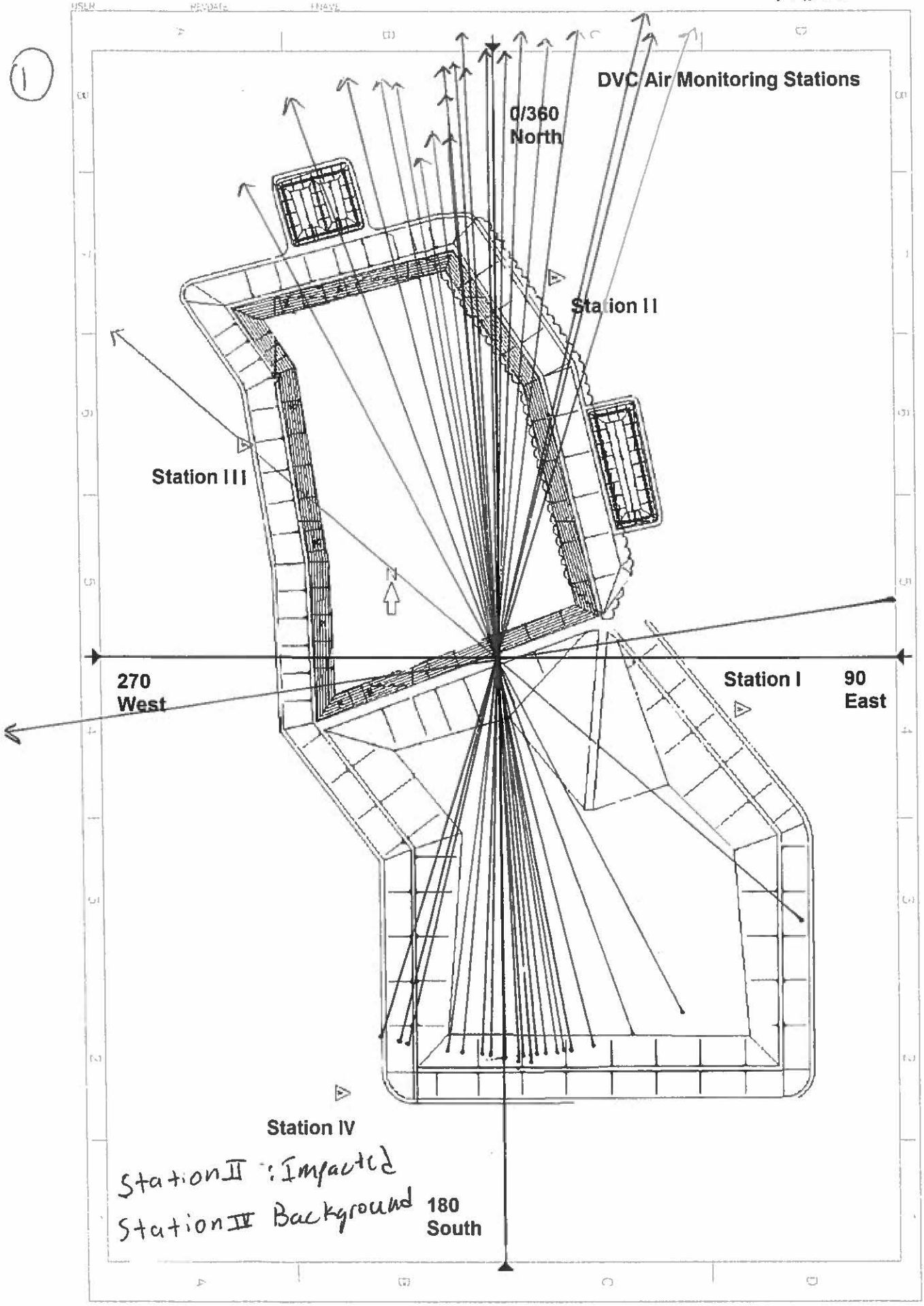
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE) M Kam	DATE: 4/26/18	TIME:
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:

MATRIX: W=Water, S=Soil, SD=Solid, L=Liquid, SL=Sludge, O=Oil, FC=Filter Cake, SC=Scale

IMPERIAL PRINTERS 318423

2/19/18

(1)



Station II : Impacted

Station III Background

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-43830

June 20, 2018

Mahesh Kaur
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233

CASE NARRATIVE
Work Order # 18-05020-OR

SAMPLE RECEIPT

This work order contains four filter samples received 05/03/2018. Samples were analyzed for Radium-226/228, Gross Alpha/Beta and by Gamma Spectroscopy.

CLIENT ID	LAB ID
BLANK	18-05020-04
BLANK DUPLICATE	18-05020-05
DVC-TSP STATION II	18-05020-06
DVC-TSP STATION IV	18-05020-07

ANALYTICAL METHODS

Radium-226 was analyzed using EPA Method 903.1. Radium-228 was analyzed using EPA Method 904.0. Gross Alpha/Beta was performed using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 1-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

RADIUM-226

Samples demonstrated acceptable results for all Radium-226 analyses. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated an acceptable result. Results for the Radium-226 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

ANALYTICAL RESULTS CONTINUED

RADIUM-228

Samples demonstrated acceptable results for all Radium-228 analyses. Small aliquots were used for counting due to the sample matrix. This condition resulted in slightly high method detection limits for laboratory fractions -03 and -04 (Client ID: BLANK DUP & DO). Chemical recovery was acceptable for all samples. The Radium-228 method blank demonstrated an acceptable result. Results for the Radium-228 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-228 laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA & BETA

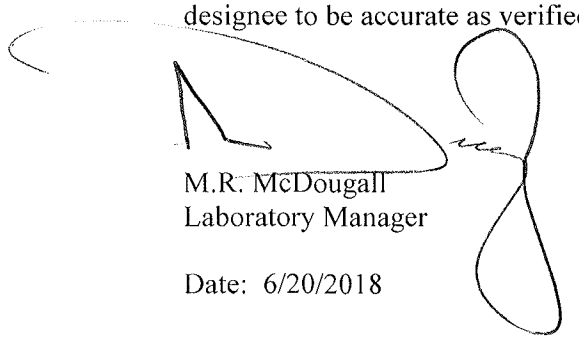
Samples demonstrated acceptable results for all Gross Alpha and Beta analyses. Small aliquots were used for counting due to the sample matrix. This condition resulted in slightly high method detection limits. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Beta duplicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

GAMMA SPECTROSCOPY

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. Due to the non-positive nature of these samples with gamma emitting radionuclides, Gross Gamma results are reported from Potassium-40 activity. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Cobalt-60, Cesium-137 and Potassium-40 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall
Laboratory Manager

Date: 6/20/2018

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://eberlineanalytical.com/ to provide us with feedback on our services.

Eberline Analytical
Final Report of Analysis

Report To:
Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	2.66E+02	1.14E+01			pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	3.02E+02	7.89E+00	3.40E+01	5.01E-01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	5.32E-01	1.81E-01	1.90E-01	1.92E-01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	8.26E+00	4.93E+00	5.01E+00	7.78E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	4.44E+00	4.76E+00	4.79E+00	9.33E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	1.97E+01	6.99E+00	7.31E+00	8.95E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	8.75E+00	6.45E+00	6.52E+00	1.19E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Alpha	LANL MLR-100 Modified	1.83E+01	9.12E+00	9.33E+00	1.57E+01	pCi/s
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	2.74E+02	8.21E+00			pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	2.60E+02	6.08E+00	3.64E+01	8.35E-01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	1.78E-01	3.08E-01	3.09E-01	6.29E-01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	3.61E+01	5.04E+00	7.09E+00	7.32E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	3.35E+01	4.81E+00	6.68E+00	7.04E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	5.35E+01	5.67E+00	9.32E+00	7.23E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	4.48E+01	5.46E+00	8.25E+00	7.46E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/9/2018	18-05020	Gross Beta	LANL MLR-100 Modified	5.41E+01	5.88E+00	9.51E+00	7.76E+00	pCi/s
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	1.01E+01	4.62E-01			pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	9.68E+00	6.09E-01	1.16E+00	7.33E-02	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	7.11E-01	1.61E-01	1.77E-01	2.57E-02	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	2.12E+00	2.79E-01	3.53E-01	6.95E-02	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	2.82E+00	3.22E-01	4.32E-01	8.82E-02	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	1.85E+00	2.61E-01	3.23E-01	8.77E-02	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	2.01E+00	2.76E-01	3.44E-01	2.67E-02	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/29/2018	18-05020	Radium-226	EPA 903.1	2.16E+00	2.81E-01	3.58E-01	6.95E-02	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	9.24E+00	4.71E-01			pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	8.43E+00	7.05E-01	2.03E+00	7.56E-01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	-1.99E-01	4.36E-01	4.38E-01	9.52E-01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	3.06E+00	1.18E+00	1.37E+00	2.20E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	1.19E+00	1.07E+00	1.10E+00	2.16E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	1.38E+00	4.52E-01	5.50E-01	8.06E-01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	1.27E+00	5.08E-01	5.84E-01	9.48E-01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/31/2018	18-05020	Radium-228	EPA 904.0	1.72E+00	5.13E-01	6.44E-01	9.09E-01	pCi/s
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	9.46E+03	3.69E+02			pCi/s
18-05020-01	LCS	KNOWN	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	5.90E+03	2.36E+02			pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	1.18E+04	3.01E+03	3.07E+03	2.39E+02	pCi/s
18-05020-01	LCS	SPIKE	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	6.82E+03	9.96E+02	1.06E+03	2.40E+02	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	9.63E+00	1.17E+01	1.17E+01	2.08E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	8.86E-02	3.23E+00	3.23E+00	3.86E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	8.07E-01	2.61E+00	2.61E+00	3.86E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	2.60E+00	4.17E+00	4.18E+00	3.72E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	2.39E+01	2.16E+01	2.16E+01	3.45E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	-4.82E-01	2.56E+01	2.56E+01	4.13E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	3.96E+00	6.96E+00	6.97E+00	1.05E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	-3.70E+00	1.01E+01	1.01E+01	1.43E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	1.52E+00	3.45E+00	3.45E+00	5.81E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	3.90E+00	3.52E+00	3.53E+00	5.82E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	-6.13E+00	9.67E+00	9.68E+00	6.91E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	-7.26E+00	8.77E+00	8.78E+00	3.51E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	-1.58E+00	3.17E+00	3.17E+00	4.28E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	1.65E+02	6.05E+01	6.11E+01	1.26E+02	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	1.65E+02	6.05E+01	6.11E+01	1.26E+02	pCi/s

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Eberline Analytical
Final Report of Analysis

Report To:

Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG: **18-05020**
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	-2.58E+00	3.12E+00	3.12E+00	3.99E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	-1.33E+00	3.48E+00	3.48E+00	4.25E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	3.32E+00	4.07E+00	4.08E+00	6.32E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	7.02E+00	5.54E+00	5.55E+00	8.90E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	2.26E+00	3.19E+00	3.19E+00	4.29E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	3.96E+00	6.96E+00	6.97E+00	1.05E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	9.63E+00	1.17E+01	1.17E+01	2.08E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	2.30E+00	2.45E+00	2.45E+00	3.92E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	-1.97E+00	3.00E+01	3.00E+01	4.20E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	-4.40E+00	8.73E+00	8.73E+00	1.13E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	-2.00E+00	3.61E+00	3.61E+00	4.60E+00	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	9.63E+00	1.17E+01	1.17E+01	2.08E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	1.61E+01	9.04E+00	9.07E+00	1.55E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	1.35E+01	2.45E+01	2.45E+01	3.71E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	1.61E+01	9.04E+00	9.07E+00	1.55E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	1.52E+01	3.12E+01	3.12E+01	1.60E+01	pCi/s
18-05020-02	MBL	BLANK	05/03/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-1.36E+00	7.78E+00	7.78E+00	1.25E+01	pCi/s

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Eberline Analytical
Final Report of Analysis

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Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG: **18-05020**
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	4.84E+00	7.47E+00	7.48E+00	1.29E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	-2.11E-01	2.02E+00	2.02E+00	2.17E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	1.27E+00	1.92E+00	1.92E+00	2.75E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	-3.30E-01	2.56E+00	2.56E+00	2.85E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	6.12E+00	1.26E+01	1.26E+01	2.27E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	8.47E+00	1.36E+01	1.36E+01	2.39E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	4.19E+00	4.43E+00	4.43E+00	7.47E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	-1.46E+00	9.10E+00	9.10E+00	1.19E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	8.15E-01	2.47E+00	2.47E+00	4.17E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	2.13E+00	1.99E+00	1.99E+00	3.58E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	-3.73E-01	7.76E+00	7.76E+00	5.46E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	2.24E+00	5.29E+00	5.29E+00	2.74E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	4.03E+00	2.51E+00	2.52E+00	4.01E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	3.18E+01	3.14E+01	3.15E+01	5.74E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	3.18E+01	3.14E+01	3.15E+01	5.74E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	1.86E+00	1.97E+00	1.97E+00	3.18E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	-1.05E+00	2.08E+00	2.08E+00	2.90E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	2.67E+00	2.93E+00	2.94E+00	4.28E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	5.26E+00	4.04E+00	4.05E+00	6.20E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	6.34E-01	1.94E+00	1.95E+00	2.85E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	4.19E+00	4.43E+00	4.43E+00	7.47E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	4.84E+00	7.47E+00	7.48E+00	1.29E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	-1.43E+00	1.68E+00	1.68E+00	2.42E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	-1.33E+01	1.98E+01	1.98E+01	2.63E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	1.38E+00	4.06E+00	4.06E+00	7.15E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	7.51E-01	2.13E+00	2.13E+00	3.09E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	4.84E+00	7.47E+00	7.48E+00	1.29E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	5.17E+00	4.82E+00	4.82E+00	9.00E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	1.16E+00	2.09E+01	2.09E+01	2.77E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	5.17E+00	4.82E+00	4.82E+00	9.00E+00	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	2.64E+01	2.42E+01	2.43E+01	1.27E+01	pCi/s
18-05020-03	DUP	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-1.77E+00	4.53E+00	4.53E+00	6.68E+00	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	2.41E+00	6.37E+00	6.37E+00	1.10E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	-1.38E+00	2.23E+00	2.23E+00	2.49E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	-1.15E+00	9.85E-01	9.87E-01	2.50E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	1.47E+00	2.50E+00	2.50E+00	2.85E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	2.69E+00	1.14E+01	1.14E+01	2.01E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	1.36E+01	1.35E+01	1.35E+01	2.49E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	3.39E+00	4.50E+00	4.50E+00	7.47E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	-5.67E+00	9.09E+00	9.10E+00	1.09E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	-8.52E-01	2.53E+00	2.53E+00	3.07E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	1.52E+00	2.36E+00	2.37E+00	3.94E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	7.55E-01	6.30E+00	6.30E+00	5.71E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	8.65E-01	6.81E+00	6.81E+00	2.86E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	-2.83E-01	2.57E+00	2.57E+00	3.32E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	6.65E+00	2.69E+01	2.69E+01	4.56E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	6.65E+00	2.69E+01	2.69E+01	4.56E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	3.09E-01	2.43E+00	2.43E+00	3.96E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	-1.16E-01	2.22E+00	2.22E+00	3.23E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	5.03E+00	2.87E+00	2.88E+00	4.45E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	2.37E+00	4.12E+00	4.12E+00	5.94E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	6.15E-02	2.19E+00	2.19E+00	2.57E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	3.39E+00	4.50E+00	4.50E+00	7.47E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	2.41E+00	6.37E+00	6.37E+00	1.10E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	-1.03E+00	1.63E+00	1.64E+00	2.57E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	1.09E+01	1.71E+01	1.71E+01	2.91E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	5.59E-01	3.64E+00	3.64E+00	6.32E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	1.83E-01	2.25E+00	2.25E+00	3.10E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	2.41E+00	6.37E+00	6.37E+00	1.10E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	2.06E+00	4.56E+00	4.56E+00	8.20E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	4.31E+01	2.97E+01	2.98E+01	4.86E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	2.06E+00	4.56E+00	4.56E+00	8.20E+00	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	1.07E+01	2.44E+01	2.44E+01	1.27E+01	pCi/s
18-05020-04	DO	BLANK	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-3.90E+00	5.99E+00	5.99E+00	6.33E+00	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	1.08E+01	1.02E+01	1.02E+01	1.74E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	-4.96E-01	2.69E+00	2.69E+00	3.25E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	-2.89E+00	3.01E+00	3.01E+00	4.41E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	2.36E+00	8.09E+00	8.09E+00	4.52E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	-4.44E+00	1.98E+01	1.98E+01	3.05E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	1.92E+01	1.89E+01	1.89E+01	3.36E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	-2.31E+00	2.36E+00	2.37E+00	9.06E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	6.33E+00	1.09E+01	1.09E+01	1.65E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	-1.17E+00	1.39E+00	1.39E+00	5.17E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	-1.66E+00	3.31E+00	3.31E+00	4.57E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	3.00E+00	1.49E+01	1.49E+01	8.04E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	-9.87E+00	1.21E+01	1.21E+01	4.02E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	1.02E+01	3.55E+00	3.59E+00	5.84E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	-6.07E+00	2.75E+01	2.75E+01	4.54E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	-6.07E+00	2.75E+01	2.75E+01	4.54E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	-3.52E+00	4.31E+00	4.31E+00	4.18E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	9.78E-01	2.68E+00	2.68E+00	4.46E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	2.73E+00	1.21E+01	1.21E+01	5.35E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	2.68E+00	1.05E+01	1.05E+01	7.18E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	9.04E-01	3.17E+00	3.18E+00	4.41E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	-2.31E+00	2.36E+00	2.37E+00	9.06E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	1.08E+01	1.02E+01	1.02E+01	1.74E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	-1.56E+00	2.77E+00	2.77E+00	3.99E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	-2.69E-01	8.83E+00	8.83E+00	4.05E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	-2.94E+00	6.77E+00	6.78E+00	9.72E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	1.08E-01	2.87E+00	2.87E+00	4.36E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	1.08E+01	1.02E+01	1.02E+01	1.74E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	3.89E+00	7.43E+00	7.43E+00	7.05E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	-1.71E+01	2.79E+01	2.79E+01	4.18E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	3.89E+00	7.43E+00	7.43E+00	7.05E+00	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	3.23E+01	7.60E+01	7.60E+01	1.76E+01	pCi/s
18-05020-05	TRG	BLANK DUPLICATE	04/26/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-2.07E-01	7.07E+00	7.07E+00	1.09E+01	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	1.38E+01	1.03E+01	1.03E+01	2.04E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	1.11E+00	3.56E+00	3.56E+00	3.90E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	-2.38E-01	2.29E+00	2.29E+00	3.66E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	4.27E+00	4.19E+00	4.20E+00	4.04E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	1.25E+02	7.25E+01	7.28E+01	1.04E+02	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	-2.60E+00	2.41E+01	2.41E+01	3.79E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	1.11E+01	7.49E+00	7.51E+00	1.21E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	-2.94E+00	1.14E+01	1.14E+01	1.65E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	1.33E+00	3.80E+00	3.80E+00	6.72E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	2.98E+00	3.36E+00	3.36E+00	5.35E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	-3.83E+00	8.54E+00	8.55E+00	7.20E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	-1.52E+00	5.71E+00	5.71E+00	3.75E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	-2.54E+00	3.26E+00	3.26E+00	4.48E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	1.58E+02	5.18E+01	5.24E+01	1.15E+02	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	1.58E+02	5.18E+01	5.24E+01	1.15E+02	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	-5.60E-01	2.11E+00	2.11E+00	6.59E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	1.11E+00	2.77E+00	2.77E+00	4.83E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	7.40E+00	4.21E+00	4.22E+00	6.53E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	7.95E+00	5.67E+00	5.68E+00	9.07E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	8.72E-01	4.29E+00	4.29E+00	5.13E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	1.11E+01	7.49E+00	7.51E+00	1.21E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	1.38E+01	1.03E+01	1.03E+01	2.04E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	-4.80E+00	1.16E+01	1.16E+01	1.53E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	2.98E+00	3.64E+01	3.64E+01	5.19E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	2.01E+00	8.32E+00	8.33E+00	1.20E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	4.53E+00	5.42E+00	5.42E+00	8.17E+00	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	1.38E+01	1.03E+01	1.03E+01	2.04E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	1.19E+01	1.02E+01	1.02E+01	1.61E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	4.71E+01	2.22E+01	2.24E+01	3.65E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	1.19E+01	1.02E+01	1.02E+01	1.61E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	1.03E+01	3.10E+01	3.10E+01	1.60E+01	pCi/s
18-05020-06	TRG	DVC-TSP STATION II	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-7.71E+00	1.05E+01	1.05E+01	1.49E+01	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Mahesh Kaur
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 18-05020
Purchase Order: 250356
Analysis Category: ENVIRONMENTAL
Sample Matrix: AF

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Actinium-228	EPA 901.1 Modified	2.92E+00	9.90E+00	9.90E+00	1.65E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Silver-108m	EPA 901.1 Modified	-9.18E-01	3.03E+00	3.04E+00	3.18E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Americium-241	EPA 901.1 Modified	-3.58E+00	3.01E+00	3.02E+00	4.38E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Barium-133	EPA 901.1 Modified	8.91E-01	4.20E+00	4.20E+00	4.71E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Beryllium-7	EPA 901.1 Modified	1.19E+02	7.00E+01	7.03E+01	9.39E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-212	EPA 901.1 Modified	6.76E+00	2.22E+01	2.22E+01	3.60E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Bismuth-214	EPA 901.1 Modified	-9.31E-01	5.29E+00	5.29E+00	8.14E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cerium-144	EPA 901.1 Modified	-1.12E+01	1.34E+01	1.34E+01	1.86E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cobalt-60	EPA 901.1 Modified	2.92E+00	3.16E+00	3.17E+00	4.98E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Cesium-137	EPA 901.1 Modified	3.31E+00	3.08E+00	3.09E+00	5.14E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-152	EPA 901.1 Modified	2.66E+00	1.46E+01	1.46E+01	8.12E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-154	EPA 901.1 Modified	4.59E+00	8.86E+00	8.86E+00	4.16E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Europium-155	EPA 901.1 Modified	9.56E+00	3.65E+00	3.68E+00	5.96E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Gross Gamma	EPA 901.1 Modified	4.03E+01	3.16E+01	3.16E+01	3.77E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Potassium-40	EPA 901.1 Modified	4.03E+01	3.16E+01	3.16E+01	3.77E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Sodium-22	EPA 901.1 Modified	1.69E+00	3.27E+00	3.27E+00	5.79E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Niobium-94	EPA 901.1 Modified	-2.49E+00	3.32E+00	3.33E+00	4.29E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-212	EPA 901.1 Modified	4.71E+00	2.04E+01	2.04E+01	5.67E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Lead-214	EPA 901.1 Modified	-2.72E+00	1.08E+01	1.08E+01	7.24E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Promethium-144	EPA 901.1 Modified	-1.02E+00	2.93E+00	2.93E+00	4.16E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-226	EPA 901.1 Modified	-9.31E-01	5.29E+00	5.29E+00	8.14E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Radium-228	EPA 901.1 Modified	2.92E+00	9.90E+00	9.90E+00	1.65E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-103	EPA 901.1 Modified	-4.02E+00	8.34E+00	8.34E+00	1.24E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Ruthenium-106	EPA 901.1 Modified	-1.03E+00	2.71E+01	2.71E+01	4.33E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Antimony-125	EPA 901.1 Modified	1.45E+00	6.83E+00	6.83E+00	1.05E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Tin-113	EPA 901.1 Modified	-3.23E+00	4.70E+00	4.70E+00	6.48E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-228	EPA 901.1 Modified	2.92E+00	9.90E+00	9.90E+00	1.65E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-232	EPA 901.1 Modified	5.74E+00	7.23E+00	7.24E+00	7.45E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thorium-234	EPA 901.1 Modified	-5.18E+00	2.34E+01	2.34E+01	4.12E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Thallium-208	EPA 901.1 Modified	5.74E+00	7.23E+00	7.24E+00	7.45E+00	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Uranium-235	EPA 901.1 Modified	2.27E+01	5.73E+01	5.73E+01	1.73E+01	pCi/s
18-05020-07	TRG	DVC-TSP STATION IV	02/19/18 00:00	5/3/2018	5/4/2018	18-05020	Zinc-65	EPA 901.1 Modified	-3.33E-02	7.38E+00	7.38E+00	1.17E+01	pCi/s

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Chain of Custody Record

№ 1604

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

18-05020

EBERLINE SERVICES

Project Name: DUC-2018 1st QTR. Hi-Vol	Project Number:
Send Report To: CalEnergy Operating Co.	Sampler (Print Name): Sam Rubio
Address: c/o Mahesh Kaur	Sampler (Print Name): Dean Wick
7030 Gentry Rd.	Shipment Method: UPS Next day
Calipatria, Ca 92233	Airbill Number:
Phone: (760) 348-4294	Laboratory Receiving:
Fax: Mahesh.Kaur@Calenergy.com	

Analysis Requested: Gross ALPHA; Gross BETA; GAMMA SPECTROSCOPY; RADIUM 226, 228

REC'D MAY 3 2018

Page 1 of 1

Email preliminary invoice or PO#

Purchase Order #: CPA = 250356

	Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Gross ALPHA	Gross BETA	GAMMA SPECTROSCOPY	RADIUM 226, 228	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
4	Blank	4/26/18		FILTER	1	X	X	X	X	3" STRIP	
5	Blank Duplicate	4/26/18		FILTER	1	X	X	X	X	3" STRIP	
4	DUC-TSP STATION II	02/19/18		FILTER	1	X	X	X	X	3" STRIP	
7	DUC-TSP STATION III	02/19/18		FILTER	1	X	X	X	X	3" STRIP	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	Randolph Spencer	5-3-18	1505
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
		Total # Containers Received?	
Level I ☐	Routine ☐	COC Seals Present?	
Level II ☐	24 Hour ☐	COC Seals Intact?	
Level III ☐	1 Week ☐	Received Containers Intact?	
Other ☐	Other _____	Temperature?	

CalEnergy Corp.

Log Date: 2018/01/02

Printing: 2018/01/08

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	9.4	146.8	13.6	25.9
02:00	8.8	149.5	13.7	21.9
03:00	7.6	144.3	13.5	20.9
04:00	9.1	145.1	13.4	20.7
05:00	8.7	146.8	13.4	19.6
06:00	3.6	130.0	14.6	23.1
07:00	9.0	155.0	12.4	23.3
08:00	8.4	172.9	11.4	23.3
09:00	8.0	157.5	13.5	18.9
10:00	5.5	145.0	20.0	14.3
11:00	2.3	111.4	23.8	15.4
12:00	3.1	172.8	25.7	7.1
13:00	2.3	244.3	27.1	5.8
14:00	2.5	220.9	28.1	4.6
15:00	5.5	292.1	26.6	14.4
16:00	5.5	329.7	23.7	23.1
17:00	3.8	3.2	24.6	19.6
18:00	2.7	336.5	22.5	20.4
19:00	2.6	298.5	18.9	26.7
20:00	2.6	146.0	17.8	28.3
21:00	3.9	24.1	17.3	24.7
22:00	4.8	168.8	16.1	26.9
23:00	6.7	144.4	16.1	22.0
24:00	9.2	141.2	15.3	23.7
Sum	135.3		443.0	474.4
Average	5.6	156.7	18.5	19.8
Maximum	9.4		28.1	28.3
Time	01:00		14:00	20:00
Minimum	2.3		11.4	4.6
Time	13:00		08:00	14:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 1/2/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965584	8965583	8965582	8965581
Filter Weight:				
Gross Weight (g)	4.5397	4.5706	4.5800	4.5324
Tare Weight (g)	4.4459	4.4486	4.4608	4.4525
Weight of PM (g)	0.0938	0.1220	0.1192	0.0799
Elapsted Time:				
End (Hrs.)	21288.57	1276.91	20119.39	23368.44
Start (Hrs.)	21263.72	1252.71	20095.07	23344.23
Monitoring Period (Hrs.)	24.85	24.2	24.32	24.21
Cubic Feet per Minute (CFM)	38	46	46	38

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/01/08

Printing: 2018/01/17

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	3.8	21.4	17.8	40.0
02:00	2.6	96.1	17.1	46.5
03:00	6.4	136.0	17.6	40.3
04:00	5.7	134.0	17.9	39.7
05:00	1.8	125.6	16.6	41.4
06:00	2.4	8.2	15.9	42.5
07:00	2.7	75.0	15.7	43.1
08:00	3.5	120.4	16.0	43.0
09:00	3.9	139.2	17.0	41.5
10:00	4.9	161.5	17.9	39.4
11:00	3.3	160.7	19.0	38.3
12:00	3.4	253.7	20.1	44.5
13:00	2.4	318.2	19.6	52.7
14:00	2.8	246.1	20.4	49.6
15:00	3.1	281.5	21.2	45.2
16:00	3.4	288.1	21.8	43.6
17:00	3.6	297.0	21.1	44.1
18:00	2.3	291.8	19.8	48.2
19:00	1.9	268.0	18.8	47.5
20:00	3.1	263.6	18.3	46.2
21:00	2.1	31.2	18.2	45.0
22:00	2.5	54.8	18.0	49.5
23:00	4.2	99.5	17.9	53.0
24:00	6.9	122.7	17.3	61.0
Sum	82.9		440.9	1085.9
Average	3.5	122.6	18.4	45.2
Maximum	6.9		21.8	61.0
Time	24:00		16:00	24:00
Minimum	1.8		15.7	38.3
Time	05:00		07:00	11:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 1/8/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965580	8965579	8965578	8965577
Filter Weight:				
Gross Weight (g)	4.4813	4.5253	4.5573	4.5209
Tare Weight (g)	4.4274	4.4482	4.4372	4.4480
Weight of PM (g)	0.0539	0.0771	0.1201	0.0729
Elapsed Time:				
End (Hrs.)	21313.43	1301.1	20143.69	23392.65
Start (Hrs.)	21288.57	1276.91	20119.39	23368.44
Monitoring Period (Hrs.)	24.86	24.19	24.3	24.21
Cubic Feet per Minute (CFM)	38	44	46	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/01/14 Printing: 2018/01/17

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	11.0	155.1	14.5	41.1
02:00	11.9	147.5	13.4	45.0
03:00	12.3	148.6	13.2	46.0
04:00	11.9	152.9	13.4	46.3
05:00	10.7	152.1	12.6	46.3
06:00	11.8	142.8	12.2	48.1
07:00	11.8	142.4	11.9	46.3
08:00	11.0	141.4	11.9	46.3
09:00	11.7	142.8	13.4	45.4
10:00	9.6	142.2	17.5	36.9
11:00	7.4	158.3	23.1	25.6
12:00	6.7	171.8	25.0	21.4
13:00	5.0	187.0	26.1	17.2
14:00	5.4	268.7	26.4	20.1
15:00	4.2	268.3	26.9	22.1
16:00	2.6	317.2	27.2	17.1
17:00	2.1	11.9	27.4	14.8
18:00	2.8	351.9	23.2	28.3
19:00	2.4	24.5	19.8	33.5
20:00	3.8	205.2	17.8	39.6
21:00	4.0	172.3	17.3	47.0
22:00	2.7	105.2	17.9	35.5
23:00	4.1	97.4	16.5	33.1
24:00	11.6	151.3	14.0	33.7
Sum	178.3		442.5	836.9
Average	7.4	151.9	18.4	34.9
Maximum	12.3		27.4	48.1
Time	03:00		17:00	06:00
Minimum	2.1		11.9	14.8
Time	17:00		07:00	17:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 1/14/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965576	8965575	8965574	8965573
Filter Weight:				
Gross Weight (g)	4.4634	4.4831	4.4644	4.4809
Tare Weight (g)	4.4329	4.4466	4.4288	4.4417
Weight of PM (g)	0.0305	0.0365	0.0356	0.0392
Elapsed Time:				
End (Hrs.)	21337.64	1325.31	20168	23416.85
Start (Hrs.)	21313.43	1301.1	20143.69	23392.65
Monitoring Period (Hrs)	24.21	24.21	24.31	24.2
Cubic Feet per Minute (CFM)	38	42	40	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/01/20 Printing: 2018/02/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	9.6	202.9	17.6	52.1
02:00	19.1	179.5	16.5	49.7
03:00	15.9	176.4	15.9	46.1
04:00	31.1	179.8	15.2	40.7
05:00	24.9	179.4	14.8	40.1
06:00	15.7	173.5	14.0	42.8
07:00	14.8	164.4	13.4	46.2
08:00	6.1	160.0	12.2	49.0
09:00	10.9	158.3	14.0	44.1
10:00	17.9	181.5	17.2	36.9
11:00	22.1	182.9	18.0	31.4
12:00	21.8	185.2	18.1	29.6
13:00	23.5	177.3	18.7	25.5
14:00	21.6	176.2	19.3	22.6
15:00	23.0	180.1	19.5	21.0
16:00	23.8	181.7	19.3	21.7
17:00	23.2	180.3	18.9	22.5
18:00	21.4	177.2	17.8	24.4
19:00	17.3	174.9	16.0	28.5
20:00	18.2	176.4	15.0	34.0
21:00	18.5	176.8	14.2	36.6
22:00	16.4	180.2	13.5	40.1
23:00	13.0	175.3	12.9	42.2
24:00	11.0	187.2	11.5	46.6
Sum	440.8		383.3	874.4
Average	18.4	177.8	16.0	36.4
Maximum	31.1		19.5	52.1
Time	04:00		15:00	01:00
Minimum	6.1		11.5	21.0
Time	08:00		24:00	15:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 1/20/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965572	8965571	8965570	8965569
Filter Weight:				
Gross Weight (g)	4.6517	4.6643	4.8487	4.8603
Tare Weight (g)	4.4272	4.4653	4.4604	4.4799
Weight of PM (g)	0.2245	0.1990	0.3883	0.3804
Elapsed Time:				
End (Hrs.)	21361.75	1349.51	20192.32	23441.11
Start (Hrs.)	21337.64	1325.31	20168	23416.85
Monitoring Period (Hrs.)	24.11	24.2	24.32	24.26
Cubic Feet per Minute (CFM)	38	42	43	40

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/01/26 Printing: 2018/02/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	16.3	181.5	14.1	42.8
02:00	14.8	184.8	13.4	44.9
03:00	15.0	191.1	13.0	46.3
04:00	15.4	195.0	12.7	48.8
05:00	13.4	193.6	12.7	49.6
06:00	9.0	219.2	11.0	51.5
07:00	7.8	208.7	10.8	50.8
08:00	6.9	181.1	10.1	51.0
09:00	5.4	223.0	13.0	44.4
10:00	3.2	221.3	18.4	35.2
11:00	5.3	187.0	20.9	29.4
12:00	8.9	256.5	19.7	29.6
13:00	8.5	257.1	20.7	22.9
14:00	8.2	258.8	21.5	13.5
15:00	9.0	261.4	22.0	10.4
16:00	9.6	262.8	22.4	7.2
17:00	7.8	273.7	22.3	7.1
18:00	5.3	282.3	21.5	8.6
19:00	3.0	279.6	18.2	14.3
20:00	3.3	238.6	16.1	17.6
21:00	5.1	214.2	14.8	23.7
22:00	7.2	161.3	13.4	23.0
23:00	7.5	153.4	12.3	21.5
24:00	6.4	161.1	12.4	20.3
Sum	202.3		387.4	714.2
Average	8.4	218.3	16.1	29.8
Maximum	16.3		22.4	51.5
Time	01:00		16:00	06:00
Minimum	3.0		10.1	7.1
Time	19:00		08:00	17:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 1/26/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965568	8965567	8965566	8965565
Filter Weight:				
Gross Weight (g)	4.5018	4.4760	4.5851	4.5186
Tare Weight (g)	4.4613	4.4422	4.4854	4.4458
Weight of PM (g)	0.0405	0.0338	0.0997	0.0728
Elapsted Time:				
End (Hrs.)	21385.93	1373.72	20216.63	23465.45
Start (Hrs.)	21361.75	1349.51	20192.32	23441.11
Monitoring Period (Hrs.)	24.18	24.21	24.31	24.34
Cubic Feet per Minute (CFM)	38	42	44	40

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/02/01 Printing: 2018/02/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	10.0	145.5	15.8	25.1
02:00	9.8	151.9	15.6	22.1
03:00	7.0	159.0	14.8	22.0
04:00	7.3	162.5	13.9	23.7
05:00	10.4	151.2	13.2	25.2
06:00	7.4	151.6	14.1	25.8
07:00	6.2	134.6	16.0	23.0
08:00	5.1	36.3	13.8	26.8
09:00	4.4	323.2	12.3	39.2
10:00	2.6	172.2	18.9	30.5
11:00	3.0	160.5	23.1	20.6
12:00	2.7	253.3	25.5	16.9
13:00	3.1	252.4	26.8	13.4
14:00	2.5	300.4	27.3	12.5
15:00	4.0	306.6	27.9	17.7
16:00	4.7	309.7	26.6	22.9
17:00	3.6	317.7	27.5	18.9
18:00	3.9	320.4	25.8	25.5
19:00	3.5	310.6	20.9	37.4
20:00	1.8	298.8	18.9	40.9
21:00	1.6	109.1	18.6	34.9
22:00	3.8	74.7	19.5	19.8
23:00	10.9	146.2	16.0	25.0
24:00	11.4	140.6	16.5	24.7
Sum	130.9		469.2	594.4
Average	5.5	184.9	19.5	24.8
Maximum	11.4		27.9	40.9
Time	24:00		15:00	20:00
Minimum	1.6		12.3	12.5
Time	21:00		09:00	14:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 2/1/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965564	8965563	8965562	8965561
Filter Weight:				
Gross Weight (g)	4.5160	4.5197	4.5448	4.5347
Tare Weight (g)	4.4605	4.4545	4.4758	4.4685
Weight of PM (g)	0.0555	0.0652	0.0690	0.0662
Elapsted Time:				
End (Hrs.)	21410.08	1397.92	20240.91	23489.66
Start (Hrs.)	21385.93	1373.72	20216.63	23465.45
Monitoring Period (Hrs.)	24.15	24.2	24.28	24.21
Cubic Feet per Minute (CFM)	38	42	40	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/02/07 Printing: 2018/02/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	5.0	93.8	19.1	22.7
02:00	8.6	148.5	17.6	22.4
03:00	9.3	155.7	17.1	22.3
04:00	11.6	147.9	15.7	22.2
05:00	9.6	143.3	16.3	20.1
06:00	9.7	139.3	16.0	19.5
07:00	8.0	143.2	16.7	16.2
08:00	7.9	162.2	16.0	16.1
09:00	9.1	151.8	18.3	14.2
10:00	5.7	150.5	22.6	13.7
11:00	6.7	156.1	25.7	13.2
12:00	3.7	223.8	27.7	8.6
13:00	4.5	284.8	27.7	5.4
14:00	4.9	264.9	27.4	6.3
15:00	6.3	301.5	27.3	3.4
16:00	5.1	320.9	27.5	3.1
17:00	2.9	309.2	28.1	3.2
18:00	3.1	129.2	28.1	2.9
19:00	4.4	140.5	23.7	5.6
20:00	7.6	117.7	21.4	6.7
21:00	9.4	113.3	20.3	7.4
22:00	10.0	114.4	19.4	7.8
23:00	10.8	131.7	18.2	8.9
24:00	7.6	130.4	15.2	11.9
Sum	171.6		513.1	283.6
Average	7.2	149.2	21.4	11.8
Maximum	11.6		28.1	22.7
Time	04:00		17:00	01:00
Minimum	2.9		15.2	2.9
Time	17:00		24:00	18:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 2/7/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965559	8965558	8965557	8965556
Filter Weight:				
Gross Weight (g)	4.4814	4.4857	4.4980	4.4935
Tare Weight (g)	4.4558	4.4513	4.4541	4.4603
Weight of PM (g)	0.0256	0.0344	0.0439	0.0332
Elapsed Time:				
End (Hrs.)	21434.92	1422.14	20265.25	23513.94
Start (Hrs.)	21410.08	1397.92	20240.91	23489.66
Monitoring Period (Hrs.)	24.84	24.22	24.34	24.28
Cubic Feet per Minute (CFM)	40	42	40	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/02/13 Printing: 2018/02/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	12.8	185.9	14.0	45.1
02:00	12.8	191.9	13.1	47.1
03:00	11.5	188.5	12.6	50.8
04:00	8.7	191.1	11.6	53.5
05:00	9.9	206.7	11.7	52.7
06:00	9.7	195.4	12.4	49.1
07:00	5.7	146.7	11.4	52.2
08:00	8.1	154.6	11.2	52.7
09:00	5.3	163.8	12.2	50.0
10:00	4.4	176.8	15.0	42.5
11:00	4.3	199.7	19.2	33.2
12:00	3.8	234.9	20.6	29.1
13:00	3.7	284.7	20.4	29.1
14:00	3.9	225.8	22.1	26.8
15:00	4.7	359.3	21.6	28.4
16:00	4.4	1.4	21.6	29.0
17:00	3.3	322.2	21.3	29.8
18:00	4.4	123.2	20.7	31.1
19:00	5.7	128.9	19.5	32.5
20:00	5.6	132.2	18.3	33.7
21:00	5.9	132.2	17.2	34.6
22:00	2.3	328.3	15.9	38.3
23:00	2.1	46.6	15.7	43.7
24:00	3.4	85.9	15.7	44.3
Sum	146.6		395.1	959.2
Average	6.1	175.2	16.5	40.0
Maximum	12.8		22.1	53.5
Time	01:00		14:00	04:00
Minimum	2.1		11.2	26.8
Time	23:00		08:00	14:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 2/13/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965554	8965553	8965552	8965551
Filter Weight:				
Gross Weight (g)	4.5047	4.5106	4.5896	4.5351
Tare Weight (g)	4.4719	4.4642	4.4852	4.4606
Weight of PM (g)	0.0328	0.0464	0.1044	0.0745
Elapsed Time:				
End (Hrs.)	21459.06	1446.33	20289.56	23538.14
Start (Hrs.)	21434.92	1422.14	20265.25	23513.94
Monitoring Period (Hrs)	24.14	24.19	24.31	24.2
Cubic Feet per Minute (CFM)	41	42	42	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/02/19 Printing: 2018/03/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	13.5	170.2	16.0	40.8
02:00	24.1	152.8	15.9	43.2
03:00	12.1	131.0	15.4	46.6
04:00	5.6	81.8	14.9	49.2
05:00	12.1	194.7	14.8	49.1
06:00	19.5	198.3	13.9	45.0
07:00	13.4	193.5	13.0	45.4
08:00	15.9	182.5	13.1	44.7
09:00	23.6	186.1	14.8	37.5
10:00	20.7	187.9	16.5	31.9
11:00	30.0	171.1	17.4	29.9
12:00	31.9	177.1	17.9	23.4
13:00	27.3	176.0	18.4	15.8
14:00	25.4	181.8	18.8	9.2
15:00	28.0	173.3	18.5	11.9
16:00	29.0	174.9	18.0	13.2
17:00	27.1	175.8	17.0	16.0
18:00	26.2	177.5	15.5	19.8
19:00	23.9	173.9	13.9	27.0
20:00	22.6	178.2	12.3	37.9
21:00	19.3	178.4	11.6	44.4
22:00	16.7	160.7	10.9	45.6
23:00	14.7	166.8	10.5	45.3
24:00	12.9	179.8	10.0	45.7
Sum	495.4		358.9	818.5
Average	20.6	173.4	15.0	34.1
Maximum	31.9		18.8	49.2
Time	12:00		14:00	04:00
Minimum	5.6		10.0	9.2
Time	04:00		24:00	14:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 2/19/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965550	8965549	8965548	8965547
Filter Weight:				
Gross Weight (g)	4.8135	4.8570	8.0395	8.5071
Tare Weight (g)	4.4717	4.4932	4.4917	4.4659
Weight of PM (g)	0.3418	0.3638	3.5478	4.0412
Elapsed Time:				
End (Hrs.)	21483.23	1470.54	20313.88	23562.35
Start (Hrs.)	21459.06	1446.33	20289.56	23538.14
Monitoring Period (Hrs.)	24.17	24.21	24.32	24.21
Cubic Feet per Minute (CFM)	40	40	42	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/02/25 Printing: 2018/03/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	14.4	206.7	12.3	27.2
02:00	10.4	203.7	10.2	35.2
03:00	7.3	177.6	9.2	44.3
04:00	7.8	148.1	8.2	42.2
05:00	7.8	150.7	8.2	39.4
06:00	4.9	194.0	7.0	37.8
07:00	5.0	162.6	7.8	34.6
08:00	5.5	165.0	9.5	29.2
09:00	3.1	161.8	16.1	19.4
10:00	4.7	162.8	17.9	17.9
11:00	4.5	279.7	19.7	15.6
12:00	8.6	283.4	18.6	11.6
13:00	8.2	288.6	19.0	9.5
14:00	8.5	297.1	19.0	9.3
15:00	6.3	307.1	19.4	8.4
16:00	5.3	341.7	20.1	8.9
17:00	4.9	21.0	19.9	9.2
18:00	4.9	69.4	19.8	8.5
19:00	5.1	93.9	17.9	9.8
20:00	8.0	134.8	14.9	10.9
21:00	9.1	136.1	13.8	11.7
22:00	8.4	129.0	13.2	12.3
23:00	5.0	44.5	10.9	16.8
24:00	6.3	112.1	9.5	15.9
Sum	164.2		342.1	485.7
Average	6.8	161.9	14.3	20.2
Maximum	14.4		20.1	44.3
Time	01:00		16:00	03:00
Minimum	3.1		7.0	8.4
Time	09:00		06:00	15:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 2/25/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965546	8965545	8965544	8965543
Filter Weight:				
Gross Weight (g)	4.5005	4.5099	4.5507	4.5458
Tare Weight (g)	4.4538	4.4505	4.4609	4.4600
Weight of PM (g)	0.0467	0.0594	0.0898	0.0858
Elapsted Time:				
End (Hrs.)	21507.36	1494.74	20338.21	23586.75
Start (Hrs.)	21483.23	1470.54	20313.88	23562.35
Monitoring Period (Hrs.)	24.13	24.2	24.33	24.4
Cubic Feet per Minute (CFM)	40	42	42	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/03/03 Printing: 2018/03/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	14.3	168.3	16.5	51.3
02:00	13.4	148.6	16.0	51.9
03:00	11.6	144.5	15.3	53.3
04:00	13.2	164.8	15.4	54.8
05:00	11.4	155.0	14.7	57.0
06:00	9.9	151.7	14.7	57.2
07:00	12.8	163.9	14.6	57.4
08:00	15.2	165.0	15.6	53.8
09:00	13.9	167.8	18.6	44.6
10:00	8.6	154.5	21.6	37.2
11:00	6.4	85.8	22.1	35.9
12:00	8.1	123.9	24.0	30.8
13:00	12.9	121.4	23.4	29.8
14:00	18.4	128.5	23.8	30.8
15:00	20.6	165.3	24.1	31.3
16:00	19.2	152.3	22.7	30.2
17:00	21.4	188.1	20.8	31.5
18:00	18.3	186.2	21.1	31.1
19:00	15.7	180.7	18.8	37.4
20:00	16.5	187.2	17.1	44.9
21:00	18.3	188.5	16.2	48.7
22:00	18.0	191.1	15.8	48.5
23:00	18.9	194.3	15.8	46.0
24:00	19.8	198.6	15.6	46.3
Sum	356.5		444.6	1041.5
Average	14.9	162.4	18.5	43.4
Maximum	21.4		24.1	57.4
Time	17:00		15:00	07:00
Minimum	6.4		14.6	29.8
Time	11:00		07:00	13:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 3/3/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965542	8965541	8965540	8965539
Filter Weight:				
Gross Weight (g)	4.5776	4.5663	4.7586	4.9233
Tare Weight (g)	4.4893	4.4581	4.4559	4.4665
Weight of PM (g)	0.0883	0.1082	0.3027	0.4568
Elapsted Time:				
End (Hrs.)	21531.5	1518.94	20362.52	23611.05
Start (Hrs.)	21507.36	1494.74	20338.21	23586.75
Monitoring Period (Hrs.)	24.14	24.2	24.31	24.3
Cubic Feet per Minute (CFM)	40	44	40	40

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/03/09 Printing: 2018/03/14

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	8.9	175.7	18.8	21.7
02:00	5.9	181.3	18.6	22.9
03:00	3.5	187.4	17.7	24.8
04:00	4.0	169.0	17.5	24.8
05:00	4.1	185.7	16.9	24.7
06:00	5.6	159.6	16.9	25.0
07:00	3.3	144.7	18.0	24.4
08:00	2.4	47.2	19.0	23.2
09:00	2.7	285.5	23.9	17.5
10:00	3.0	334.8	24.1	18.9
11:00	4.4	306.1	25.8	22.6
12:00	5.6	316.5	25.6	22.3
13:00	4.6	336.5	28.1	17.0
14:00	6.2	351.6	29.4	16.1
15:00	9.5	17.6	30.8	18.2
16:00	6.4	31.2	31.4	17.5
17:00	21.1	191.8	31.2	12.6
18:00	24.3	185.7	29.2	18.9
19:00	22.3	178.9	27.5	28.3
20:00	19.6	176.8	26.2	32.0
21:00	18.0	180.2	25.6	34.2
22:00	16.1	181.3	25.1	34.4
23:00	17.9	198.9	24.5	35.8
24:00	18.3	186.4	23.9	38.0
Sum	237.6		575.7	575.9
Average	9.9	191.8	24.0	24.0
Maximum	24.3		31.4	38.0
Time	18:00		16:00	24:00
Minimum	2.4		16.9	12.6
Time	08:00		05:00	17:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 3/9/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965538	8965537	8965536	8965535
Filter Weight:				
Gross Weight (g)	4.4955	4.5350	4.5182	4.5887
Tare Weight (g)	4.4520	4.4541	4.4369	4.4758
Weight of PM (g)	0.0435	0.0809	0.0813	0.1129
Elapsed Time:				
End (Hrs.)	21555.63	1543.14	20386.85	23635.3
Start (Hrs.)	21531.5	1518.94	20362.52	23611.05
Monitoring Period (Hrs.)	24.13	24.2	24.33	24.25
Cubic Feet per Minute (CFM)	40	44	40	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/03/15 Printing: 2018/04/10

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	19.6	178.6	16.2	50.3
02:00	17.1	184.6	16.2	50.0
03:00	7.1	158.8	16.7	48.2
04:00	6.5	92.3	15.8	50.4
05:00	3.8	94.0	14.1	52.5
06:00	4.4	142.1	13.6	53.9
07:00	6.0	146.1	14.1	54.1
08:00	6.9	197.3	15.3	51.8
09:00	17.3	177.6	18.8	44.4
10:00	18.5	179.0	21.6	35.0
11:00	17.2	173.6	23.1	31.4
12:00	24.3	192.9	22.5	27.4
13:00	25.8	188.4	22.7	24.6
14:00	20.1	181.3	23.1	23.8
15:00	21.6	190.4	23.2	21.5
16:00	19.9	188.0	23.4	21.1
17:00	17.9	185.3	23.1	21.0
18:00	20.8	189.4	22.2	22.0
19:00	23.0	184.6	19.8	25.5
20:00	23.0	177.2	17.8	26.3
21:00	23.9	173.3	16.9	21.8
22:00	25.4	174.4	16.2	17.6
23:00	26.6	174.5	15.7	15.8
24:00	22.5	177.2	15.2	13.6
Sum	419.4		447.2	804.0
Average	17.5	172.8	18.6	33.5
Maximum	26.6		23.4	54.1
Time	23:00		16:00	07:00
Minimum	3.8		13.6	13.6
Time	05:00		06:00	24:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 3/15/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965534	8965533	8965532	8965531
Filter Weight:				
Gross Weight (g)	4.5369	4.5340	5.1002	4.8025
Tare Weight (g)	4.4740	4.4460	4.4692	4.4645
Weight of PM (g)	0.0629	0.0880	0.6310	0.3380
Elapsed Time:				
End (Hrs.)	21579.78	1567.35	20411.18	23659.57
Start (Hrs.)	21555.63	1543.14	20386.85	23635.3
Monitoring Period (Hrs)	24.15	24.21	24.33	24.27
Cubic Feet per Minute (CFM)	40	46	38	42

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/03/21 Printing: 2018/04/10

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	4.1	126.6	18.5	19.1
02:00	4.4	174.5	18.8	23.3
03:00	4.7	157.7	17.1	21.7
04:00	4.1	151.9	17.8	23.7
05:00	3.8	166.2	17.9	26.9
06:00	3.4	341.2	15.8	29.2
07:00	3.6	69.9	14.3	31.1
08:00	3.8	151.9	17.9	23.4
09:00	4.2	184.5	22.8	16.3
10:00	3.2	285.9	24.4	21.2
11:00	3.7	288.0	26.4	23.9
12:00	4.3	328.6	26.4	17.7
13:00	7.3	293.3	27.4	14.8
14:00	8.6	292.3	27.9	16.4
15:00	6.8	304.5	27.8	17.0
16:00	4.6	294.7	28.8	16.8
17:00	4.3	308.3	30.4	16.7
18:00	6.6	293.6	29.0	21.2
19:00	6.2	307.2	27.0	27.0
20:00	3.8	355.5	25.2	32.5
21:00	3.9	4.7	24.0	40.9
22:00	3.3	11.0	24.0	32.3
23:00	2.8	2.6	23.4	32.0
24:00	5.0	136.2	22.8	31.1
Sum	110.6		555.8	576.1
Average	4.6	304.2	23.2	24.0
Maximum	8.6		30.4	40.9
Time	14:00		17:00	21:00
Minimum	2.8		14.3	14.8
Time	23:00		07:00	13:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 3/21/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965530	8965529	8965528	8965527
Filter Weight:				
Gross Weight (g)	4.5313	4.5022	4.6983	5.2089
Tare Weight (g)	4.0156	4.4316	4.4579	4.4832
Weight of PM (g)	0.5157	0.0706	0.2404	0.7257
Elapsed Time:				
End (Hrs.)	21603.94	1591.54	20435.51	23683.77
Start (Hrs.)	21579.78	1567.35	20411.18	23659.57
Monitoring Period (Hrs.)	24.16	24.19	24.33	24.2
Cubic Feet per Minute (CFM)	40	47	41	41

Data Entered by: Sam Rubin

CalEnergy Corp.

Log Date: 2018/03/27 Printing: 2018/04/10

Item / Time	WS (mph)	WD (Deg)	AT (Deg C)	RH (%)
01:00	10.8	173.7	14.0	19.7
02:00	9.3	167.1	13.0	20.3
03:00	7.9	172.0	11.9	19.8
04:00	4.8	213.8	12.6	14.3
05:00	11.8	231.6	12.8	19.4
06:00	10.0	212.4	12.6	20.8
07:00	9.5	208.1	13.8	22.0
08:00	15.0	238.6	17.2	20.5
09:00	20.4	243.5	20.4	16.4
10:00	24.2	241.3	22.2	8.4
11:00	25.0	249.1	22.9	6.9
12:00	22.7	245.9	24.2	5.3
13:00	20.5	245.2	25.0	3.9
14:00	17.1	244.8	25.8	2.7
15:00	17.8	246.4	26.2	2.1
16:00	15.3	254.1	26.1	2.1
17:00	12.7	255.5	26.2	2.1
18:00	13.1	259.1	25.8	2.3
19:00	9.0	263.0	23.7	10.6
20:00	4.0	287.0	20.3	21.7
21:00	4.2	262.1	19.7	23.1
22:00	6.0	172.7	18.9	20.0
23:00	7.2	177.2	18.1	15.3
24:00	11.9	146.7	16.2	14.6
Sum	310.2		469.5	314.6
Average	12.9	227.3	19.6	13.1
Maximum	25.0		26.2	23.1
Time	11:00		17:00	21:00
Minimum	4.0		11.9	2.1
Time	20:00		03:00	15:00
Standard # above	----	----	----	----
Valid	100%	100%	100%	100%

DVC - High Volume Particulate Sampler Data

Date: 3/27/2018

High Volume Station No.	I	II	III	IV
Filter No.	8965526	8965525	8965524	8965523
Filter Weight:				
Gross Weight (g)	4.6037	4.6144	5.3934	5.2247
Tare Weight (g)	4.4525	4.4634	4.4735	4.4449
Weight of PM (g)	0.1512	0.1510	0.9199	0.7798
Elapsted Time:				
End (Hrs.)	21628.73	1615.78	20459.84	23708.08
Start (Hrs.)	21603.94	1591.54	20435.51	23683.77
Monitoring Period (Hrs.)	24.79	24.24	24.33	24.31
Cubic Feet per Minute (CFM)	40	16	40	42

Hi-Vol # 2 Flow chart instrument malfunctioned. Replace for next run.

Data Entered by: Sam Rubin

Attachment B

Quarterly report for all waste received at Desert Valley Monofill.

ATTACHMENT B.

Desert Valley Quarterly Receiving Report

For the Imperial County APCD and IC Planning and Development Services Department

Air Permit PTO #2120B-3, Condition G.2 / CUP #05-0020, Condidition G-3.2 ***Cell 3***

TYPE	*TONS*
Quarter 1	
Geothermal Filter Cake	
GENERATOR	
Elmore Power Plant	*2579.4*
Leathers Power Plant	*2123.8*
Region 2	*4367.6*
Salton Sea Unit 5	*3746.5*
Subtotal	***12817.22***
Quarter Total	***12817.22***
Grand Total	***12817.22***

Attachment C

Quarterly film badge radiological exposure for employees.

CAL ENERGY
ATTN ANTHONY LEYVA
7030 GENTRY ROAD
CALIPATRIA, CA 92233

Received Date / Reported Date	2018-05-07 / 2018-05-09
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Radiation Dosimetry Report

Account : 125041 Subaccount: 1294847 Series: A

**No NVLAP accreditation is available from NVLAP for thermal neutron or X type dosimeters. When exposure results are reported for thermal neutrons or X type dosimeters, this report contains data that are not covered by the NVLAP accreditation.

Participant Number	Name		Dosimeter	Use	Rad. Type	Rad. Quality	Dose Equivalent (mrem) for Periods Shown Below DDE-Deep Dose Equivalent LDE-Lens Dose Equivalent SDE-Shallow Dose Equivalent												Inception Date	Serial Number
							Period Shown Below			Quarter to Date			Year to Date			Lifetime to Date				
	ID Number	Birth Date					DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE		
For Monitoring Period:							2017-10-01 to 2017-12-31			QUARTER 4			2017			LIFETIME				
0000A	CONTROL		Pa	CNTRL																8345190G
	Control Dose Used		Pa				62	62	62											
00322	CONTRERAS, SALVADOR		Pa	OWHBDY									M	M	M	1	1	1	2014/01	8345191G
				NOTE			ABSENT													
00325	CASTILLO, ALEJANDRO		Pa	OWHBDY									M	M	M	3	3	1	2014/01	8345192G
				NOTE			ABSENT													
00335	KISSEL,KURTIS		Pa	OWHBDY			M	M	M	M	M	M	M	M	M	M	M	M	2015/01	8345194G
00341	WHITE, NICOLE		Pa	OWHBDY			M	M	M	M	M	M	M	M	M	1	1	1	2015/01	8345196G
00352	ESPANA, LEO		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	1	1	2016/04	8345198G
00357	Sanden, Cameron		Pa	CHEST			M	M	M	M	M	M	M	M	M	1	1	1	2017/01	8345201G
For Monitoring Period:							2018-01-01 to 2018-03-31			QUARTER 1			2018			LIFETIME				
0000A	CONTROL		Pa	CNTRL																2131788H
	Control Dose Used		Pa				43	43	42											
00322	CONTRERAS, SALVADOR		Pa	OWHBDY			M	M	M	M	M	M	1	1	1	1	1	1	2014/01	2131789H
00325	CASTILLO, ALEJANDRO		Pa	OWHBDY			M	M	M	M	M	M	M	M	M	3	3	1	2014/01	2131790H
00341	WHITE, NICOLE		Pa	OWHBDY			M	M	M	M	M	M	1	1	1	1	1	1	2015/01	2131792H
00346	HULA, TORI		Pa	CHEST			M	M	M	M	M	M	1	1	1	1	1	1	2015/07	2131793H
00352	ESPANA, LEO		Pa	CHEST			M	M	M	M	M	M	M	1	1	M	1	1	2016/04	2131794H
00355	Partida, Francisco		Pa	CHEST									1	1	1	1	1	1	2017/01	2131795H
				NOTE			ABSENT													
00356	Martinez, David		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/01	2131796H
00357	Sanden, Cameron		Pa	CHEST			M	M	M	M	M	M	1	1	1	1	1	1	2017/01	2131797H
00358	Hardie, Dan		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/01	2131798H
00359	Villareal, Armando		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/01	2131799H
00360	Garcia, Carlos		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/04	2131800H

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

CAL ENERGY
ATTN ANTHONY LEYVA
7030 GENTRY ROAD
CALIPATRIA, CA 92233

Received Date / Reported Date	2018-05-07 / 2018-05-09
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Technical: (800) 438-3241

Radiation Dosimetry Report

Account : 125041 Subaccount: 1294847 Series: A

**No NVLAP accreditation is available from NVLAP for thermal neutron or X type dosimeters. When exposure results are reported for thermal neutrons or X type dosimeters, this report contains data that are not covered by the NVLAP accreditation.

Participant Number	Name		Dosimeter	Use	Rad. Type	Rad. Quality	Dose Equivalent (mrem) for Periods Shown Below DDE-Deep Dose Equivalent LDE-Lens Dose Equivalent SDE-Shallow Dose Equivalent												Inception Date	Serial Number
							Period Shown Below			Quarter to Date			Year to Date			Lifetime to Date				
	ID Number	Birth Date					DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE		
For Monitoring Period:							2018-01-01 to 2018-03-31			QUARTER 1			2018			LIFETIME				
00361	Ramirez, Juan		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/04	2131801H
00362	Pantoja, Edward		Pa	CHEST												M	M	M	2017/04	2131802H
				NOTE			ABSENT													
00363	Medina, Phillip		Pa	CHEST			M	M	M	M	M	M	M	M	M	5	6	7	2017/04	2131803H
00364	Banaga, Reyes		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/04	2131804H
00365	Robles, Francisco		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/04	2131807H
00366	Portillo, Gabriel		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2017/04	2131809H
For Monitoring Period:							2018-04-01 to 2018-06-30			QUARTER 2			2018			LIFETIME				
	Historical Customer Avg Control Dose		Pa				15	15	15											
00322	CONTRERAS, SALVADOR		Pa	OWHBDY	*P		1	1	1	1	1	1	1	1	1	1	1	1	2014/01	5068505H
00341	WHITE, NICOLE		Pa	OWHBDY	*P		1	1	1	1	1	1	1	1	1	1	1	1	2015/01	5068507H
00346	HULA, TORI		Pa	CHEST	*P		1	1	1	1	1	1	1	1	1	1	1	1	2015/07	5068508H
00352	ESPANA, LEO		Pa	CHEST	*P		M	1	1	M	1	1	M	1	1	M	1	1	2016/04	5068509H
00355	Partida, Francisco		Pa	CHEST	*P		1	1	1	1	1	1	1	1	1	1	1	1	2017/01	5068510H
00357	Sanden, Cameron		Pa	CHEST	*P		1	1	1	1	1	1	1	1	1	1	1	1	2017/01	5068512H

* - Customer average background dose used for control subtraction

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CAL ENERGY
ATTN ANTHONY LEYVA
7030 GENTRY ROAD
CALIPATRIA, CA 92233

Received Date / Reported Date	2018-05-07 / 2018-05-09
Page	1 of 1
Analytical Work Order / QC Release	1812200146 / KCO
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NVLAP TESTING
NVLAP LAB CODE 100518-0 **

LANDAUER®
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Customer Service: (800) 323-8830
Technical: (800) 438-3241

Radiation Dosimetry Report

Account : 125041 Subaccount: 1294846 Series: B

**No NVLAP accreditation is available from NVLAP for thermal neutron or X type dosimeters. When exposure results are reported for thermal neutrons or X type dosimeters, this report contains data that are not covered by the NVLAP accreditation.

Participant Number	Name / ID Number	Birth Date	Dosimeter	Use	Rad. Type	Rad. Quality	Dose Equivalent (mrem) for Periods Shown Below — DDE-Deep Dose Equivalent LDE-Lens Dose Equivalent SDE-Shallow Dose Equivalent												Inception Date	Serial Number
							Period Shown Below			Quarter to Date			Year to Date			Lifetime to Date				
							DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE		
For Monitoring Period:							2017-10-01 to 2017-12-31			QUARTER 4			2017			LIFETIME				
0000B	CONTROL		Pa	CNTRL																8345211G
00257	ROBLES, EFREN T37906		Pa	OWHBDY												M	M	M	2008/01	8345215G
				NOTE			ABSENT													
For Monitoring Period:							2018-01-01 to 2018-03-31			QUARTER 1			2018			LIFETIME				
0000B	CONTROL		Pa	CNTRL																2131810H
	Control Dose Used		Pa				42	42	42											
00157	RUBIN, SAM 564756778		Pa	OWHBDY			M	M	M							M	M	M	1995/04	2131811H
00208	WALKER 00208, LUVERT 572355820	1959-11-30	Pa	OWHBDY			M	M	M							M	M	M	2001/10	2131812H
00219	VALENZUELA 00219, ADOL 566153272	1968-11-04	Pa	OWHBDY			M	M	M							M	M	M	2002/10	2131813H
00257	ROBLES, EFREN T37906		Pa	OWHBDY			M	M	M							M	M	M	2008/01	2131814H
00342	OLVERA, JUAN		Pa	CHEST	P		1	1	1	1	1	1	1	1	1	1	1	1	2015/01	2131815H
00343	MEDINA, HUGO		Pa	CHEST			M	M	M	M	M	M	M	M	M	6	5	4	2015/01	2131816H
00344	ULRICHS, DEAN		Pa	CHEST			M	M	M	M	M	M	M	M	M	M	M	M	2015/01	2131817H

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Radiation Dosimetry Report

Annual Radiation Exposure Limits (mrem) :

Whole body, blood forming organs, gonads	5,000
Lens of Eye	15,000
Extremities and Skin	50,000
Fetal (Gestation period)	500
General Public	100

Based on the US NRC Regulations, Title 10, Part 20, Code of Federal Regulations and adopted by many states. Certain state and other regulatory agencies may adhere to different limits.
Control Dosimeter: A control dosimeter is included with each shipment of dosimeters for monitoring radiation exposure received during transit. At the customer's facility, store the control in a radiation free area during the wear period.
Minimal Dose Equivalent Reported: Dose equivalents below the minimum measurable quantity for the current monitoring period are recorded as "M." The minimal reporting levels vary by the dosimeter type and radiation quality. "SL" is an elective option for the minimal dose equivalent reported where exposures less than 10 mrem report as "SL" (excludes fetal dosimeters), and/or exposures at or more than 10 mrem begin reporting at 10 mrem and report in increments of 10 mrem.

Dosimeter Type	M (DDE,LDE,SDE)	M (SDE Only)	SL
Luxel+©	1	-	10
InLight©	5	-	10
Whole Body Beta	-	10	10
U Ring	-	30	-
Neutrak© Neutron Fast	20	-	-
Neutrak© Neutron Thermal/Fast	10	-	-
Saturn Ring	-	10	10

Special Calculations: Special dose calculations can be applied to radiation workers who wear lead aprons.
EDE 1 - two dosimeters: one worn at the waist level under lead apron and one worn at the collar level outside lead apron. 1.5 (Waist DDE) + 0.04 (Collar DDE) = Assigned Deep Dose Equivalent.
EDE 2 - one dosimeter: one worn at the collar level outside lead apron. 0.3 (Collar DDE) = Assigned Deep Dose Equivalent.
EDE 122 - one dosimeter: one worn at the collar level outside lead apron. Collar DDE / 5.6 = Assigned Deep Dose Equivalent.
Calc3 - Lens of Eye dosimeter. 0.5 (Lens of Eye LDE) = Assigned Lens of Eye Dose Equivalent.
Lens.175 - Lens of Eye dosimeter. 0.175 (Lens of Eye LDE) = Assigned Lens of Eye Dose Equivalent.
EDE1-NTC EDE1 without Thyroid Collar assigned deep dose equivalent = 0.06 × (collar dose - waist dose) + waist dose
EDE1-TC EDE1 with Thyroid Collar assigned deep dose equivalent = 0.02 × (collar dose - waist dose) + waist dose
The "ASSIGNED" line follows all of the original whole body dosimeter doses with the EDE 1 or EDE 2 calculation results or Landauer's standard Dose Assessment Protocol (deep and shallow whole body dose from the highest reading whole body dosimeter, lens dose from dosimeter closest to the eye).

Ring Dosimeter Reading: Ring dosimeter readings report as a shallow dose.

Fetal Dosimeter: A declared pregnant worker will possess a fetal exposure on an extra page of the report based upon the whole body dosimeter worn closest to the fetus. The fetal dose is reported for the current wear period, plus the estimated dose from conception to declaration (if provided by customer), and the total dose from declaration to present.

Use	Description	Use	Description
AREA	Area Monitor	OEXTRM	Other Extremity
CHEST	Chest	OWHBDY	Other Whole Body
CNTRL	Control	RANKLE	Right Ankle
COLLAR	Collar	RFINGR	Right Hand Ring
EYE	Eye	RUARM	Right Upper Arm
FETAL	Fetal	RULEG	Right Upper Leg
LANKLE	Left Ankle	RWRIST	Right Wrist
LFINGR	Left Hand Ring	SPCPUR	Special Purpose
LUARM	Left Upper Arm	UPBACK	Upper Back
LULEG	Left Upper Leg	WAIST	Waist
LWBACK	Lower Back	WHBODY	Whole Body
LWRIST	Left Wrist		

Code	Radiation Quality Description (Type and/or Energy)
B	beta
BH	beta high energy, e.g. Strontium, Phosphorus
BL	beta low energy e.g. Thallium, Krypton
BS	Strontium beta
BT	Thallium beta
BU	Uranium beta
BN	beta, neutron mixture
NF	neutron fast
NT	neutron thermal
P	photon (x or gamma ray)
PB	photon, beta mixture
PBN	photon, beta, neutron mixture
PH	photon high energy greater than 200 keV
PL	photon low energy less than 40 keV
PM	photon medium energy 40 keV to 200 keV
PN	photon, neutron mixture

First Line Explanation
Participant Number: Unique number assigned by Landauer.
Name: Participant to whom the dosimeter is assigned.
Dosimeter: Badge type according to radiation monitoring needs.

Dosimeter	Code	Type of Radiation Monitored				
		Photons			Neutrons	
		X	Gamma	Beta	Fast	Fast/ Thermal
InLight Basic	B1P	Yes	Yes	Yes		
InLight Basic	B4P	Yes	Yes	Yes		
InLight Basic	B2C	Yes	Yes	Yes		
InLight Basic	B4C	Yes	Yes	Yes		
InLight LDR	L2P	Yes	Yes	Yes		
InLight LDR	L2J	Yes	Yes	Yes		
InLight LDR	L2T	Yes	Yes	Yes		Yes
InLight LDR	L2D	Yes	Yes	Yes	Yes	Yes
InLight LDR	L4P	Yes	Yes	Yes		
Luxel+	Pa	Yes	Yes	Yes		
Luxel+	Ja	Yes	Yes	Yes	Yes	
Luxel+	Ta	Yes	Yes	Yes		Yes
Luxel+ Escort	Pa	Yes	Yes			
Neutrak	N				Yes	
Neutrak	E					Yes
Ring, Single TLD	U or S	Yes	Yes	Yes		

Deep, Eye and Shallow Dose Equivalents:Deep dose equivalent (DDE) applies to external whole body exposure at a tissue depth of 1 cm (1000 mg/cm^2).
Eye dose equivalent (LDE) applies to external exposure of the lens at a tissue depth of 0.3 cm (300 mg/cm^2).
Shallow dose equivalent (SDE) applies to the external exposure of the skin or extremity at a tissue depth of 0.007 cm (7 mg/cm^2) averaged over an area 1 cm^2.

Deep, eye and shallow dose equivalents report for the time frame indicated by "For Monitoring Period." These doses represent the dose received only for the account/subaccount specified. Individual radiation component results and combined totals report in separate lines.

Quarterly accumulated results reflect total dose received within a calendar 3-months time frame and the customer defined start day. (Note: Quarterly accumulated columns are eliminated for bimonthly service or display "Not applicable.") Year to date accumulation totals dose received from the beginning of the current year to report date. Lifetime accumulation totals all dose received from inception date of dosimeter service to report date, and could include earlier dose history if supplied by customer. Reported quarterly, annual and lifetime dose accumulations represent the doses totaling from all account/subaccount dosimeters to be reported at the customer level.

Inception Date:The date Landauer began keeping dosimeter records for a given dosimeter for a badging participant on the current customer.

Serial Number: Dosimeter serial number.

Second Line Explanation
Participant's personal information consisting of ID number and birth date. This information can be suppressed on "Duplicate and Original Reports" for privacy and/or posting needs.

Notes: Text messages explaining any abnormalities or comments. The notes with message appears on a separate line below all dosimeter exposure information.

U.S. Patents
6,316,702; 6,127,685; 5,892,234

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DESERT VALLEY COMPANY

7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

March 4, 2015

Ms. Liann Chavez
California Regional Water Quality Control Board
73-720 Fred Waring Drive, Suite 100
Palm Desert, California 92260

SUBJECT: Desert Valley Company Class II Solid Waste Management Facility
5-Year Constituents of Concern Report (COC) and 2014 Annual Summary Report
Regional Board WDID No. 7A 13 2197 001
Board Order No. R7-2003-0075

Dear Ms. Chavez,

In accordance with conditions E.3. and B.1. of Parts I and II of the Monitoring and Reporting program No. R7-2003-0075, please find the 5-Year COC Report and the 2014 Annual Summary Report, respectively. These reports have received appropriate technical review and approval by a California Registered Professional Engineer. Please see Attachment "D" in Part II of the report.

"I declare under the penalty of law that I have personally examined and am familiar with the information submitted in the document, and the based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions or suggestions concerning these reports, please contact Anetha Lue at (760) 348-4200 or by email at Anetha.Lue@calenergy.com.

Sincerely,

Graeme R. Donaldson
General Manager

Enclosure
Attachments

Cc: Emmanuel Sanchez, I. C. Air Pollution Control District
Jeff Lamoure, I.C. Public Health Department
Richard Cabanilla, I. C. Development and Planning Services
Anetha Lue
Yanqiu Wu

Cc: Dave Angulo
Environmental File

March 4, 2015
Board Order No. R7-2003-0075

Part I

2014 Annual Summary Report

Attachment A

Summary of Conditions and Responses

Annual Summary Report

E.3.a. Graphical Presentation of Analytical Data

- Previous five calendar years - Groundwater Monitoring Wells (Attachment B)

E.3.b. Tabular and computer data for the report year

- Tabular data for the Groundwater Monitoring Wells (Attachment C)
- Compact Disk (CD) Not Enclosed- All analytical data of the monitoring wells was submitted via GeoTracker upload.

E.3.c. Discussion of compliance record

- There were no compliance issues to report in 2014.

E.3.d. Map showing the area that has been filled with geothermal material in the last year.

- See Attachment "D" for site map.
- Cell 3 opened July 2005. The material being placed into the cell is being placed into the northeast corner of the cell.

E.3.e. Written summary of ground water analysis indicating any changes made since the previous annual report.

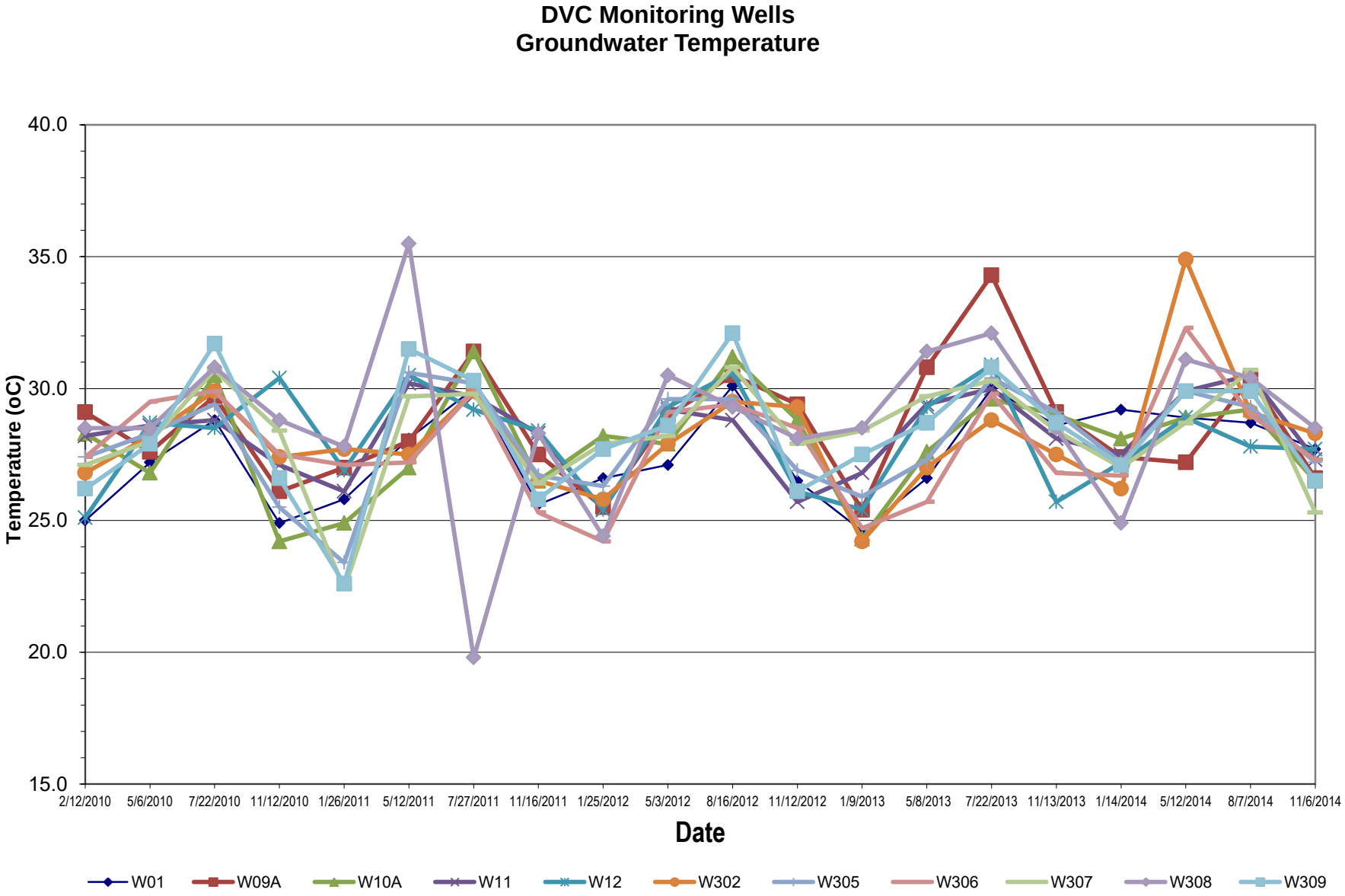
- No changes were made since the previous annual report.

E.3.f. Evaluation of the effectiveness of the leachate monitoring / control facilities, pursuant to Title 27 Section 20340.

- Leachate and leak detection systems are inspected weekly by running their respective pumps and recording the readings of the total flow meters. The volume of recovered water is recorded and logged in the facility database.
- Desert Valley Company believes that the leachate monitoring and control systems are effective in ensuring timely removal of liquids captured.

Attachment B

Graphical Presentation
Groundwater Monitoring Wells (5-Years)


DVC Monitoring Wells
Groundwater Temperature
Temperature (oC)
40.0
35.0
30.0
25.0
20.0
15.0
2/12/2010
5/6/2010
7/22/2010
11/12/2010
1/26/2011
5/12/2011
7/27/2011
11/16/2011
1/25/2012
5/3/2012
8/16/2012
11/12/2012
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
8/7/2014
11/6/2014
Date
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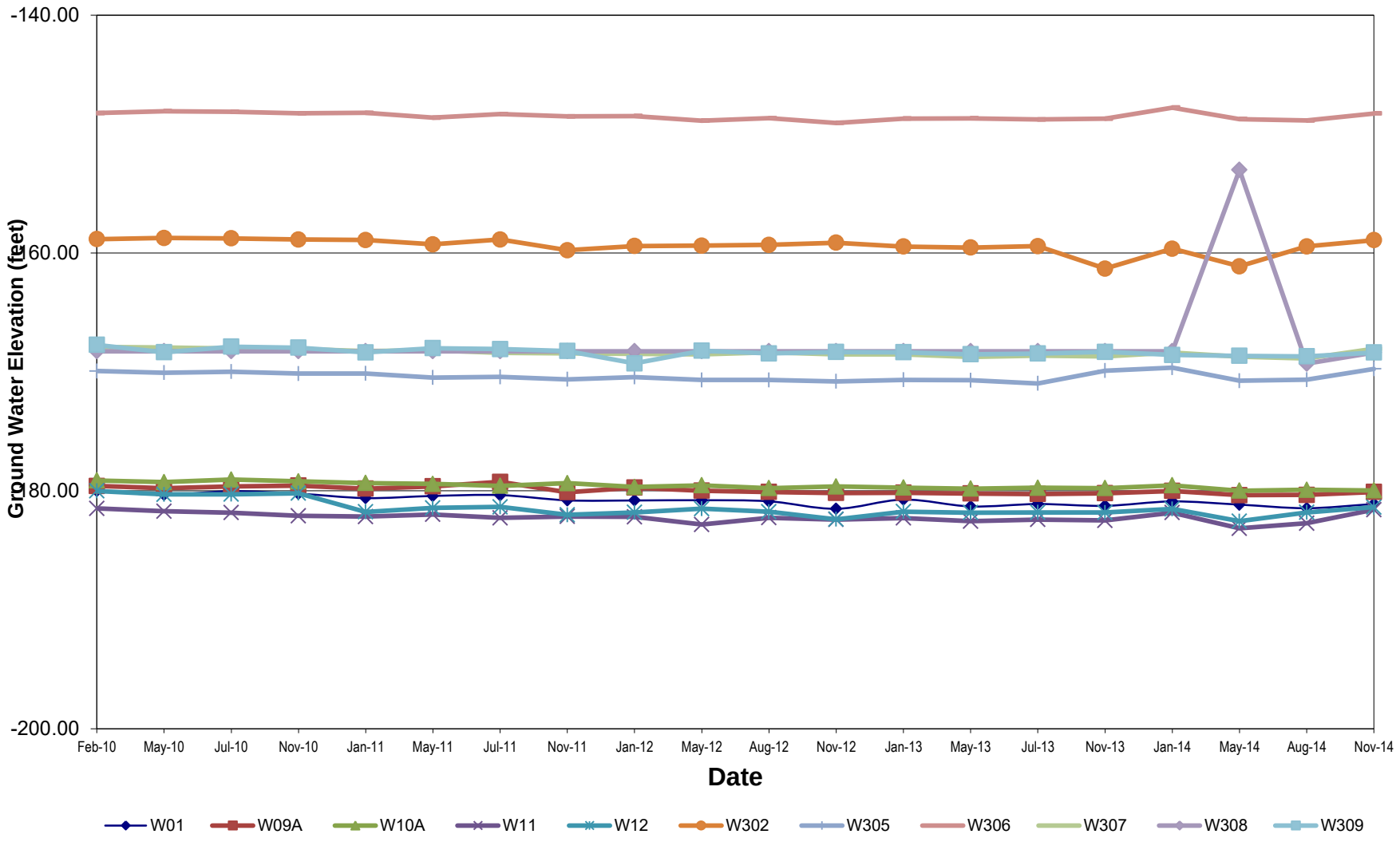
DVC Monitoring Wells Ground Water Elevation
-140.00
-160.00
-180.00
-200.00
Ground Water Elevation (feet)
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
Jul-13
Nov-13
Jan-14
May-14
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Date
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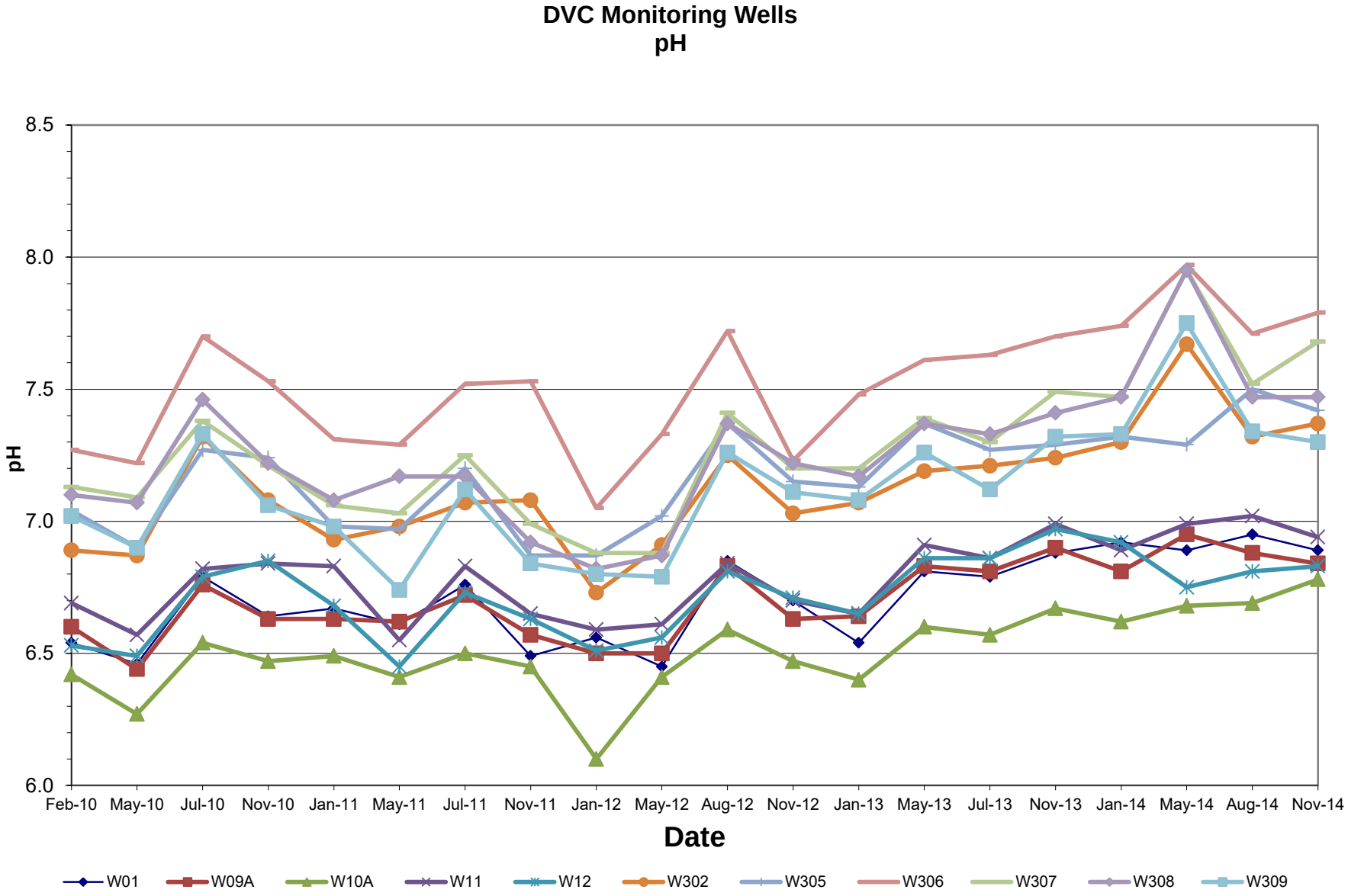
DVC Monitoring Wells
pH
8.5
8.0
7.5
7.0
6.5
6.0
pH
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
Jul-13
Nov-13
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May-14
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Date
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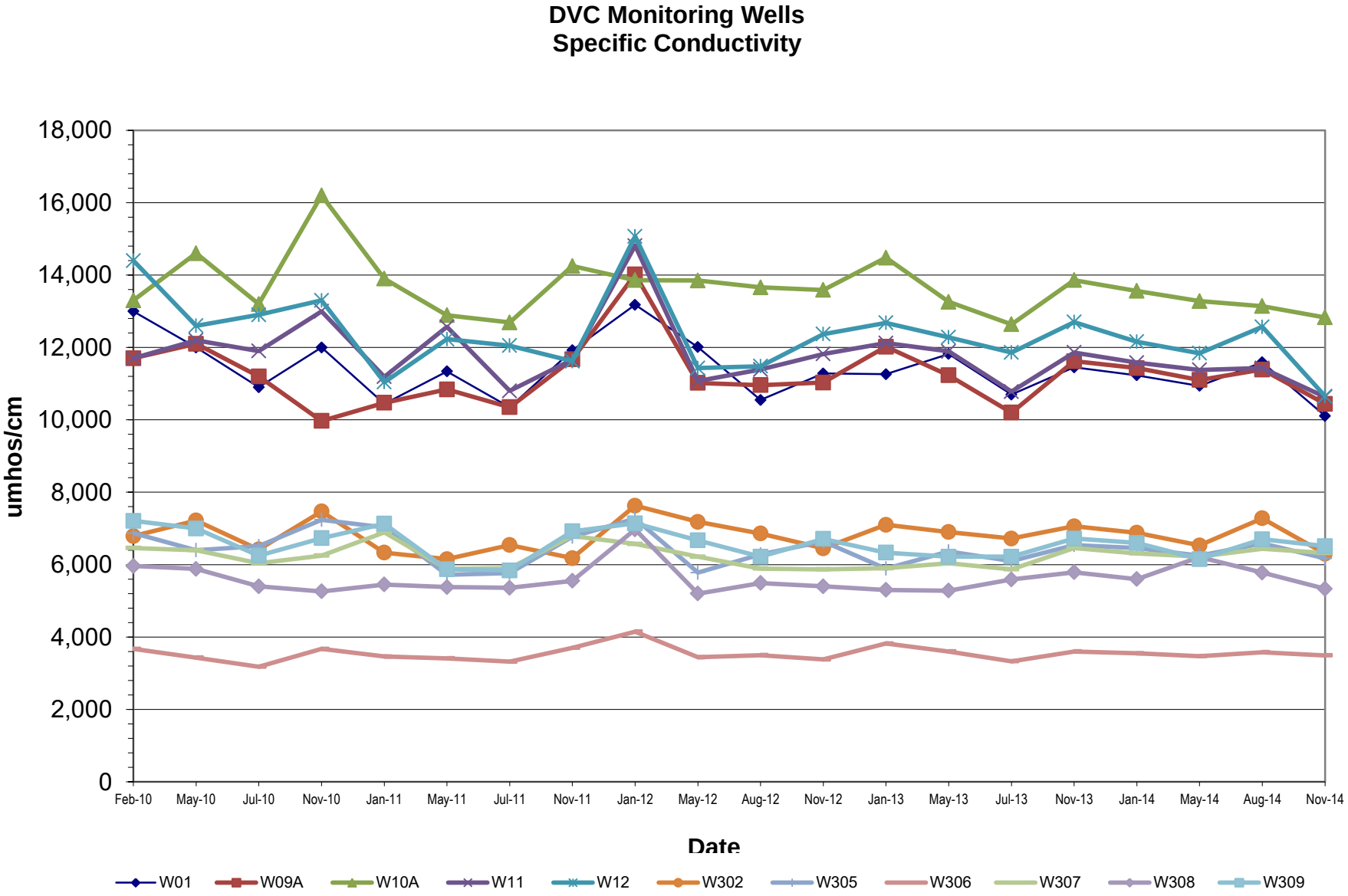
DVC Monitoring Wells
Specific Conductivity
umhos/cm
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
Jul-13
Nov-13
Jan-14
May-14
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Date
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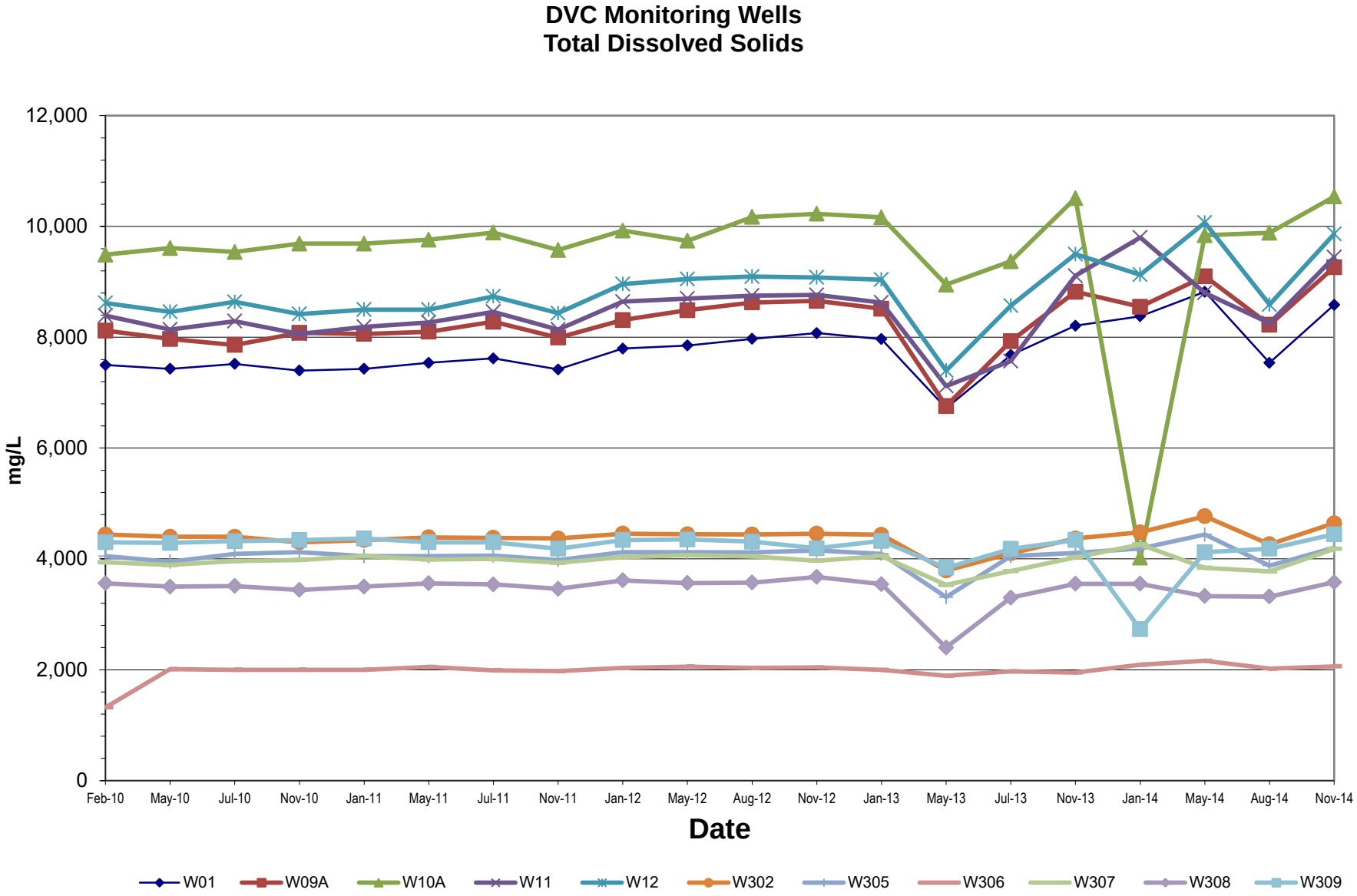
DVC Monitoring Wells
Total Dissolved Solids
12,000
10,000
8,000
6,000
4,000
2,000
0
mg/L
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
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Nov-13
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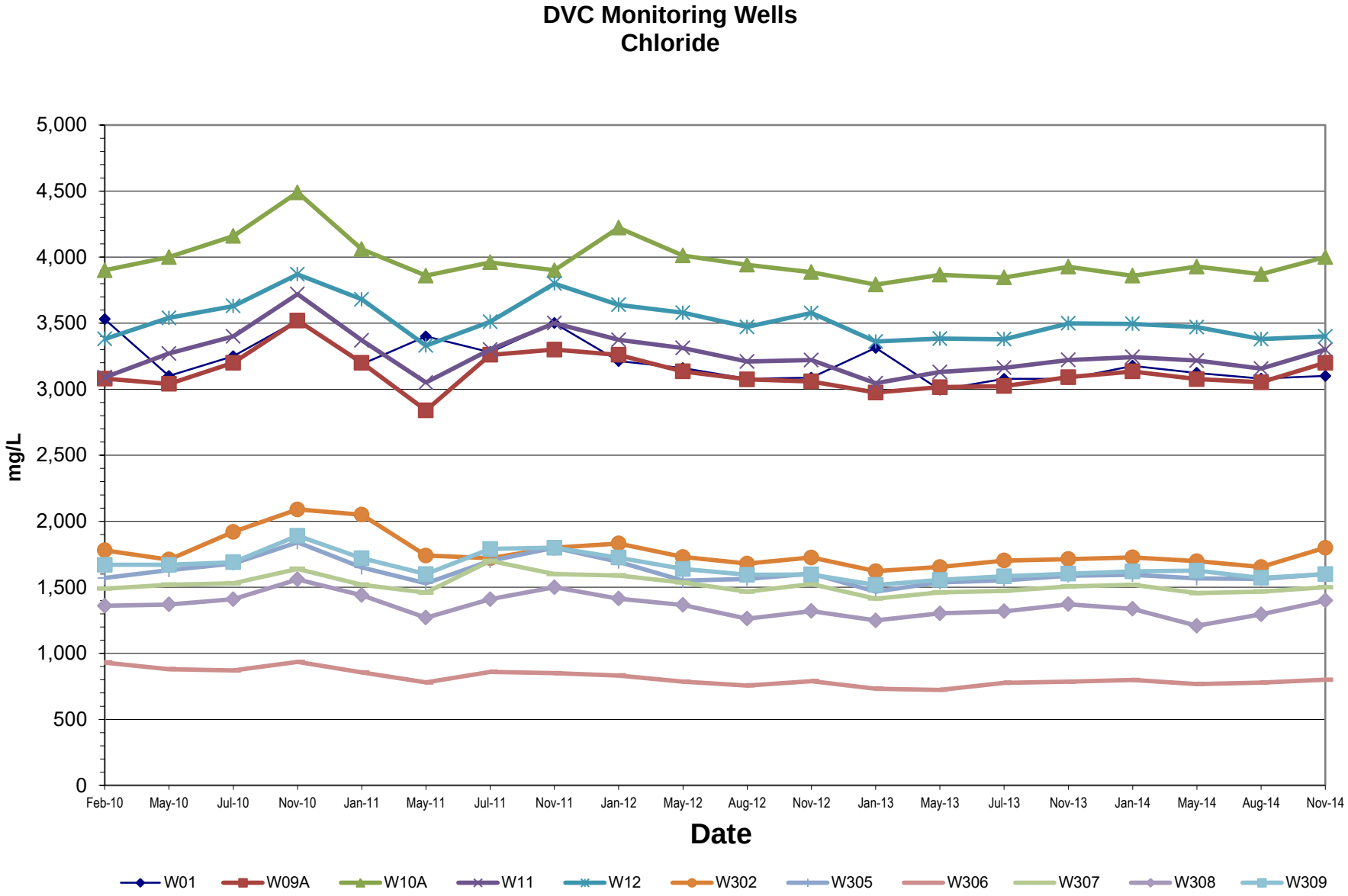
DVC Monitoring Wells
Chloride
mg/L
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
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Aug-12
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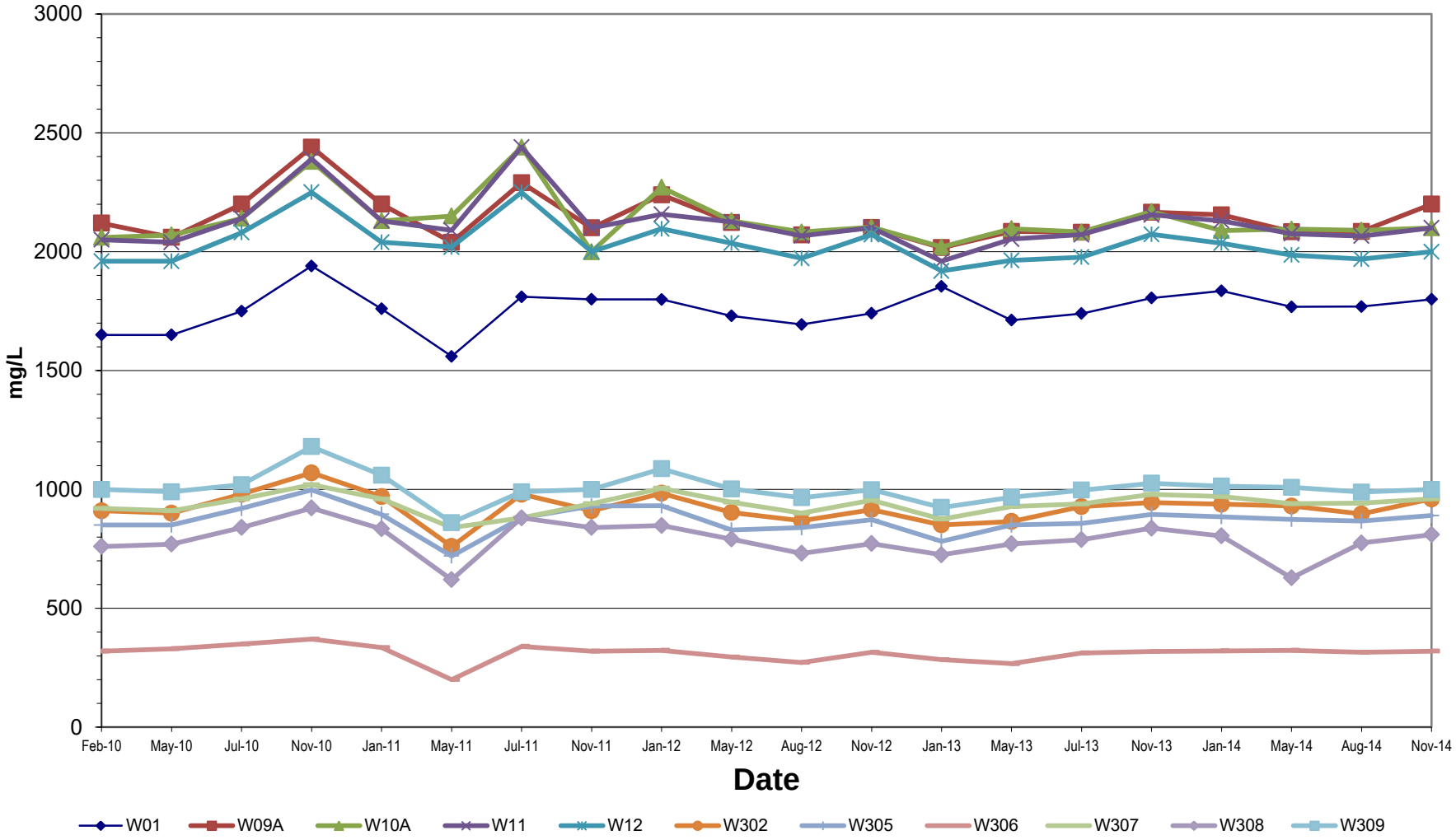
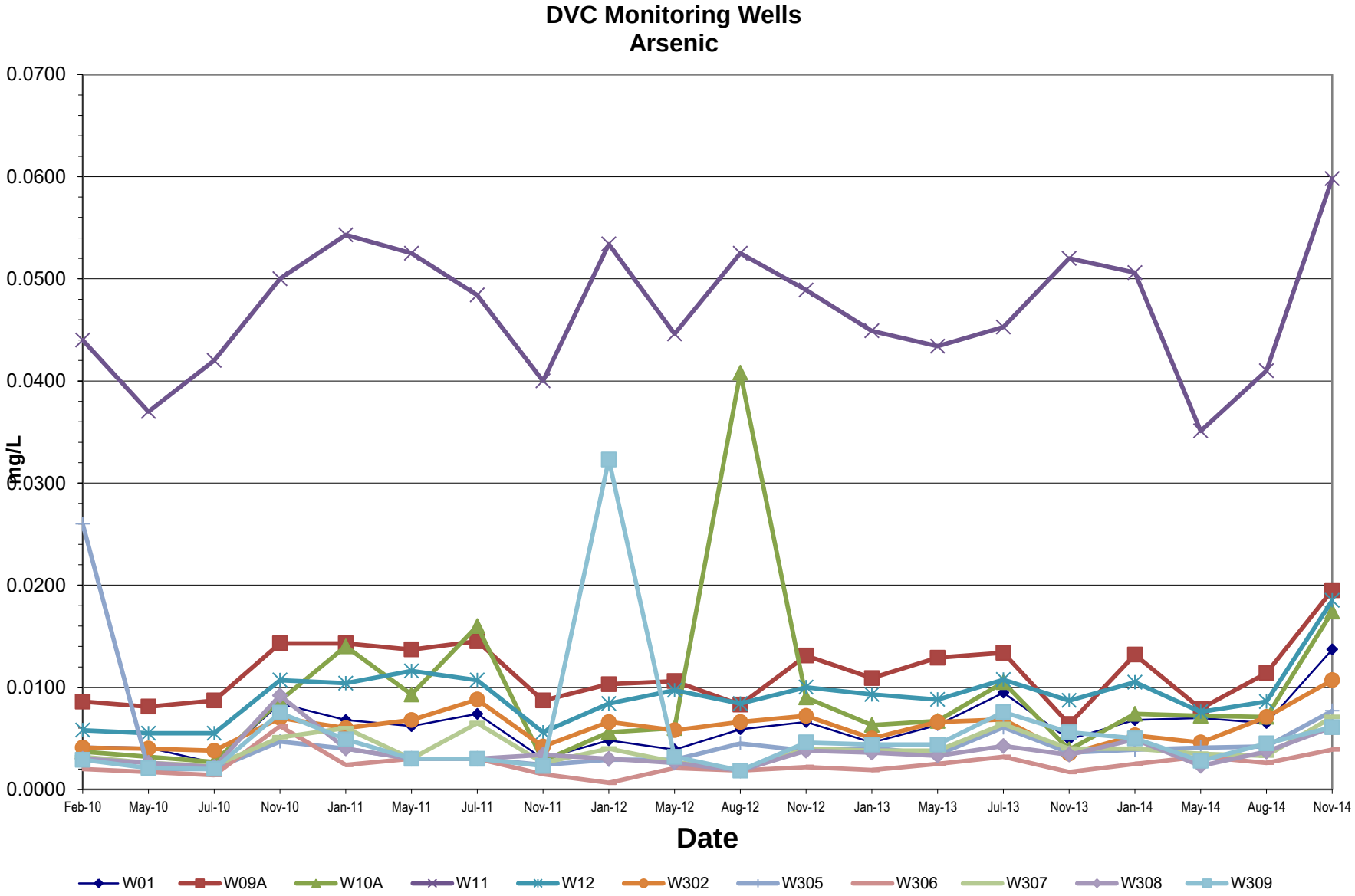
DVC Monitoring Wells
Sulfate




DVC Monitoring Wells
Arsenic
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
mg/L
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
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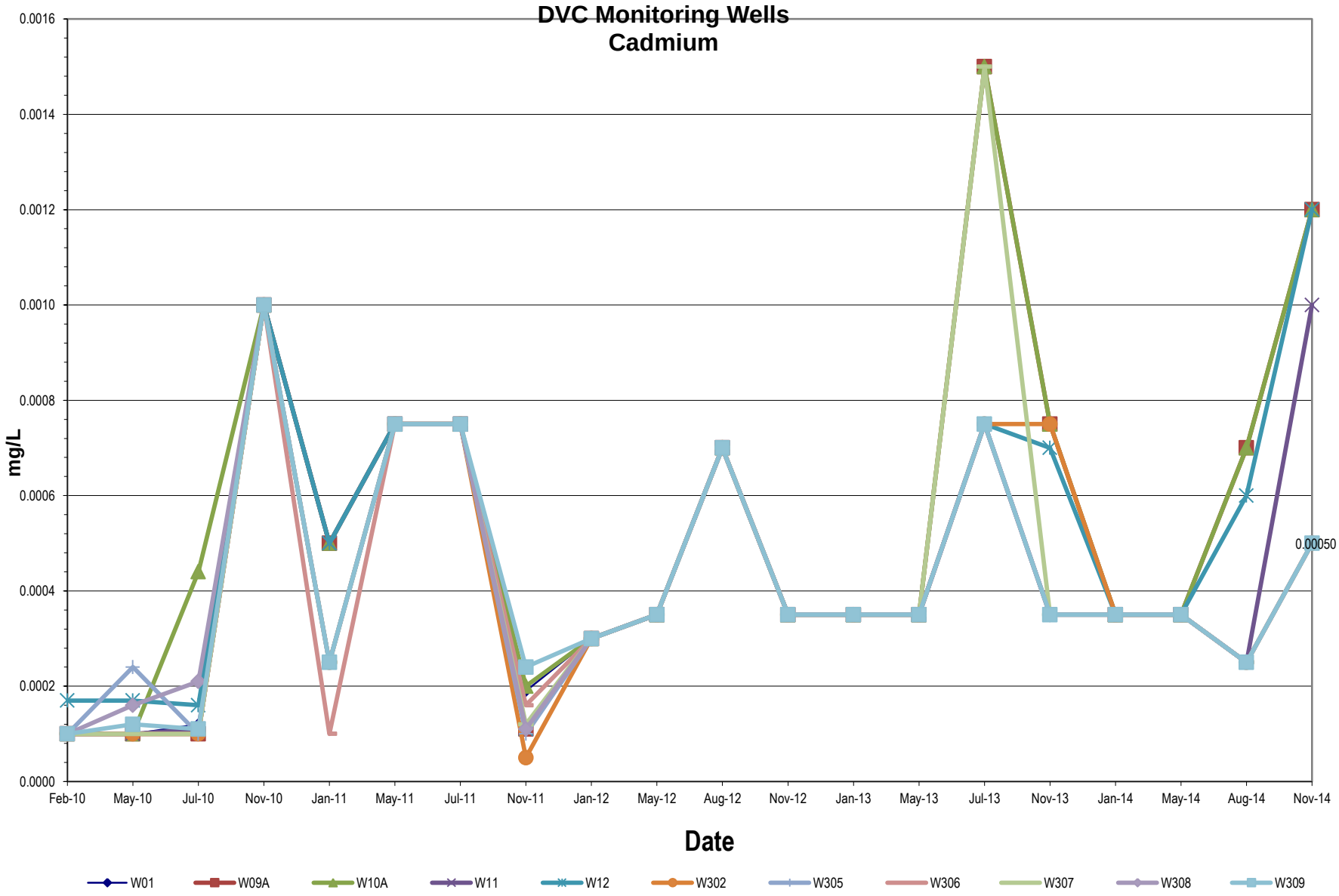
DVC Monitoring Wells
Cadmium
mg/L
0.0016
0.0014
0.0012
0.0010
0.0008
0.0006
0.0004
0.0002
0.0000
0.00050
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
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Jan-14
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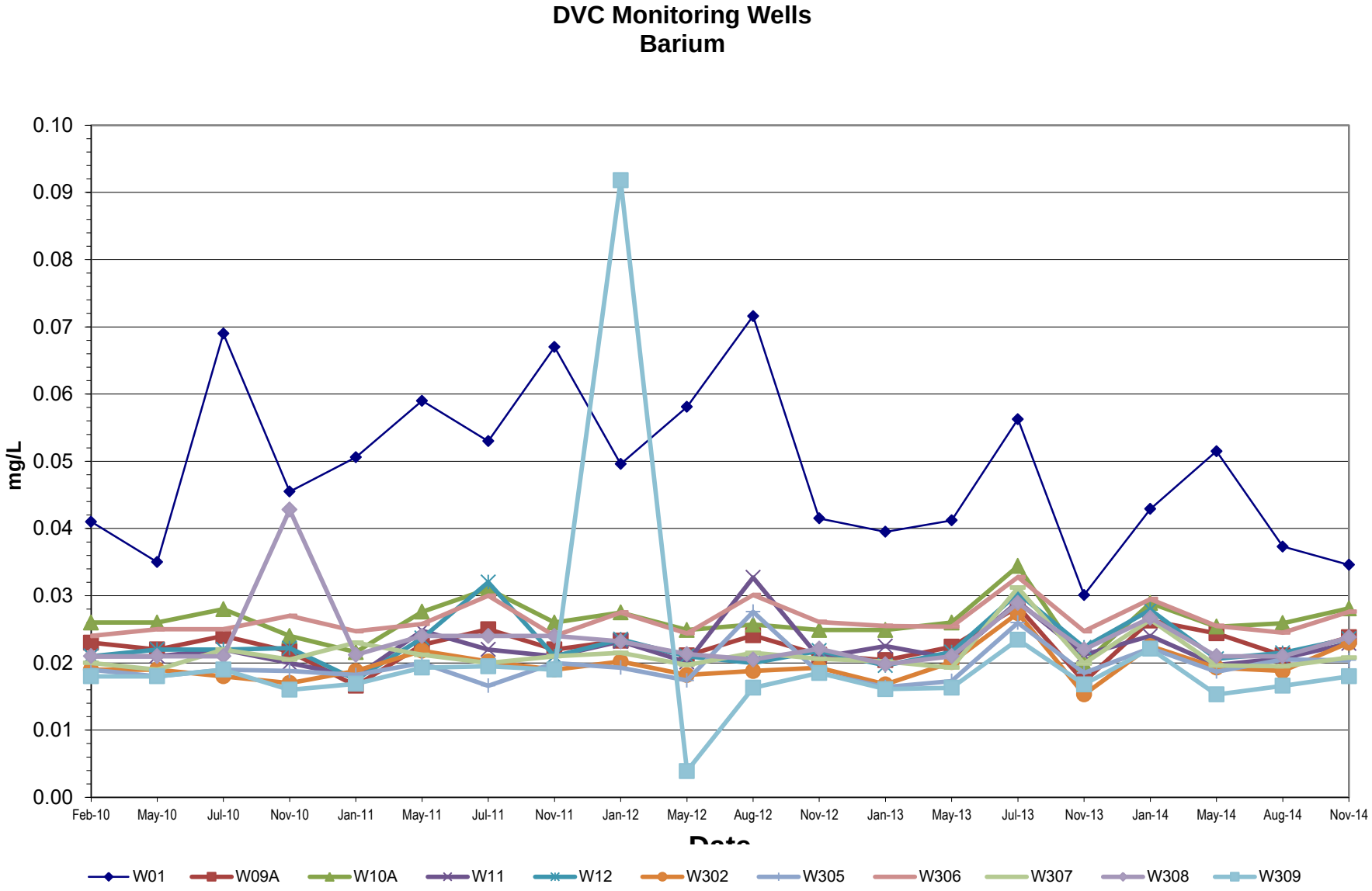
DVC Monitoring Wells
Barium
mg/L
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
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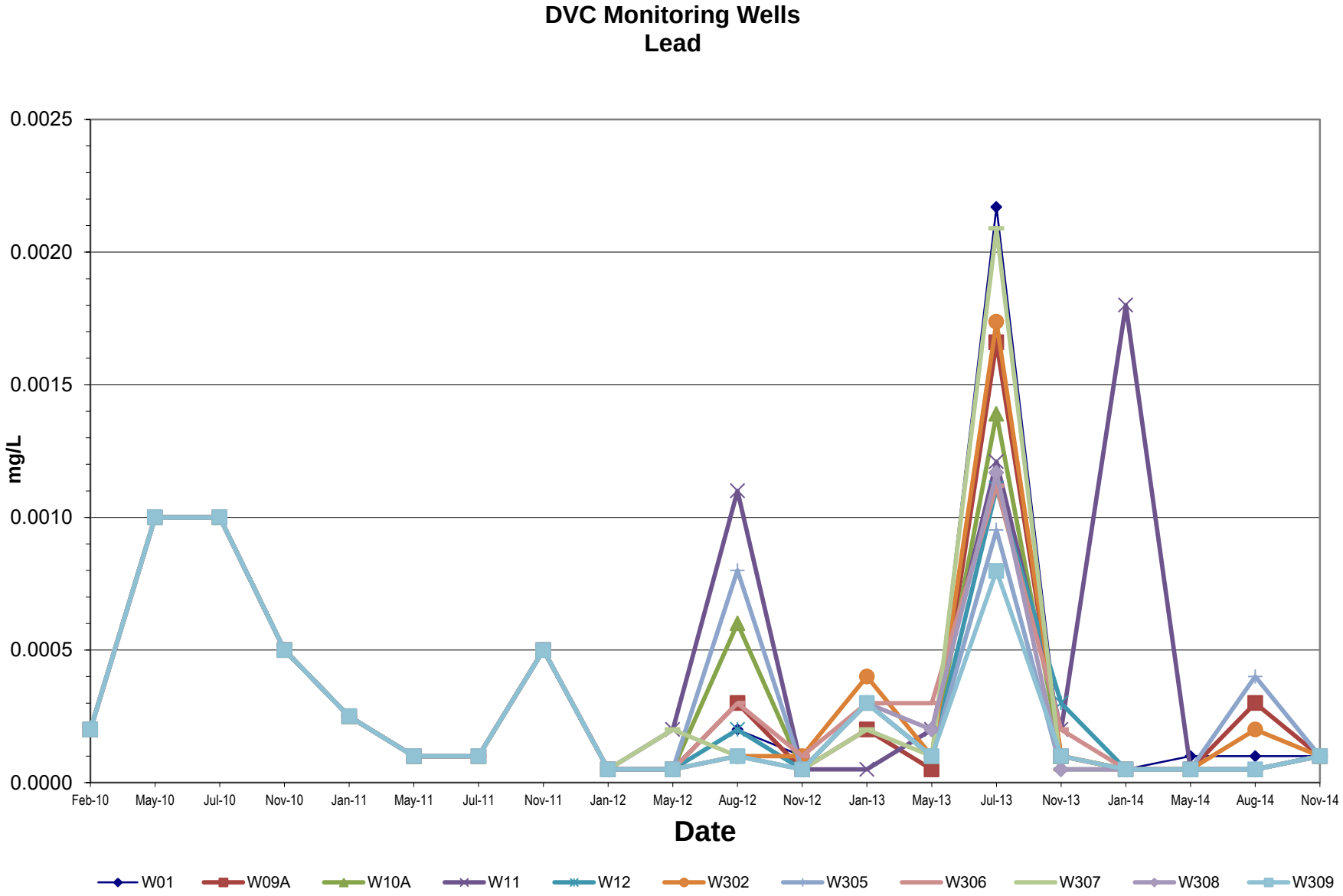
DVC Monitoring Wells
Lead
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
mg/L
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
May-13
Jul-13
Nov-13
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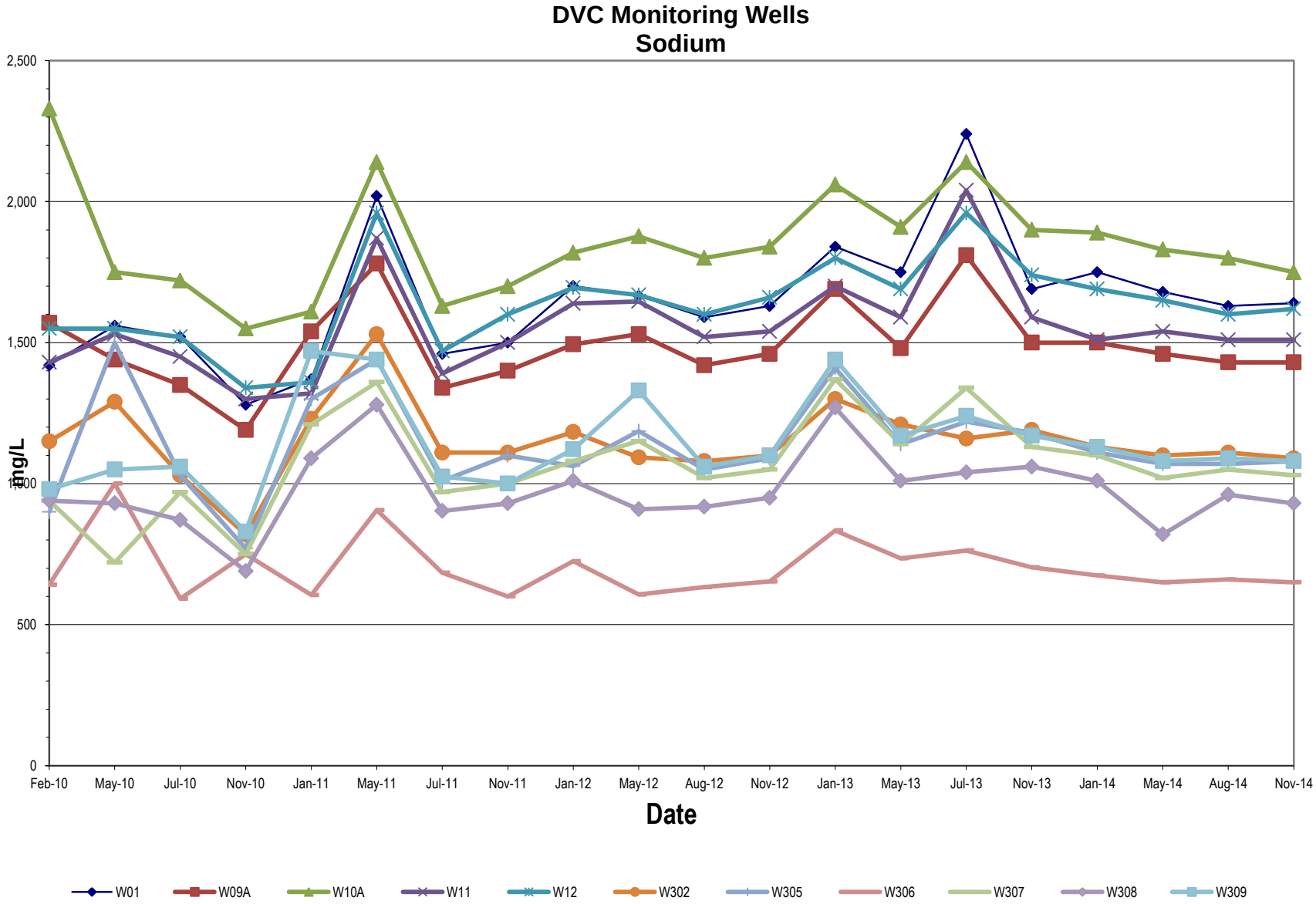
DVC Monitoring Wells
Sodium
2,500
2,000
1,500
1,000
500
0
mg/L
Feb-10
May-10
Jul-10
Nov-10
Jan-11
May-11
Jul-11
Nov-11
Jan-12
May-12
Aug-12
Nov-12
Jan-13
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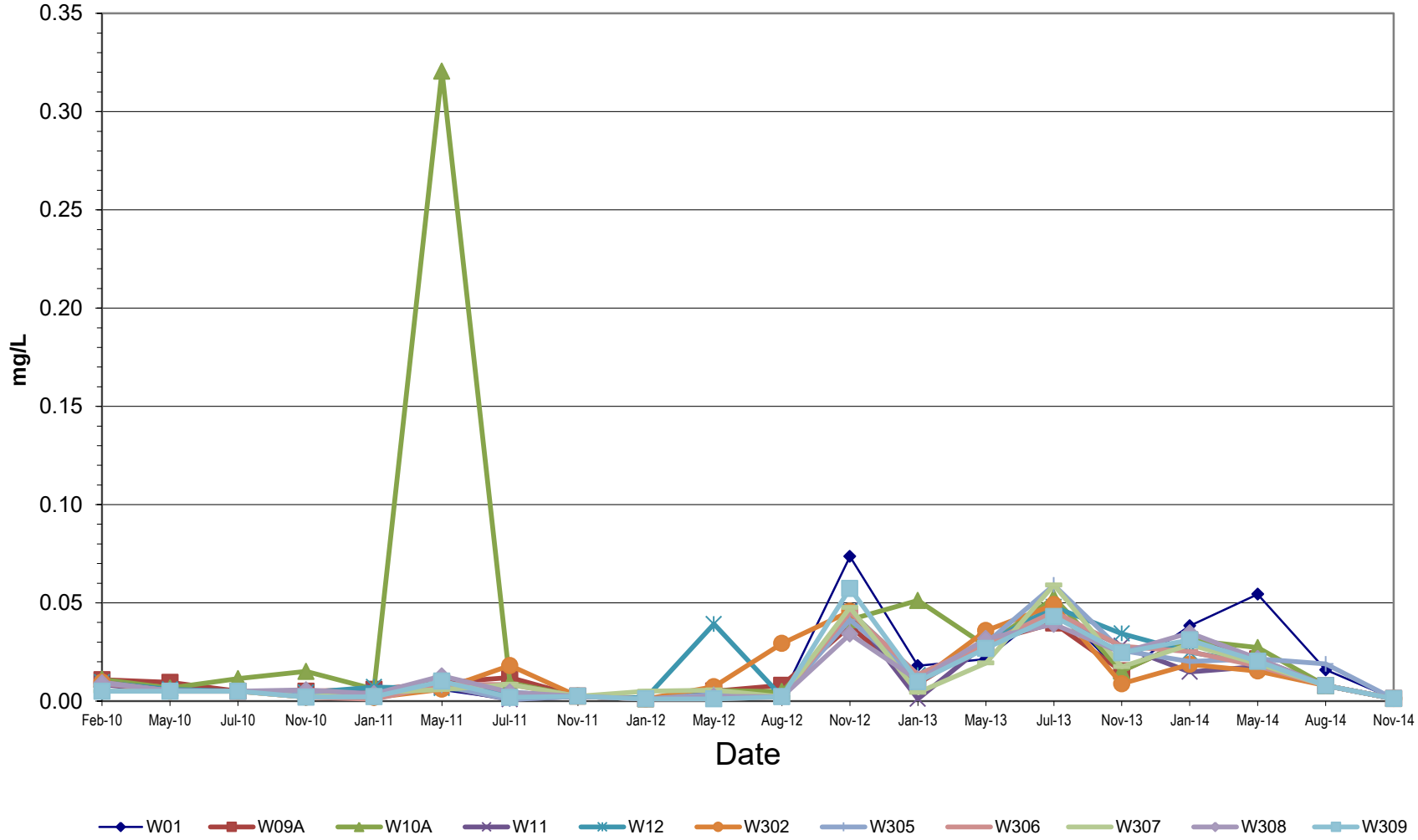
DVC Monitoring Wells
Zinc



Attachment C

Tabulated Analytical Results
Groundwater Monitoring Wells

W01						
Constituents	Units	1/15/2014	5/12/2014	8/7/2014	11/6/2014	Method
pH		6.92	6.89	6.95	6.89	SM 4500-H+ B, pH
Temperature	°C	29.2	28.9	28.7	27.7	EPA 170.1
Depth of Water from top of casing	ft	65.53	65.8	66.10	65.75	AS_100v01
Groundwater Elevation	ft	-180.89	-181.16	-181.46	-181.11	
Specific Conductivity	µS/cm	11,230	10,940	11,590	10,110	SM 2510 B
TDS	mg/L	8,380	8,820	7,540	8,585	SM 2540 C
Chloride	mg/L	3,177	3,123	3,080	3,100	EPA 300.0
Sodium	mg/L	1,750	1,680	1,630	1,640	EPA 200.7
Sulfate	mg/L	1,835	1,768	1,769	1,800	EPA 300.0
Arsenic	mg/L	0.0068	0.0070	0.0065	0.0137	EPA 200.8
Barium	mg/L	0.0429	0.0515	0.0373	0.0346	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	0.0001	0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0383	0.0544	0.0159	<0.0025	EPA 200.8

W09A						
Constituents	Units	1/14/2014	5/16/2014	7/31/2014	11/6/2014	Method
pH		6.81	6.95	6.88	6.84	SM 4500-H+ B, pH
Temperature	°C	27.4	27.2	30.4	26.6	EPA 170.1
Depth of Water from top of casing	ft	59.51	59.87	59.84	59.60	AS_100v01
Groundwater Elevation	ft	-180.01	-180.37	-180.34	-180.10	
Specific Conductivity	µS/cm	11,430	11,100	11,390	10,440	SM 2510 B
TDS	mg/L	8,550	9,100	8,225	9,265	SM 2540 C
Chloride	mg/L	3,134	3,076	3,052	3,200	EPA 300.0
Sodium	mg/L	1,500	1,460	1,430	1,430	EPA 200.7
Sulfate	mg/L	2,155	2,084	2,085	2,200	EPA 300.0
Arsenic	mg/L	0.0132	0.0079	0.0114	0.0195	EPA 200.8
Barium	mg/L	0.0263	0.0244	0.0211	0.0238	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	0.0007	0.0012	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	0.0003	<0.0002	EPA 200.8
Zinc	mg/L	0.0312	0.0215	<0.0158	<0.0025	EPA 200.8

W10A						
Constituents	**Units**	**1/14/2014**	**5/9/2014**	**7/31/2014**	**11/6/2014**	**Method**
pH		6.62	6.68	6.69	6.78	SM 4500-H+ B, pH
Temperature	°C	28.1	28.9	29.2	26.5	EPA 170.1
Depth of Water from top of casing	ft	61.54	61.99	61.91	61.97	AS_100v01
Groundwater Elevation	ft	-179.54	-179.99	-179.91	-179.97	
Specific Conductivity	µS/cm	13,560	13,280	13,140	12,830	SM 2510 B
TDS	mg/L	4,020	9,840	9,885	10,540	SM 2540 C
Chloride	mg/L	3,859	3,928	3,871	4,000	EPA 300.0
Sodium	mg/L	1,890	1,830	1,800	1,750	EPA 200.7
Sulfate	mg/L	2,089	2,095	2,090	2,100	EPA 300.0
Arsenic	mg/L	0.0074	0.0072	0.0071	0.0174	EPA 200.8
Barium	mg/L	0.0289	0.0254	0.0259	0.0281	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	0.0007	0.0012	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0310	0.0272	<0.0158	<0.0025	EPA 200.8

W11						
Constituents	Units	1/14/2014	5/12/2014	7/31/2014	11/6/2014	Method
pH		6.89	6.99	7.02	6.94	SM 4500-H+ B, pH
Temperature	°C	27.5	29.9	30.5	27.3	EPA 170.1
Depth of Water from top of casing	ft	62.00	63.32	62.89	61.75	AS_100v01
Groundwater Elevation	ft	-181.84	-183.16	-182.73	-181.59	
Specific Conductivity	µS/cm	11,580	11,380	11,430	10,630	SM 2510 B
TDS	mg/L	9,800	8,800	8,255	9,445	SM 2540 C
Chloride	mg/L	3,243	3,217	3,156	3,300	EPA 300.0
Sodium	mg/L	1,510	1,540	1,510	1,510	EPA 200.7
Sulfate	mg/L	2,130	2,076	2,066	2,100	EPA 300.0
Arsenic	mg/L	0.0506	0.0351	0.0410	0.0598	EPA 200.8
Barium	mg/L	0.0240	0.0197	0.0207	0.0229	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	0.0010	EPA 200.8
Lead	mg/L	0.0018	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0149	0.0176	<0.0158	<0.0025	EPA 200.8

W12						
Constituents	Units	1/14/2014	5/12/2014	8/7/2014	11/6/2014	Method
pH		6.92	6.75	6.81	6.83	SM 4500-H+ B, pH
Temperature	°C	27.2	28.9	27.8	27.7	EPA 170.1
Depth of Water from top of casing	ft	62.51	63.54	62.79	62.35	AS_100v01
Groundwater Elevation	ft	-181.53	-182.56	-181.81	-181.37	
Specific Conductivity	µS/cm	12,160	11,840	12,570	10,650	SM 2510 B
TDS	mg/L	9,130	10,070	8,590	9,865	SM 2540 C
Chloride	mg/L	3,495	3,470	3,379	3,400	EPA 300.0
Sodium	mg/L	1,690	1,650	1,600	1,620	EPA 200.7
Sulfate	mg/L	2,036	1,986	1,969	2,000	EPA 300.0
Arsenic	mg/L	0.0105	0.0076	0.0086	0.0185	EPA 200.8
Barium	mg/L	0.0279	0.0206	0.0215	0.0236	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	0.0006	0.0012	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0249	0.0191	<0.0158	<0.0025	EPA 200.8

W302						
Constituents	Units	1/15/2014	5/16/2014	8/7/2014	11/6/2014	Method
pH		7.30	7.67	7.32	7.37	SM 4500-H+ B, pH
Temperature	°C	26.2	34.9	29.1	28.3	EPA 170.1
Depth of Water from top of casing	ft	61.32	62.80	61.13	60.60	AS_100v01
Groundwater Elevation	ft	-159.64	-161.12	-159.45	-158.92	
Specific Conductivity	µS/cm	6,880	6,530	7,280	6,300	SM 2510 B
TDS	mg/L	4,480	4,770	4,265	4,645	SM 2540 C
Chloride	mg/L	1,727	1,698	1,654	1,800	EPA 300.0
Sodium	mg/L	1,130	1,100	1,110	1,090	EPA 200.7
Sulfate	mg/L	938	930	897	960	EPA 300.0
Arsenic	mg/L	0.0053	0.0046	0.0071	0.0107	EPA 200.8
Barium	mg/L	0.0225	0.0193	0.0188	0.0230	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	0.0002	<0.0002	EPA 200.8
Zinc	mg/L	0.0187	0.0153	<0.0158	<0.0025	EPA 200.8

W305						
Constituents	Units	1/15/2014	5/16/2014	8/7/2014	11/7/2014	Method
pH		7.32	7.29	7.50	7.42	SM 4500-H+ B, pH
Temperature	°C	27.2	29.9	29.3	27.2	EPA 170.1
Depth of Water from top of casing	ft	62.90	63.99	63.91	63.00	AS_100v01
Groundwater Elevation	ft	-169.65	-170.74	-170.66	-169.75	
Specific Conductivity	µS/cm	6,460	6,250	6,590	6,170	SM 2510 B
TDS	mg/L	4,190	4,440	3,880	4,200	SM 2540 C
Chloride	mg/L	1,594	1,567	1,563	1,600	EPA 300.0
Sodium	mg/L	1,110	1,070	1,070	1,080	EPA 200.7
Sulfate	mg/L	885	874	867	890	EPA 300.0
Arsenic	mg/L	0.0039	0.0041	0.0042	0.0077	EPA 200.8
Barium	mg/L	0.0222	0.0187	0.0205	0.0204	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	0.0004	<0.0002	EPA 200.8
Zinc	mg/L	0.0202	0.0215	0.0189	<0.0025	EPA 200.8

W306						
Constituents	Units	1/15/2014	5/16/2014	7/31/2014	11/7/2014	Method
pH		7.74	7.97	7.71	7.79	SM 4500-H+ B, pH
Temperature	°C	26.7	32.3	29.0	27.3	EPA 170.1
Depth of Water from top of casing	ft	58.13	59.10	59.22	58.63	AS_100v01
Groundwater Elevation	ft	-147.77	-148.74	-148.86	-148.27	
Specific Conductivity	µS/cm	3,550	3,470	3,580	3,490	SM 2510 B
TDS	mg/L	2,090	2,160	2,020	2,060	SM 2540 C
Chloride	mg/L	798	768	779	800	EPA 300.0
Sodium	mg/L	674	650	660	650	EPA 200.7
Sulfate	mg/L	321	323	315	320	EPA 300.0
Arsenic	mg/L	0.0025	0.0032	0.0026	0.0039	EPA 200.8
Barium	mg/L	0.0295	0.0255	0.0245	0.0276	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0252	0.0178	<0.0158	<0.0025	EPA 200.8

W307						
Constituents	Units	1/15/2014	5/16/2014	8/15/2014	11/7/2014	Method
pH		7.47	7.95	7.52	7.68	SM 4500-H+ B, pH
Temperature	°C	27.0	28.7	30.7	25.3	EPA 170.1
Depth of Water from top of casing	ft	62.97	63.32	63.48	62.66	AS_100v01
Groundwater Elevation	ft	-168.37	-168.72	-168.88	-168.06	
Specific Conductivity	µS/cm	6,310	6,220	6,440	6,320	SM 2510 B
TDS	mg/L	4,260	3,840	3,775	4,180	SM 2540 C
Chloride	mg/L	1,519	1,456	1,468	1,500	EPA 300.0
Sodium	mg/L	1,100	1,020	1,050	1,030	EPA 200.7
Sulfate	mg/L	970	940	942	960	EPA 300.0
Arsenic	mg/L	0.0040	0.0035	0.0033	0.0071	EPA 200.8
Barium	mg/L	0.0264	0.0196	0.0195	0.0208	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0287	0.0191	<0.0158	<0.0025	EPA 200.8

W308						
Constituents	Units	1/16/2014	5/16/2014	8/15/2014	11/6/2014	Method
pH		7.47	7.95	7.47	7.47	SM 4500-H+ B, pH
Temperature	°C	24.9	31.1	30.4	28.5	EPA 170.1
Depth of Water from top of casing	ft	77.61	62.12	78.4	77.47	AS_100v01
Groundwater Elevation	ft	-168.51	-153.02	-169.3	-168.37	
Specific Conductivity	µS/cm	5,600	6,210	5,780	5,330	SM 2510 B
TDS	mg/L	3,550	3,330	3,320	3,580	SM 2540 C
Chloride	mg/L	1,337	1,208	1,295	1,400	EPA 300.0
Sodium	mg/L	1,010	820	961	930	EPA 200.7
Sulfate	mg/L	804	628	775	810	EPA 300.0
Arsenic	mg/L	0.0049	0.0023	0.0037	0.0061	EPA 200.8
Barium	mg/L	0.0267	0.0210	0.0210	0.0238	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0347	0.0216	<0.0158	<0.0025	EPA 200.8

W309						
Constituents	Units	1/15/2014	5/16/2014	8/15/2014	11/7/2014	Method
pH		7.33	7.75	7.34	7.30	SM 4500-H+ B, pH
Temperature	°C	27.1	29.9	29.9	26.5	EPA 170.1
Depth of Water from top of casing	ft	62.67	62.75	62.79	62.47	AS_100v01
Groundwater Elevation	ft	-168.57	-168.65	-168.69	-168.37	
Specific Conductivity	µS/cm	6,600	6,150	6,700	6,510	SM 2510 B
TDS	mg/L	2,730	4,120	4,185	4,445	SM 2540 C
Chloride	mg/L	1,620	1,626	1,571	1,600	EPA 300.0
Sodium	mg/L	1,130	1,080	1,090	1,080	EPA 200.7
Sulfate	mg/L	1,014	1,009	989	1,000	EPA 300.0
Arsenic	mg/L	0.0050	0.0028	0.0045	0.0061	EPA 200.8
Barium	mg/L	0.0221	0.0153	0.0166	0.0180	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	<0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	<0.0001	<0.0002	EPA 200.8
Zinc	mg/L	0.0311	0.0203	<0.0158	<0.0025	EPA 200.8

DUPLICATE QC SAMPLE						
Constituents	Units	W 308	W10A	W11	W305	Method
		1/16/2014	5/9/2014	7/31/2014	11/7/2014	
pH		7.46	6.67	6.96	7.41	SM 4500-H+ B, pH
Temperature	°C	24.8	28.9	30.2	27.2	EPA 170.1
Depth of Water from top of casing	ft	77.61	61.99	62.89	63.00	AS_100v01
Groundwater Elevation	ft	-168.51	-179.99	-182.73	-169.75	
Specific Conductivity	µS/cm	5,610	13,310	11,410	6,000	SM 2510 B
TDS	mg/L	3,560	9,750	8,290	4,245	SM 2540 C
Chloride	mg/L	1,329	3,956	3,145	1,500	EPA 300.0
Sodium	mg/L	964	1,840	1,520	1,070	EPA 200.7
Sulfate	mg/L	803	2,105	2,051	810	EPA 300.0
Arsenic	mg/L	0.0036	0.0065	0.0466	0.0074	EPA 200.8
Barium	mg/L	0.0239	0.0255	0.0202	0.0209	EPA 200.8
Cadmium	mg/L	<0.0007	<0.0007	0.0005	<0.0010	EPA 200.8
Lead	mg/L	<0.0001	<0.0001	0.0002	<0.0002	EPA 200.8
Zinc	mg/L	0.0246	0.0306	<0.0158	0.0111	EPA 200.8

DVC Ground Water Monitoring Wells 95% Upper Confidence Interval Historical Data

Constituents	Units	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309
pH		7.21	7.20	7.06	7.27	7.19	7.73	7.81	8.22	7.89	7.85	7.81
Temperature	°C	31.2	32.8	31.8	31.3	31.4	31.6	31.6	32.0	31.8	34.3	32.4
Groundwater Elevation	ft	-178	-177	-178	-179	-179	-156	-168	-146	-151	-160	-167
Specific Conductivity	µS/cm	13,079	13,305	16,188	13,604	14,413	8,500	7,627	5,151	6,990	6,547	7,608
TDS	mg/L	8,502	9,793	12,018	9,598	9,884	5,164	5,254	3,139	4,682	5,037	5,238
Chloride	mg/L	3,564	3,476	4,500	3,635	3,898	2,139	2,202	1,084	1,667	1,618	1,891
Sodium	mg/L	2,102	1,839	2,304	2,131	2,106	1,419	1,498	1,040	4,320	1,289	1,622
Sulfate	mg/L	1,957	2,441	2,360	2,396	2,279	1,097	1,120	508	1,069	1,043	1,141
Arsenic	mg/L	0.0133	0.0176	0.0215	0.0610	0.0134	0.0101	0.0061	0.0054	0.0067	0.0066	0.0151
Barium	mg/L	0.0730	0.0455	0.0876	0.1534	0.0350	0.0315	0.0621	0.0373	0.0852	0.0568	0.0476
Cadmium	mg/L	0.0026	0.0022	0.0022	0.0017	0.0039	0.0018	0.0017	0.0017	0.0021	0.0026	0.0019
Lead	mg/L	0.0071	0.0027	0.0043	0.0068	0.0046	0.0137	0.0032	0.0033	0.0042	0.0042	0.0026
Zinc	mg/L	0.0679	0.0447	0.1807	0.0524	0.1130	0.0705	0.0519	0.0847	0.0477	0.0560	0.0444

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W01				W09A			
Date	1/15/2014	CSU	MDA	Date	1/14/2014	CSU	MDA
Gross alpha	2.82	16.6	40.7	Gross alpha	-2.96	22.5	56.6
Gross beta	3.75	22.0	46.7	Gross beta	41.9	32.2	63.4

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W10A				W 11			
Date	1/14/2014	CSU	MDA	Date	1/14/2014	CSU	MDA
Gross alpha	-16.3	27.9	74.2	Gross alpha	-7.12	19.2	49.9
Gross beta	-6.46	37.3	80.0	Gross beta	8.14	28.6	60.1

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W12				W302			
Date	1/14/2014	CSU	MDA	Date	1/15/2014	CSU	MDA
Gross alpha	8.74	19.0	41.9	Gross alpha	-1.77	9.18	25.5
Gross beta	-5.36	32.0	68.5	Gross beta	25.2	15.8	30.3

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W305				W306			
Date	1/15/2014	CSU	MDA	Date	1/15/2014	CSU	MDA
Gross alpha	8.08	11.4	23.3	Gross alpha	5.17	6.34	12.5
Gross beta	28.0	14.2	25.9	Gross beta	2.61	6.32	13.2

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W307				W308			
Date	1/15/2014	CSU	MDA	Date	1/16/2014	CSU	MDA
Gross alpha	1.48	6.49	16.4	Gross alpha	2.68	9.84	22.7
Gross beta	12.9	12.0	23.9	Gross beta	35.6	12.8	21.2

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W309				W 308 Duplicate			
Date	1/15/2014	CSU	MDA	Date	1/16/2014	CSU	MDA
Gross alpha	-3.07	9.53	26.0	Gross alpha	11.2	11.2	21.1
Gross beta	16.4	12.4	24.2	Gross beta	40.0	13.9	23.0

MDA = Minimum Detection Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L, 2nd Quarter 2014

W01				W09A			
Date	5/12/2014	CSU	MDA	Date	5/16/2014	CSU	MDA
Gross alpha	8.95	25.5	57.0	Gross alpha	-6.35	15.2	45.7
Gross beta	38.0	35.8	71.7	Gross beta	38.6	31.2	61.4

DVC Radiological Analysis pCi/L, 2nd Quarter 2014

W10A				W 11			
Date	5/9/2014	CSU	MDA	Date	5/12/2014	CSU	MDA
Gross alpha	-9.13	33.5	87.3	Gross alpha	21.7	20.3	34.3
Gross beta	36.2	57.4	118.0	Gross beta	39.8	32.3	63.7

DVC Radiological Analysis pCi/L, 2nd Quarter 2014

W12				W302			
Date	5/12/2014	CSU	MDA	Date	5/16/2014	CSU	MDA
Gross alpha	30.2	27.3	48.3	Gross alpha	30.4	18.5	27.3
Gross beta	31.4	31.3	62.7	Gross beta	39.0	18.7	34.0

DVC Radiological Analysis pCi/L, 2nd Quarter 2014

W305				W306			
Date	5/16/2014	CSU	MDA	Date	5/16/2014	CSU	MDA
Gross alpha	55.3	21.2	19.1	Gross alpha	7.56	8.24	15.6
Gross beta	39.2	20.6	38.4	Gross beta	-9.82	16.0	35.1

DVC Radiological Analysis pCi/L, 2nd Quarter 2014

W307				W308			
Date	5/16/2014	CSU	MDA	Date	5/16/2014	CSU	MDA
Gross alpha	12.1	14.8	29.3	Gross alpha	17.2	12.0	19.1
Gross beta	27.2	16.8	31.8	Gross beta	11.8	15.5	31.7

DVC Radiological Analysis pCi/L, 1st Quarter 2014

W309				W 10A Duplicate			
Date	5/16/2014	CSU	MDA	Date	5/9/2014	CSU	MDA
Gross alpha	1.52	14.9	34.6	Gross alpha	4.57	26.9	65.8
Gross beta	7.00	17.1	35.7	Gross beta	-30.6	64.7	142.0

MDA = Minimum Detection Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W01				W09A			
Date	8/7/2014	CSU	MDA	Date	7/31/2014	CSU	MDA
Gross alpha	-38.8	36.1	96.2	Gross alpha	-30.8	35.1	93.1
Gross beta	37.8	37.3	74.9	Gross beta	26.5	31.5	63.9

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W10A				W 11			
Date	7/31/2014	CSU	MDA	Date	7/31/2014	CSU	MDA
Gross alpha	46.7	55	109.0	Gross alpha	-48.3	38.2	106
Gross beta	95.3	60.7	116.0	Gross beta	40.4	35.4	70.2

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W12				W302			
Date	8/7/2014	CSU	MDA	Date	8/7/2014	CSU	MDA
Gross alpha	18.6	22.0	41.2	Gross alpha	-5.23	12.3	33.3
Gross beta	-21.4	37.8	82.3	Gross beta	11.6	19.6	40.6

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W305				W306			
Date	8/7/2014	CSU	MDA	Date	7/31/2014	CSU	MDA
Gross alpha	24.0	34.7	71.3	Gross alpha	2.17	13.1	29.5
Gross beta	5.99	36.1	76.2	Gross beta	-1.79	15.1	32.3

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W307				W308			
Date	8/15/2014	CSU	MDA	Date	8/15/2014	CSU	MDA
Gross alpha	18.3	19.4	37.8	Gross alpha	-7.87	21.2	50.4
Gross beta	87.5	24.3	36.6	Gross beta	-9.05	18.5	40.1

DVC Radiological Analysis pCi/L, 3rd Quarter 2014

W309				W 11 Duplicate			
Date	8/15/2014	CSU	MDA	Date	7/31/2014	CSU	MDA
Gross alpha	12.2	17.7	36.5	Gross alpha	-69.2	45	126.0
Gross beta	35.30	19	35.4	Gross beta	-27.6	38.9	85.1

MDA = Minimum Detection Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L 4th Quarter 2014

W01				W09A			
Date	11/6/2014	CSU	MDA	Date	11/6/2014	CSU	MDA
Gross alpha	0.0	24.1	57.9	Gross alpha	23.6	20.2	32.7
Gross beta	-25.8	31.6	69.8	Gross beta	33.2	30.8	61.5

DVC Radiological Analysis pCi/L 4th Quarter 2014

W10A				W 11			
Date	11/6/2014	CSU	MDA	Date	11/6/2014	CSU	MDA
Gross alpha	0.0	39.1	92.6	Gross alpha	15.2	13.4	9.13
Gross beta	17.6	56.4	119	Gross beta	-14.7	31.9	69.6

DVC Radiological Analysis pCi/L 4th Quarter 2014

W12				W302			
Date	11/6/2014	CSU	MDA	Date	11/6/2014	CSU	MDA
Gross alpha	-3.66	31.3	76.9	Gross alpha	-10.5	12.1	34.0
Gross beta	28.1	37.7	77.1	Gross beta	25.4	17.3	33.4

DVC Radiological Analysis pCi/L 4th Quarter 2014

W305				W306			
Date	11/7/2014	CSU	MDA	Date	11/7/2014	CSU	MDA
Gross alpha	16.3	21.2	42.8	Gross alpha	-2.81	7.59	19.7
Gross beta	-7.64	30.6	66.3	Gross beta	20.1	17.4	34.6

DVC Radiological Analysis pCi/L 4th Quarter 2014

W307				W308			
Date	11/7/2014	CSU	MDA	Date	11/6/2014	CSU	MDA
Gross alpha	7.75	15.2	32.8	Gross alpha	-23.6	18.7	51.8
Gross beta	9.23	30.7	64.5	Gross beta	-14.0	30.6	66.7

DVC Radiological Analysis pCi/L 4th Quarter 2014

W309				W 305 Duplicate			
Date	11/7/2014	CSU	MDA	Date	11/7/2014	CSU	MDA
Gross alpha	-1.91	12.4	32.4	Gross alpha	18.1	11.4	5.44
Gross beta	17.6	30.3	62.7	Gross beta	-20.7	29.2	64.3

MDA = Minimum Detection Activity

CSU = Combined Standard Uncertainty (2-sigma)

Attachment D

Site Map
Area Filled With Geothermal Material in the Last Year

N

SCALE IN FEET
0 50 100 200

W305

W309

W307

Z7

DVC OFFICES

SW1

PROCESS WATER WELL

W308

W10A

Z3

W09A

Z4

CELL 1

Closed Cells 1 & 2

CELL 3

Processing Area D

Processing Area A

Processing Area B

Processing Area C

SW2

W306

Z2

W11

CELL 2

Z5

Z6

W12

W302

W01

DVC MONOFILL FACILITY
MONITORING WELL LOCATIONS

CAL ENERGY OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

REV	DATE	DESCRIPTION	BY	APRV

REVISION RECORD

ISSUE	DATE	REV	DESCRIPTION

ISSUE RECORD

last printed: Thursday, January 24, 2013 4:20:56 PM

ENGINEERING MGR:
PROJECT MGR: K CAMPBELL
PROJECT ENG:
DRAWN BY: J HULA
DRAWN DATE: 9/9/2010

DESERT VALLEY COMPANY
MONOFILL FACILITY
GROUND WATER
MONITORING WELL PLAN

W:\Drafting-IV\2 Groundwater Monitoring Wells\18-0901-DY-02_12.DWG

PROJECT NUMBER

DRAWING NUMBER
18-1003-GA-22_0
SHEET NUMBER
020

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Part II

Direct Monitoring of all Constituents of Concern Report (Every 5 Years)

Attachment A

Summary of Conditions and Responses

Direct Monitoring of all Constituents of Concern (Every 5 Years)

Part II.B.2. Groundwater Monitoring

- Direct monitoring of all constituents of concern required every five years. Please see attachment "B"
-

E.1.b. Compliance evaluation summary

1) Velocity and direction of groundwater flow

- Please see Part II, B.5. and Attachment "C"

2) Pre-sampling Purge for Samples Obtained From Wells

- Monitoring wells addressed by this report are sampled by utilizing bladder pumps located in the wells. The wells are purged at a rate of approximately 0.5 gallons per minute. The amount of water purged from each well during sampling events is minimal, therefore well recovery time is not an issue. Purged water is discharged to the on-site leachate pond.
- pH, conductivity, and temperature measurements are performed in the field with a Symphony meter. The samples are collected in a sample cup, and a pH, conductivity, and temperature probe is placed in the samples to obtain the required readings. A Symphony pH meter, calibrated with 4 and 7 pH buffers, is used for pH measurements. A Symphony conductivity meter, calibrated using a 111.9 milli-siemens standard, is used for conductivity measurements. Both meters are calibrated prior to each sampling event.
- The water levels in the wells are measured by a portable water level indicator. The total depth of the well is also recorded at every sampling event.

3) Sampling

- Monitoring points addressed by this report are sampled by utilizing bladder pumps located in the wells. Sample volumes and analysis conducted are listed below. A duplicate is collected for one well during each sampling period. Collected samples are stored on ice.
    - 500 ml raw sample (plastic bottle) - TDS, chloride, fluoride, nitrate, and sulfate
    - 125 ml sample preserved with 1% nitric acid, filtered with inline 0.45 micron filter (plastic bottle) - Sodium
    - 500 ml sample preserved with 1% nitric acid, filtered with inline 0.45 micron filter (plastic bottle) - EPA 6020B arsenic, barium, cadmium, lead and zinc
    - 1,000 ml sample filtered with inline 0.45 micron filter (plastic bottle) - Gross alpha, gross beta, and gamma scan

- The sampler has completed a two-week in-house training on sampling groundwater monitoring and background wells as well as, completion of "The Complete Ground Water Sampling Field Course" provided by Nielson Ground Water Science Inc.

E.1.c. Map showing locations of observation stations, monitoring points and background monitoring points.

- Please see Attachment "C"

E.1.d. For each COC Report, include laboratory statements of results of all analysis demonstrating compliance.

- Sample collection, storage, and analysis was performed according to the most recent version of Standard USEPA methods, and in accordance with an approved sampling and analysis plan. All sample analysis was performed by laboratories approved by the State of California. All monitoring instruments and equipment were properly calibrated and maintained to ensure accuracy of measurements.

E.1.e. Through observation and routine maintenance, evaluate the effectiveness of stormwater run-off/run-on control facilities (berms, etc).

- Physical stormwater run-off/run-on controls are inspected routinely and are in good condition. The current Storm Water Pollution Prevention Plan for the facility is adequate for stormwater run-off control.

Attachment B

"Direct Monitoring" of all Constituents of Concern (Every 5 Years)

2014 DVC 5-Year COC Report - Summary Tables of Analyses

Summary Tables of Analyses													
Constituent/Parameter	Units	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Date		10/1/2014	9/30/2014	9/30/2014	9/30/2014	10/1/2014	10/8/2014	10/1/2014	10/8/2014	10/2/2014	10/2/2014	10/2/2014	
pH		6.92*/7.04	7.05*/7.00	6.72*/7.01	6.88*/7.20	6.92*/7.10	7.25*/7.10	7.42*/7.62	7.59*/7.75	7.51*/7.57	7.49*/7.43	7.32*/7.32	SM 4500H+- B
*Temperature	°C	27.3	27.3	28.2	29.6	26.9	29.1	29.1	29.5	26.6	28.4	24.7	EPA 170.1
*Groundwater Elevations from top of casing	ft	66.19	60.71	62.24	62.42	63.11	61.16	95.6	59.46	63.71	78.12	62.93	AS_100v01
Groundwater Elevation	ft	-181.55	-181.21	-180.24	-182.26	-182.13	-159.48	-202.35	-149.10	-169.11	-169.02	-168.83	
*Specific Conductivity	µS/cm	11,650	11,680	13,990	11,580	12,600	7,290	6,360	3,750	6,440	5,670	7,000	SM 2510 B
TDS	mg/L	8,300	14	11,000	9,600	9,300	4,200	4,100	1,900	3,900	3,400	4,400	SM 2540 C

*Field Reading

Fluoride and Nitrate														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Fluoride	mg/L	0.50	0.56	ND	ND	ND	ND	0.82	0.90	1.40	1.10	1.30	1.00	EPA 300.0
Nitrate as NO3	mg/L	0.50	0.66	3.00	ND	3.70	1.00	ND	ND	ND	0.61	ND	1.2	EPA 353.2

Chlorinated Pesticides and/or PCBs														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Chlorinated Pesticides and/or PCBs	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 8081A

Polychlorinated Biphenyls(PCBs)														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
PCB	ug/L	1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 8082

2,3,7,8- Tetra CDD														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
2,3,7,8- Tetra CDD	pg/L	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 1613B m

2014 DVC 5-Year COC Report - Summary Tables of Analyses

Chlorinated Herbicides														
Date			10/1/2014	9/30/2014	9/30/2014	9/30/2014	10/1/2014	10/8/2014	10/1/2014	10/8/2014	10/2/2014	10/2/2014	10/2/2014	
Constintuent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Chlorinated Herbicides	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 8151A

Volatile Organic Compounds														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
VOC	ug/L		ND	ND**	ND**	ND	ND	ND	ND	ND	ND	ND	ND	EPA 8260B
**Except Toluene	ug/L	1.00	N/A	3.8	3.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	EPA 8260B

Semivolatile Organic Compounds														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Semivolatile Organics	ug/L		ND	ND	ND	ND	ND	ND	ND	ND***	ND	ND	ND	EPA 8270C
***Except Bis(2-ethylhexyl)phthalate	ug/L	5.00	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	EPA 8270C
Total Cyanide														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Cyanide	ug/L	2.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ASTM D7511

Total Sulfide														
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Sulfide	mg/L	0.1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 9034

2014 DVC 5-Year COC Report - Summary Tables of Analyses

Title 22 Metals														
Date			10/1/2014	9/30/2014	9/30/2014	9/30/2014	10/1/2014	10/8/2014	10/1/2014	10/8/2014	10/2/2014	10/2/2014	10/2/2014	
Constituent	Units	MRL	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309	Method
Tin	mg/L	0.0200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Mercury	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 7470A
Antimony	mg/L	0.0400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Arsenic	mg/L	0.0100	ND	0.012	ND	0.09	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Barium	mg/L	0.0100	0.033	0.0290	0.029	0.11	0.024	0.022	0.020	0.028	0.019	0.023	0.016	EPA 6010B
Beryllium	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Cadmium	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Chromium	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	0.014	ND	0.052	EPA 6010B
Cobalt	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Copper	mg/L	0.0200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Lead	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Molybdenum	mg/L	0.0100	ND	0.024	ND	0.023	0.012	ND	ND	0.019	0.018	0.0220	0.017	EPA 6010B
Nickel	mg/L	0.0100	ND	ND	ND	ND	ND	ND	ND	ND	0.022	ND	0.05	EPA 6010B
Selenium	mg/L	0.0300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Silver	mg/L	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Thallium	mg/L	0.0500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Vanadium	mg/L	0.0100	ND	ND	ND	0.013	ND	ND	ND	ND	ND	ND	ND	EPA 6010B
Zinc	mg/L	0.0500	ND	ND	ND	0.079	ND	ND	0.14	ND	ND	ND	ND	EPA 6010B

Gross Alpha/Beta and Gamma Summary Table of Analyses - 2014 DVC 5 Year COC Report													
Constituent	Units	W01	W09A	W10A	W11	W11 Dup	W12	W302	W305	W306	W307	W308	W309
Date		8/7/2014	7/31/2014	7/31/2014	7/31/2014	7/31/2014	8/7/2014	8/7/0214	8/7/2014	7/31/2014	8/15/2014	8/15/2014	8/15/2014
Gross Alpha	pCi/L	-38.8 ± 36.1	-30.8 ± 35.1	46.7 ± 55	-48.3 ±38.2	-69.2 ± 45	18.6 ± 22.0	-5.23 ± 12.3	24 ± 34.7	2.17 ± 13.1	18.3 ± 19.4	-7.87 ± 21.2	12.2 ± 17.7
Gross Beta	pCi/L	37.8 ± 37.3	26.5 ± 31.5	95.3 ± 60.7	40.4 ± 35.4	-27.6 ± 38.9	-21.4 ± 37.8	11.6 ± 19.6	5.99 ± 36.1	-1.79 ± 15.1	87.5 ± 24.3	-9.05 ± 18.5	35.30 ± 19
K40	pCi/L	97.5	<97.2	<88.9	107.0	111.0	<89.9	95.6	<73.4	85.1	<98.1	<105.0	<85.9
Co60	pCi/L	<6.39	<5.46	<8.42	<6.39	<5.96	<5.85	<5.60	<5.04	<6.02	<7.90	<9.91	<5.19
Cs137	pCi/L	<6.37	<6.41	<7.80	4.71	<6.34	<6.09	<6.08	<5.49	<5.89	<7.54	<9.69	<5.76
Ra226	pCi/L	37.2	14.2	<15.8	<18.5	<18.1	<12.8	<17.7	<12.3	<12.8	<14.1	<18.4	<17.3
Th228	pCi/L	<24.2	<23.8	<28.2	<22.4	<21.9	<20.9	<22.4	<22.1	<21.6	<24.3	<34.9	<20.9
Th232	pCi/L	<18.5	<17.5	<20.5	<18.0	<18.5	<18.2	<18.0	<16.7	<17.9	<21.2	<25.2	<17.9

CALENERGY OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW01
Facility: DVC

Well Type: Monitoring
Date: 10-1-14

Starting Water Level (ft TOC): 66.19
Total epth (ft TOC): 75.37

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	9:05	0.0	7.05	28.6	13080			
	9:10	0.5	6.93	27.6	11650			
	9:15	1.0	6.92	27.3	11650			
							pH RPD	0.14
							Conductivity RPD	0
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 73.19

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
9:17	40 ml	vial	3	no		no	clear	no
9:20	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
9:35	250mL	plastic	3	no			clear	no
9:40	250mL	plastic	1	yes	Nitric Acid		clear	no
9:41	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW09A
Facility: DUC

Well Type: Monitoring
Date: 9-30-14

Starting Water Level (ft TOC): 60.71
Total epth (ft TOC): 86.00

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	8:55	0 0	7.19	25.8	14370			
			~~6.40~~	~~27.7~~	~~13220~~			
	9.00	0.5	6.90	27.7	12200			
	9.05	1.0	7.05	27.3	11680			
							pH RPD	2.15
							Conductivity RPD	4.36
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 64.75

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
9:06	40 ml	vial	3	no		no	clear	no
9:10	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
9:25	250mL	plastic	3	no			clear	no
9:26	250mL	plastic	1	yes	Nitric Acid		clear	no
9:30	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments: 1-3 KW 9-30-14 E

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW10A
Facility: DNC

Well Type: Monitoring
Date: 9.30-14

Starting Water Level (ft TOC): 62.24
Total epth (ft TOC): 70.09

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	7:50	0.0	6.79	25.1	15340			
	7:55	0.5	6.73	26.7	14240			
	8:00	1.0	6.72	28.7	13990			
							pH RPD	0.15
							Conductivity RPD	1.77
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 62.11

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
8:05	40 ml	vial	3	no		no	clear	no
8:10	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
8:25	250mL	plastic	3	no			clear	no
8:30	250mL	plastic	1	yes	Nitric Acid		clear	no
8:35	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: Containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VR 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW 11
Facility: DVC

Well Type: Monitoring
Date: 9-30-14

Starting Water Level (ft TOC): 62.42
Total epth (ft TOC): 76.91

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	9:45	0.0	6.87	31.0	13730			
	9:50	0.5	6.95	29.7	11220			
	9:55	1.0	6.88	29.6	11580			
							pH RPD	1.01
							Conducticity RPD	3.16
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 71.21

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
9:56	40 ml	vial	3	no		no	brown	yes
10:00	1000 ml	amber	8	no		no	brown	yes
	500 ml	plastic		yes	Nitric acid	yes		
10:10	250mL	plastic	3	no			brown	yes
10:14	250mL	plastic	1	yes	Nitric Acid		brown	yes
10:17	500 ml	plastic	2	no		no	brown	yes
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW 12
Facility: DVC

Well Type: Monitoring
Date: 10-1-14

Starting Water Level (ft TOC): 63.11
Total epth (ft TOC): 68.71

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	8:05	0.0	6.83	24.5	16120			
	8:10	0.5	6.83	26.6	12700			
	8:15	1.0	6.92	26.9	~~13600~~ 12600	KW 10-2-14 E		
							pH RPD	1.31
							Conductivity RPD	0.79
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 67.92

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
8:16	40 ml	vial	3	no		no	clear	no
8:17	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
8:30	250mL	plastic	3	no			clear	no
8:35	250mL	plastic	1	yes	Nitric Acid		clear	no
8:39	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW302
Facility: DVC

Well Type: Monitoring
Date: 10.8.14

Starting Water Level (ft TOC): 61.16
Total epth (ft TOC): 67.81

Quality Control Section

pH Calibration Logbook: #7, pg 89
Conductivity Calibration Logbook: #130, pg16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	8:49	0.0	7.15	30.2	7110			
	8:54	0.5	7.21	29.5	7300			
	8:59	1.0	7.25	29.1	7290			
							pH RPD	0.55
							Conductivity RPD	0.14
							Turbidity RPD	-0-

* If required by DR permits, NA = Not Applicable

KU 10.8.14

Ending water Level (ft TOC): 62.22

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance: Color	Appearance: Turbidity & Sediments
	125 ml	plastic		no		no		
9:01	40 ml	vial	3	no		no	clear	no
9:03	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
9:27	250mL	plastic	3	no			clear	no
2:29	250mL	plastic	1	yes	Nitric Acid		clear	no
9:33	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor WB 10/13/14

CALENERGY OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW 305
Facility: DVC

Well Type: Monitoring
Date: 10-1-14

Starting Water Level (ft TOC): 64.11
Total epth (ft TOC): 72.63

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	10:03	0.0	7.58	31.5	7580			
	10:08	0.5	7.41	29.9	6310			
	10:13	1.0	7.42	29.1	6360			
							pH RPD	0.13
							Conductivity RPD	0.79
							Turbidity RPD	

* if required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 68.88

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
9:14	40 ml	vial	3	no		no	clear	no
9:15	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
9:35	250 mL	plastic	3	no			clear	no
9:36	250 mL	plastic	1	yes	Nitric Acid		clear	no
9:41	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VBS 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW 306
Facility: DVC

Well Type: Monitoring
Date: 10-8-14

Starting Water Level (ft TOC): 59.46
Total epth (ft TOC): 61.97

Quality Control Section

pH Calibration Logbook: #7, pg 89
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	7:36	0.0	7.65	30.7	4,350			
	7:41	0.5	7.60	29.4	3,790			
	7:46	1.0	7.59	29.5	3,750			
							pH RPD	0.13
							Conducticity RPD	1.06
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 59.34

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
7:51	40 ml	vial	3	no		no	clear	no
8:03	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
8:21	250mL	plastic	3	no			clear	no
8:24	250mL	plastic	1	yes	Nitric Acid		clear	no
8:27	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments.

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW 307
Facility: DVC

Well Type: Monitoring
Date: 10-2-14

Starting Water Level (ft TOC): 63.71
Total epth (ft TOC): 66.03

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	9:22	0.0	7.41	30.5	10890			
	9:27	0.5	7.50	27.1	6450			
	9:32	1.0	7.51	26.6	6440			
							pH RPD	0.18
							Conductivity RPD	0.16
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 63.92

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
9:33	40 ml	vial	3	no		no	clear	no
9:37	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
KW10-2-NE 9:52 9:52	250 mL	plastic	3	no			clear	no
9:55	250 mL	plastic	1	yes	Nitric Acid		clear	no
9:56	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder Pump
Sampling Equipment: Bladder Pump
Disposal of Discharge water: Containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/13/14

CALENERGY
OPERATING CORPORATION

Ground Water Sampling Record

Well Number GW 308
Facility DVC

Well Type: Monitoring
Date: 10-2-14

Starting Water Level (ft TOC): 78.12
Total epth (ft TOC): 82.54

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	10:20	0.0	①~~7.59~~ 7.57	33.3	5510			
	10:25	0.5	7.50	29.7	5590			
	10:30	1.0	③~~7.49~~ 7.44	28.4	5670			
							pH RPD	0.13
							Conductivity RPD	1.42
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 78.32

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
10:31	40 ml	vial	3	no		no	clear	no
10:33	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
10:51	250mL	plastic	3	no			clear	no
10:54	250mL	plastic	1	yes	Nitric Acid		clear	no
10:56	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: containment
Observation & Comments: ① KW 10-2-14 E ③ KW 10-2-14 E

Sampling and measurments done by: Katie West
QA/QC Supevisor VB 10/03/14

CALENERGY OPERATING CORPORATION

Ground Water Sampling Record

Well Number: GW309
Facility: DVC

Well Type: Monitoring
Date: 10-2-14

Starting Water Level (ft TOC): 62.93
Total epth (ft TOC): 66.37

Quality Control Section

pH Calibration Logbook: #7, pg 87
Conductivity Calibration Logbook: #130, pg 16
Turbidity Meter Calibratio Logbook:

Stability Criteria

pH	0.10
Temperature	±10%
Conductivity	±10%
Turbidity	Turbidity has been reduced to 10 NTUs or the lowest practical achievable

Sampling Measurements

LIMS	Time	Vol (gal)	VWR portable pH	Temp°C	VWR Portable Conductivity (µS/cm)	Turbidity (NTU)		RPD
	8:20	0.0	7.56	26.5	9940			
	8:25	0.5	7.25	24.0	7160			
	8:30	1.0	7.32	24.7	7000			
							pH RPD	0.96
							Conductivity RPD	2.26
							Turbidity RPD	

* If required by DR permits, NA = Not Applicable

Ending water Level (ft TOC): 63.00

Sample Inventory

Sample Collection Time	Volume	Bottle type	Quality	Preserve	Preserved with	Filter 0.45 µm	Appearance Color	Appearance Turbidity & Sediments
	125 ml	plastic		no		no		
8:31	40 ml	vial	3	no		no	clear	no
8:33	1000 ml	amber	8	no		no	clear	no
	500 ml	plastic		yes	Nitric acid	yes		
8:51	250mL	plastic	3	no			clear	no
8:52	250mL	plastic	1	yes	Nitric Acid		clear	no
8:55	500 ml	plastic	2	no		no	clear	no
	125 ml	plastic		yes		yes		
	500 ml	plastic		yes		yes		
	1000 ml	plastic		yes		yes		

Method: pH Standard Methods 4500 H+B; Conductivity Standard method 2510B;
Turbidity EPA 180.1; Sample Collection AS_100v01 Ground Water Sampling Procedure
Decon Equipment:
Purging Equipment: Bladder pump
Sampling Equipment: Bladder pump
Disposal of Discharge water: Containment
Observation & Comments:

Sampling and measurments done by: Katie West
QA/QC Supevisor WS 10/13/14

CERTIFICATE OF ANALYSIS

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Attention: Antonio Campos

Phone: 760-348-4241

Fax: (760) 348-4222

Work Order(s): 4J09025

Report Date: 11/07/14 15:11

Received Date: 10/09/14 10:10

Turn Around: Normal

Client Project: DVC 5 Year

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Antonio Campos :

Enclosed are the results of analyses for samples received 10/09/14 10:10 with the Chain of Custody document. The samples were received in good condition, at 1.0 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Case Narrative:

Reviewed by:

Kim G Tu
Project Manager

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
DVC Monitoring Well GW302	Katherine West		4J09025-01	Water	10/09/14 10:10
DVC Monitoring Well GW306	Katherine West		4J09025-02	Water	10/09/14 07:46
DVC Monitoring Well GW11	Katherine West		4J09025-03	Water	10/09/14 09:45
DVC Monitoring Well GW10A	Katherine West		4J09025-04	Water	10/09/14 10:01
DVC Monitoring Well GW09A	Katherine West		4J09025-05	Water	10/09/14 09:54

ANALYSES

Anions by IC, EPA Method 9056

Chlorinated Herbicides

Chlorinated Pesticides and/or PCBs

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

EPA 1613B m

Metals (Aqueous) by EPA 6000/7000 Series Methods

Polychlorinated Biphenyls by EPA Method 8082

Semivolatile Organic Compounds by GC/MS

Subcontracted Analyses

Volatile Organic Compounds by EPA Method 8260B

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 DVC Monitoring Well GW302

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0909 Prepared: 10/17/14 17:44 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**0.82**	0.50	mg/l	5	10/18/14 01:22	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0441 Prepared: 10/09/14 16:20 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/14/14 17:24	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/14/14 17:24	
2,4-D	ND		0.50	ug/l	1	10/14/14 17:24	
2,4-DB	ND		2.5	ug/l	1	10/14/14 17:24	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/14/14 17:24	
4-Nitrophenol	ND		1.2	ug/l	1	10/14/14 17:24	
Acifluorfen	ND		0.50	ug/l	1	10/14/14 17:24	
Bentazon	ND		2.5	ug/l	1	10/14/14 17:24	
Dalapon	ND		0.50	ug/l	1	10/14/14 17:24	
DCPA	ND		0.25	ug/l	1	10/14/14 17:24	
Dicamba	ND		0.75	ug/l	1	10/14/14 17:24	
Dichloroprop	ND		1.0	ug/l	1	10/14/14 17:24	
Dinoseb	ND		0.50	ug/l	1	10/14/14 17:24	
MCPA	ND		100	ug/l	1	10/14/14 17:24	
MCPP	ND		100	ug/l	1	10/14/14 17:24	
Pentachlorophenol	ND		0.25	ug/l	1	10/14/14 17:24	
Picloram	ND		0.75	ug/l	1	10/14/14 17:24	
Surr: 2,4-DCAA	*91 %*	Conc:*17.3*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0579 Prepared: 10/13/14 08:11 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/17/14 21:13	
4,4´-DDE	ND	0.050	ug/l	1	10/17/14 21:13	
4,4´-DDT	ND	0.050	ug/l	1	10/17/14 21:13	
Aldrin	ND	0.050	ug/l	1	10/17/14 21:13	
alpha-BHC	ND	0.050	ug/l	1	10/17/14 21:13	
beta-BHC	ND	0.050	ug/l	1	10/17/14 21:13	
Chlordane (tech)	ND	0.50	ug/l	1	10/17/14 21:13	
delta-BHC	ND	0.050	ug/l	1	10/17/14 21:13	
Dieldrin	ND	0.050	ug/l	1	10/17/14 21:13	
Endosulfan I	ND	0.050	ug/l	1	10/17/14 21:13	
Endosulfan II	ND	0.050	ug/l	1	10/17/14 21:13	
Endosulfan sulfate	ND	0.050	ug/l	1	10/17/14 21:13	
Endrin	ND	0.050	ug/l	1	10/17/14 21:13	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 DVC Monitoring Well GW302

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0579 Prepared: 10/13/14 08:11 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/17/14 21:13	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/17/14 21:13	
Heptachlor	ND		0.050	ug/l	1	10/17/14 21:13	
Heptachlor epoxide	ND		0.050	ug/l	1	10/17/14 21:13	
Methoxychlor	ND		0.050	ug/l	1	10/17/14 21:13	
Toxaphene	ND		2.0	ug/l	1	10/17/14 21:13	
Surr: Decachlorobiphenyl	*80 %*	Conc:*0.381*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*96 %*	Conc:*0.457*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0489 Prepared: 10/09/14 14:28 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 Batch: W4J0564 Prepared: 10/10/14 17:29 Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	ND	0.50	mg/l	1	10/10/14 18:41	

Method: EPA 9034 Batch: W4J0616 Prepared: 10/13/14 11:12 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/13/14 12:30	

Method: SM 2540C Batch: W4J0700 Prepared: 10/14/14 16:52 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**4200**	10	mg/l	1	10/14/14 18:45	

Method: SM 4500H+-B Batch: W4J0512 Prepared: 10/09/14 18:45 Analyst: Lin Chai

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.10**	0.10	Units	1	10/09/14 20:23	*

EPA 1613B m

Method: EPA 1613B m Batch: 3795713 Prepared: 10/16/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		3.6	pg/L	1	10/23/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*88 %*	Conc:*176*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*94 %*	Conc:*188*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J1009 Prepared: 10/21/14 09:46 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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7030 Gentry Rd.
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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J1009 Prepared: 10/21/14 09:46 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/22/14 16:32	
Arsenic, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Barium, Total	**0.022**	0.010	mg/l	1	10/22/14 16:32	
Beryllium, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Cadmium, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Chromium, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Cobalt, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Copper, Total	ND	0.020	mg/l	1	10/22/14 16:32	
Lead, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Molybdenum, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Nickel, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Selenium, Total	ND	0.030	mg/l	1	10/22/14 16:32	
Silver, Total	ND	0.0050	mg/l	1	10/22/14 16:32	
Thallium, Total	ND	0.050	mg/l	1	10/22/14 16:32	
Tin, Total	ND	0.020	mg/l	1	10/22/14 16:32	
Vanadium, Total	ND	0.010	mg/l	1	10/22/14 16:32	
Zinc, Total	ND	0.050	mg/l	1	10/22/14 16:32	

Method: EPA 7470A Batch: W4J0531 Prepared: 10/10/14 09:35 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/14/14 17:56	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0580 Prepared: 10/13/14 08:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1221	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1232	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1242	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1248	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1254	ND		1.0	ug/l	1	10/17/14 21:13	
Aroclor 1260	ND		1.0	ug/l	1	10/17/14 21:13	
Surr: Decachlorobiphenyl	*72 %*	Conc:*0.344*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*85 %*	Conc:*0.405*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/21/14 17:24	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:24	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/21/14 17:24	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
1,4-Naphthoquinone	ND	10	ug/l	1	10/21/14 17:24	
1,4-Phenylenediamine	ND	10	ug/l	1	10/21/14 17:24	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/21/14 17:24	
1-Naphthylamine	ND	10	ug/l	1	10/21/14 17:24	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/21/14 17:24	
2,4-Dinitrophenol	ND	10	ug/l	1	10/21/14 17:24	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/21/14 17:24	
2,6-Dichlorophenol	ND	10	ug/l	1	10/21/14 17:24	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/21/14 17:24	
2-Acetylaminofluorene	ND	10	ug/l	1	10/21/14 17:24	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/21/14 17:24	
2-Chlorophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/21/14 17:24	
2-Methylphenol	ND	1.0	ug/l	1	10/21/14 17:24	
2-Naphthylamine	ND	10	ug/l	1	10/21/14 17:24	
2-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:24	
2-Nitrophenol	ND	1.0	ug/l	1	10/21/14 17:24	
2-Picoline	ND	10	ug/l	1	11/03/14 16:41	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/21/14 17:24	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/21/14 17:24	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/21/14 17:24	
3-Methylcholanthrene	ND	10	ug/l	1	10/21/14 17:24	
3-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:24	
4,4´-DDD	ND	5.0	ug/l	1	10/21/14 17:24	
4,4´-DDE	ND	5.0	ug/l	1	10/21/14 17:24	
4,4´-DDT	ND	5.0	ug/l	1	10/21/14 17:24	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/21/14 17:24	
4-Aminobiphenyl	ND	10	ug/l	1	10/21/14 17:24	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/21/14 17:24	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/21/14 17:24	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chloroaniline	ND	1.0	ug/l	1	10/21/14 17:24	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/21/14 17:24	
4-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:24	
4-Nitrophenol	ND	5.0	ug/l	1	10/21/14 17:24	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/21/14 17:24	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/21/14 17:24	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/21/14 17:24	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/21/14 17:24	
Acenaphthene	ND	1.0	ug/l	1	10/21/14 17:24	
Acenaphthylene	ND	1.0	ug/l	1	10/21/14 17:24	
Acetophenone	ND	10	ug/l	1	10/21/14 17:24	
Aldrin	ND	5.0	ug/l	1	10/21/14 17:24	
alpha-BHC	ND	5.0	ug/l	1	10/21/14 17:24	
Aniline	ND	1.0	ug/l	1	10/21/14 17:24	
Anthracene	ND	1.0	ug/l	1	10/21/14 17:24	
Aramite	ND	10	ug/l	1	11/03/14 16:41	
Benzidine	ND	10	ug/l	1	10/21/14 17:24	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/21/14 17:24	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/21/14 17:24	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/21/14 17:24	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/21/14 17:24	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/21/14 17:24	
Benzoic acid	ND	100	ug/l	1	10/21/14 17:24	
Benzyl alcohol	ND	1.0	ug/l	1	10/21/14 17:24	
beta-BHC	ND	5.0	ug/l	1	10/21/14 17:24	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/21/14 17:24	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/21/14 17:24	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/21/14 17:24	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/21/14 17:24	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/21/14 17:24	
Chlorobenzilate	ND	10	ug/l	1	10/21/14 17:24	
Chrysene	ND	1.0	ug/l	1	10/21/14 17:24	
delta-BHC	ND	5.0	ug/l	1	10/21/14 17:24	
Diallate (cis or trans)	ND	10	ug/l	1	10/21/14 17:24	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/21/14 17:24	
Dibenzofuran	ND	1.0	ug/l	1	10/21/14 17:24	
Dieldrin	ND	5.0	ug/l	1	10/21/14 17:24	
Diethyl phthalate	ND	1.0	ug/l	1	10/21/14 17:24	
Dimethoate	ND	10	ug/l	1	10/21/14 17:24	
Dimethyl phthalate	ND	1.0	ug/l	1	10/21/14 17:24	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethylaminoazobenzene	ND	10	ug/l	1	10/21/14 17:24	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/21/14 17:24	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/21/14 17:24	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/21/14 17:24	
Disulfoton	ND	10	ug/l	1	10/21/14 17:24	
Endosulfan I	ND	10	ug/l	1	10/21/14 17:24	
Endosulfan II	ND	10	ug/l	1	10/21/14 17:24	
Endosulfan sulfate	ND	5.0	ug/l	1	10/21/14 17:24	
Endrin	ND	5.0	ug/l	1	10/21/14 17:24	
Endrin aldehyde	ND	5.0	ug/l	1	10/21/14 17:24	
Ethyl methanesulfonate	ND	10	ug/l	1	10/21/14 17:24	
Famphur	ND	10	ug/l	1	10/21/14 17:24	
Fluoranthene	ND	1.0	ug/l	1	10/21/14 17:24	
Fluorene	ND	1.0	ug/l	1	10/21/14 17:24	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/21/14 17:24	
Heptachlor	ND	5.0	ug/l	1	10/21/14 17:24	
Heptachlor epoxide	ND	5.0	ug/l	1	10/21/14 17:24	
Hexachlorobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/21/14 17:24	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/21/14 17:24	
Hexachloroethane	ND	1.0	ug/l	1	10/21/14 17:24	
Hexachlorophene	ND	50	ug/l	1	11/03/14 16:41	
Hexachloropropene	ND	10	ug/l	1	10/21/14 17:24	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/21/14 17:24	
Isodrin	ND	10	ug/l	1	10/21/14 17:24	
Isophorone	ND	1.0	ug/l	1	10/21/14 17:24	
Isosafrole	ND	10	ug/l	1	10/21/14 17:24	
Kepone	ND	50	ug/l	1	10/21/14 17:24	
Methapyrilene	ND	50	ug/l	1	10/21/14 17:24	
Methoxychlor	ND	5.0	ug/l	1	10/21/14 17:24	
Methyl methanesulfonate	ND	10	ug/l	1	10/21/14 17:24	
Methyl parathion	ND	10	ug/l	1	10/21/14 17:24	
Naphthalene	ND	1.0	ug/l	1	10/21/14 17:24	
Nitrobenzene	ND	1.0	ug/l	1	10/21/14 17:24	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/21/14 17:24	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/21/14 17:24	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/21/14 17:24	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/21/14 17:24	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/21/14 17:24	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/21/14 17:24	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 DVC Monitoring Well GW302

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosomorpholine	ND		10	ug/l	1	10/21/14 17:24	
N-Nitrosopiperidine	ND		10	ug/l	1	10/21/14 17:24	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/21/14 17:24	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/21/14 17:24	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/21/14 17:24	
o-Toluidine	ND		10	ug/l	1	10/21/14 17:24	
Parathion	ND		10	ug/l	1	10/21/14 17:24	
Pentachlorobenzene	ND		10	ug/l	1	10/21/14 17:24	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/21/14 17:24	
Pentachlorophenol	ND		1.0	ug/l	1	10/21/14 17:24	
Phenacetin	ND		10	ug/l	1	10/21/14 17:24	
Phenanthrene	ND		1.0	ug/l	1	10/21/14 17:24	
Phenol	ND		1.0	ug/l	1	10/21/14 17:24	
Phorate	ND		10	ug/l	1	10/21/14 17:24	
Pronamide	ND		10	ug/l	1	10/21/14 17:24	
Pyrene	ND		1.0	ug/l	1	10/21/14 17:24	
Pyridine	ND		5.0	ug/l	1	10/21/14 17:24	
Safrole	ND		10	ug/l	1	10/21/14 17:24	
Surr: 2,4,6-Tribromophenol	*85 %*	Conc:*40.2*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*78 %*	Conc:*18.5*	*28-100*	%			
Surr: 2-Fluorophenol	*46 %*	Conc:*22.1*	*5-76*	%			
Surr: Nitrobenzene-d5	*80 %*	Conc:*19.1*	*34-104*	%			
Surr: Phenol-d5	*29 %*	Conc:*14.0*	*0.1-57*	%			
Surr: Terphenyl-d14	*83 %*	Conc:*19.9*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,1-Dichloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,1-Dichloroethene	ND	1.0	ug/l	1	10/13/14 20:10	
1,1-Dichloropropene	ND	1.0	ug/l	1	10/13/14 20:10	
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/13/14 20:10	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/13/14 20:10	
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/13/14 20:10	
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/13/14 20:10	
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/13/14 20:10	

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Date Received: 10/09/14 10:10
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4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
1,2-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:10	
1,3-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:10	
2,2-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:10	
2-Butanone	ND	5.0	ug/l	1	10/13/14 20:10	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/13/14 20:10	
2-Hexanone	ND	5.0	ug/l	1	10/13/14 20:10	
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/13/14 20:10	
Acetone	ND	5.0	ug/l	1	10/13/14 20:10	
Acetonitrile	ND	5.0	ug/l	1	10/14/14 03:42	
Acrolein	ND	5.0	ug/l	1	10/13/14 20:10	
Acrylonitrile	ND	5.0	ug/l	1	10/13/14 20:10	
Allyl chloride	ND	1.0	ug/l	1	10/14/14 03:42	
Benzene	ND	1.0	ug/l	1	10/13/14 20:10	
Bromochloromethane	ND	1.0	ug/l	1	10/13/14 20:10	
Bromodichloromethane	ND	1.0	ug/l	1	10/13/14 20:10	
Bromoform	ND	1.0	ug/l	1	10/13/14 20:10	
Bromomethane	ND	1.0	ug/l	1	10/13/14 20:10	
Carbon Disulfide	ND	1.0	ug/l	1	10/13/14 20:10	
Carbon tetrachloride	ND	1.0	ug/l	1	10/13/14 20:10	
Chlorobenzene	ND	1.0	ug/l	1	10/13/14 20:10	
Chloroethane	ND	1.0	ug/l	1	10/13/14 20:10	
Chloroform	ND	1.0	ug/l	1	10/13/14 20:10	
Chloromethane	ND	1.0	ug/l	1	10/13/14 20:10	
Chloroprene	ND	1.0	ug/l	1	10/14/14 03:42	
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/13/14 20:10	
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/13/14 20:10	
Dibromochloromethane	ND	1.0	ug/l	1	10/13/14 20:10	
Dibromomethane	ND	1.0	ug/l	1	10/13/14 20:10	
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/13/14 20:10	
Ethyl methacrylate	ND	1.0	ug/l	1	10/14/14 03:42	
Ethylbenzene	ND	1.0	ug/l	1	10/13/14 20:10	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/13/14 20:10	
Iodomethane	ND	1.0	ug/l	1	10/14/14 03:42	
Isobutanol	ND	5.0	ug/l	1	10/14/14 03:42	
m,p-Xylene	ND	1.0	ug/l	1	10/13/14 20:10	
m-Dichlorobenzene	ND	1.0	ug/l	1	10/13/14 20:10	
Methacrylonitrile	ND	5.0	ug/l	1	10/14/14 03:42	
Methyl methacrylate	ND	1.0	ug/l	1	10/14/14 03:42	
Methylene chloride	ND	1.0	ug/l	1	10/13/14 20:10	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-01 **DVC Monitoring Well GW302**

Sampled: 10/09/14 10:10 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Naphthalene	ND		1.0	ug/l	1	10/13/14 20:10	
o-Dichlorobenzene	ND		1.0	ug/l	1	10/13/14 20:10	
o-Xylene	ND		1.0	ug/l	1	10/13/14 20:10	
p-Dichlorobenzene	ND		1.0	ug/l	1	10/13/14 20:10	
Propionitrile	ND		5.0	ug/l	1	10/14/14 03:42	
sec-Butylbenzene	ND		1.0	ug/l	1	10/13/14 20:10	
Styrene	ND		1.0	ug/l	1	10/13/14 20:10	
Tetrachloroethene	ND		1.0	ug/l	1	10/13/14 20:10	
Toluene	ND		1.0	ug/l	1	10/13/14 20:10	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/13/14 20:10	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/13/14 20:10	
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/14/14 03:42	
Trichloroethene	ND		1.0	ug/l	1	10/13/14 20:10	
Trichlorofluoromethane	ND		1.0	ug/l	1	10/13/14 20:10	
Vinyl acetate	ND		1.0	ug/l	1	10/14/14 03:42	
Vinyl chloride	ND		1.0	ug/l	1	10/13/14 20:10	
Surr: 1,2-Dichloroethane-d4	*102 %*	Conc:*50.8*	*86-126*	%			
Surr: 4-Bromofluorobenzene	*103 %*	Conc:*51.5*	*80-112*	%			
Surr: Dibromofluoromethane	*107 %*	Conc:*53.4*	*89-120*	%			
Surr: Toluene-d8	*101 %*	Conc:*50.5*	*91-111*	%			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 DVC Monitoring Well GW306

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0909 Prepared: 10/17/14 17:44 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**1.4**	0.50	mg/l	5	10/18/14 01:22	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0441 Prepared: 10/09/14 16:20 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/14/14 17:57	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/14/14 17:57	
2,4-D	ND		0.50	ug/l	1	10/14/14 17:57	
2,4-DB	ND		2.5	ug/l	1	10/14/14 17:57	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/14/14 17:57	
4-Nitrophenol	ND		1.2	ug/l	1	10/14/14 17:57	
Acifluorfen	ND		0.50	ug/l	1	10/14/14 17:57	
Bentazon	ND		2.5	ug/l	1	10/14/14 17:57	
Dalapon	ND		0.50	ug/l	1	10/14/14 17:57	
DCPA	ND		0.25	ug/l	1	10/14/14 17:57	
Dicamba	ND		0.75	ug/l	1	10/14/14 17:57	
Dichloroprop	ND		1.0	ug/l	1	10/14/14 17:57	
Dinoseb	ND		0.50	ug/l	1	10/14/14 17:57	
MCPA	ND		100	ug/l	1	10/14/14 17:57	
MCPP	ND		100	ug/l	1	10/14/14 17:57	
Pentachlorophenol	ND		0.25	ug/l	1	10/14/14 17:57	
Picloram	ND		0.75	ug/l	1	10/14/14 17:57	
Surr: 2,4-DCAA	*89 %*	Conc:*17.0*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0579 Prepared: 10/13/14 08:11 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/17/14 21:44	
4,4´-DDE	ND	0.050	ug/l	1	10/17/14 21:44	
4,4´-DDT	ND	0.050	ug/l	1	10/17/14 21:44	
Aldrin	ND	0.050	ug/l	1	10/17/14 21:44	
alpha-BHC	ND	0.050	ug/l	1	10/17/14 21:44	
beta-BHC	ND	0.050	ug/l	1	10/17/14 21:44	
Chlordane (tech)	ND	0.50	ug/l	1	10/17/14 21:44	
delta-BHC	ND	0.050	ug/l	1	10/17/14 21:44	
Dieldrin	ND	0.050	ug/l	1	10/17/14 21:44	
Endosulfan I	ND	0.050	ug/l	1	10/17/14 21:44	
Endosulfan II	ND	0.050	ug/l	1	10/17/14 21:44	
Endosulfan sulfate	ND	0.050	ug/l	1	10/17/14 21:44	
Endrin	ND	0.050	ug/l	1	10/17/14 21:44	

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4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0579 Prepared: 10/13/14 08:11 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/17/14 21:44	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/17/14 21:44	
Heptachlor	ND		0.050	ug/l	1	10/17/14 21:44	
Heptachlor epoxide	ND		0.050	ug/l	1	10/17/14 21:44	
Methoxychlor	ND		0.050	ug/l	1	10/17/14 21:44	
Toxaphene	ND		2.0	ug/l	1	10/17/14 21:44	
Surr: Decachlorobiphenyl	*95 %*	Conc:*0.450*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*94 %*	Conc:*0.447*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0489 Prepared: 10/09/14 14:28 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 Batch: W4J0564 Prepared: 10/10/14 17:29 Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	ND	0.50	mg/l	1	10/10/14 18:43	

Method: EPA 9034 Batch: W4J0616 Prepared: 10/13/14 11:12 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/13/14 12:30	

Method: SM 2540C Batch: W4J0700 Prepared: 10/14/14 16:52 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**1900**	10	mg/l	1	10/14/14 18:45	

Method: SM 4500H+-B Batch: W4J0512 Prepared: 10/09/14 18:45 Analyst: Lin Chai

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.75**	0.10	Units	1	10/09/14 20:23	*

EPA 1613B m

Method: EPA 1613B m Batch: 3795713 Prepared: 10/16/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		3.6	pg/L	1	10/23/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*87 %*	Conc:*174*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*90 %*	Conc:*180*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J1009 Prepared: 10/21/14 09:46 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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4J09025-02 DVC Monitoring Well GW306

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J1009 Prepared: 10/21/14 09:46 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/22/14 16:37	
Arsenic, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Barium, Total	**0.028**	0.010	mg/l	1	10/22/14 16:37	
Beryllium, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Cadmium, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Chromium, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Cobalt, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Copper, Total	ND	0.020	mg/l	1	10/22/14 16:37	
Lead, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Molybdenum, Total	**0.019**	0.010	mg/l	1	10/22/14 16:37	
Nickel, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Selenium, Total	ND	0.030	mg/l	1	10/22/14 16:37	
Silver, Total	ND	0.0050	mg/l	1	10/22/14 16:37	
Thallium, Total	ND	0.050	mg/l	1	10/22/14 16:37	
Tin, Total	ND	0.020	mg/l	1	10/22/14 16:37	
Vanadium, Total	ND	0.010	mg/l	1	10/22/14 16:37	
Zinc, Total	ND	0.050	mg/l	1	10/22/14 16:37	

Method: EPA 7470A Batch: W4J0531 Prepared: 10/10/14 09:35 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/14/14 17:56	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0580 Prepared: 10/13/14 08:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1221	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1232	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1242	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1248	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1254	ND		1.0	ug/l	1	10/17/14 21:44	
Aroclor 1260	ND		1.0	ug/l	1	10/17/14 21:44	
Surr: Decachlorobiphenyl	*85 %*	Conc:*0.407*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*83 %*	Conc:*0.393*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/21/14 17:53	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:53	

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Date Received: 10/09/14 10:10
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4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/21/14 17:53	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
1,4-Naphthoquinone	ND	10	ug/l	1	10/21/14 17:53	
1,4-Phenylenediamine	ND	10	ug/l	1	10/21/14 17:53	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/21/14 17:53	
1-Naphthylamine	ND	10	ug/l	1	10/21/14 17:53	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/21/14 17:53	
2,4-Dinitrophenol	ND	10	ug/l	1	10/21/14 17:53	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/21/14 17:53	
2,6-Dichlorophenol	ND	10	ug/l	1	10/21/14 17:53	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/21/14 17:53	
2-Acetylaminofluorene	ND	10	ug/l	1	10/21/14 17:53	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/21/14 17:53	
2-Chlorophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/21/14 17:53	
2-Methylphenol	ND	1.0	ug/l	1	10/21/14 17:53	
2-Naphthylamine	ND	10	ug/l	1	10/21/14 17:53	
2-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:53	
2-Nitrophenol	ND	1.0	ug/l	1	10/21/14 17:53	
2-Picoline	ND	10	ug/l	1	11/03/14 17:11	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/21/14 17:53	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/21/14 17:53	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/21/14 17:53	
3-Methylcholanthrene	ND	10	ug/l	1	10/21/14 17:53	
3-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:53	
4,4´-DDD	ND	5.0	ug/l	1	10/21/14 17:53	
4,4´-DDE	ND	5.0	ug/l	1	10/21/14 17:53	
4,4´-DDT	ND	5.0	ug/l	1	10/21/14 17:53	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/21/14 17:53	
4-Aminobiphenyl	ND	10	ug/l	1	10/21/14 17:53	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/21/14 17:53	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/21/14 17:53	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chloroaniline	ND	1.0	ug/l	1	10/21/14 17:53	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/21/14 17:53	
4-Nitroaniline	ND	1.0	ug/l	1	10/21/14 17:53	
4-Nitrophenol	ND	5.0	ug/l	1	10/21/14 17:53	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/21/14 17:53	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/21/14 17:53	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/21/14 17:53	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/21/14 17:53	
Acenaphthene	ND	1.0	ug/l	1	10/21/14 17:53	
Acenaphthylene	ND	1.0	ug/l	1	10/21/14 17:53	
Acetophenone	ND	10	ug/l	1	10/21/14 17:53	
Aldrin	ND	5.0	ug/l	1	10/21/14 17:53	
alpha-BHC	ND	5.0	ug/l	1	10/21/14 17:53	
Aniline	ND	1.0	ug/l	1	10/21/14 17:53	
Anthracene	ND	1.0	ug/l	1	10/21/14 17:53	
Aramite	ND	10	ug/l	1	11/03/14 17:11	
Benzidine	ND	10	ug/l	1	10/21/14 17:53	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/21/14 17:53	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/21/14 17:53	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/21/14 17:53	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/21/14 17:53	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/21/14 17:53	
Benzoic acid	ND	100	ug/l	1	10/21/14 17:53	
Benzyl alcohol	ND	1.0	ug/l	1	10/21/14 17:53	
beta-BHC	ND	5.0	ug/l	1	10/21/14 17:53	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/21/14 17:53	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/21/14 17:53	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/21/14 17:53	
Bis(2-ethylhexyl)phthalate	**20**	5.0	ug/l	1	10/21/14 17:53	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/21/14 17:53	
Chlorobenzilate	ND	10	ug/l	1	10/21/14 17:53	
Chrysene	ND	1.0	ug/l	1	10/21/14 17:53	
delta-BHC	ND	5.0	ug/l	1	10/21/14 17:53	
Diallate (cis or trans)	ND	10	ug/l	1	10/21/14 17:53	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/21/14 17:53	
Dibenzofuran	ND	1.0	ug/l	1	10/21/14 17:53	
Dieldrin	ND	5.0	ug/l	1	10/21/14 17:53	
Diethyl phthalate	ND	1.0	ug/l	1	10/21/14 17:53	
Dimethoate	ND	10	ug/l	1	10/21/14 17:53	
Dimethyl phthalate	ND	1.0	ug/l	1	10/21/14 17:53	

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Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethylaminoazobenzene	ND	10	ug/l	1	10/21/14 17:53	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/21/14 17:53	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/21/14 17:53	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/21/14 17:53	
Disulfoton	ND	10	ug/l	1	10/21/14 17:53	
Endosulfan I	ND	10	ug/l	1	10/21/14 17:53	
Endosulfan II	ND	10	ug/l	1	10/21/14 17:53	
Endosulfan sulfate	ND	5.0	ug/l	1	10/21/14 17:53	
Endrin	ND	5.0	ug/l	1	10/21/14 17:53	
Endrin aldehyde	ND	5.0	ug/l	1	10/21/14 17:53	
Ethyl methanesulfonate	ND	10	ug/l	1	10/21/14 17:53	
Famphur	ND	10	ug/l	1	10/21/14 17:53	
Fluoranthene	ND	1.0	ug/l	1	10/21/14 17:53	
Fluorene	ND	1.0	ug/l	1	10/21/14 17:53	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/21/14 17:53	
Heptachlor	ND	5.0	ug/l	1	10/21/14 17:53	
Heptachlor epoxide	ND	5.0	ug/l	1	10/21/14 17:53	
Hexachlorobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/21/14 17:53	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/21/14 17:53	
Hexachloroethane	ND	1.0	ug/l	1	10/21/14 17:53	
Hexachlorophene	ND	50	ug/l	1	11/03/14 17:11	
Hexachloropropene	ND	10	ug/l	1	10/21/14 17:53	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/21/14 17:53	
Isodrin	ND	10	ug/l	1	10/21/14 17:53	
Isophorone	ND	1.0	ug/l	1	10/21/14 17:53	
Isosafrole	ND	10	ug/l	1	10/21/14 17:53	
Kepone	ND	50	ug/l	1	10/21/14 17:53	
Methapyrilene	ND	50	ug/l	1	10/21/14 17:53	
Methoxychlor	ND	5.0	ug/l	1	10/21/14 17:53	
Methyl methanesulfonate	ND	10	ug/l	1	10/21/14 17:53	
Methyl parathion	ND	10	ug/l	1	10/21/14 17:53	
Naphthalene	ND	1.0	ug/l	1	10/21/14 17:53	
Nitrobenzene	ND	1.0	ug/l	1	10/21/14 17:53	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/21/14 17:53	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/21/14 17:53	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/21/14 17:53	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/21/14 17:53	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/21/14 17:53	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/21/14 17:53	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0647 Prepared: 10/14/14 08:16 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosomorpholine	ND		10	ug/l	1	10/21/14 17:53	
N-Nitrosopiperidine	ND		10	ug/l	1	10/21/14 17:53	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/21/14 17:53	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/21/14 17:53	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/21/14 17:53	
o-Toluidine	ND		10	ug/l	1	10/21/14 17:53	
Parathion	ND		10	ug/l	1	10/21/14 17:53	
Pentachlorobenzene	ND		10	ug/l	1	10/21/14 17:53	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/21/14 17:53	
Pentachlorophenol	ND		1.0	ug/l	1	10/21/14 17:53	
Phenacetin	ND		10	ug/l	1	10/21/14 17:53	
Phenanthrene	ND		1.0	ug/l	1	10/21/14 17:53	
Phenol	ND		1.0	ug/l	1	10/21/14 17:53	
Phorate	ND		10	ug/l	1	10/21/14 17:53	
Pronamide	ND		10	ug/l	1	10/21/14 17:53	
Pyrene	ND		1.0	ug/l	1	10/21/14 17:53	
Pyridine	ND		5.0	ug/l	1	10/21/14 17:53	
Safrole	ND		10	ug/l	1	10/21/14 17:53	
Surr: 2,4,6-Tribromophenol	*94 %*	Conc:*44.6*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*86 %*	Conc:*20.6*	*28-100*	%			
Surr: 2-Fluorophenol	*48 %*	Conc:*22.9*	*5-76*	%			
Surr: Nitrobenzene-d5	*87 %*	Conc:*20.6*	*34-104*	%			
Surr: Phenol-d5	*32 %*	Conc:*15.4*	*0.1-57*	%			
Surr: Terphenyl-d14	*89 %*	Conc:*21.1*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,1-Dichloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,1-Dichloroethene	ND	1.0	ug/l	1	10/13/14 20:40	
1,1-Dichloropropene	ND	1.0	ug/l	1	10/13/14 20:40	
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/13/14 20:40	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/13/14 20:40	
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/13/14 20:40	
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/13/14 20:40	
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/13/14 20:40	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
1,2-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:40	
1,3-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:40	
2,2-Dichloropropane	ND	1.0	ug/l	1	10/13/14 20:40	
2-Butanone	ND	5.0	ug/l	1	10/13/14 20:40	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/13/14 20:40	
2-Hexanone	ND	5.0	ug/l	1	10/13/14 20:40	
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/13/14 20:40	
Acetone	ND	5.0	ug/l	1	10/13/14 20:40	
Acetonitrile	ND	5.0	ug/l	1	10/14/14 04:10	
Acrolein	ND	5.0	ug/l	1	10/13/14 20:40	
Acrylonitrile	ND	5.0	ug/l	1	10/13/14 20:40	
Allyl chloride	ND	1.0	ug/l	1	10/14/14 04:10	
Benzene	ND	1.0	ug/l	1	10/13/14 20:40	
Bromochloromethane	ND	1.0	ug/l	1	10/13/14 20:40	
Bromodichloromethane	ND	1.0	ug/l	1	10/13/14 20:40	
Bromoform	ND	1.0	ug/l	1	10/13/14 20:40	
Bromomethane	ND	1.0	ug/l	1	10/13/14 20:40	
Carbon Disulfide	ND	1.0	ug/l	1	10/13/14 20:40	
Carbon tetrachloride	ND	1.0	ug/l	1	10/13/14 20:40	
Chlorobenzene	ND	1.0	ug/l	1	10/13/14 20:40	
Chloroethane	ND	1.0	ug/l	1	10/13/14 20:40	
Chloroform	ND	1.0	ug/l	1	10/13/14 20:40	
Chloromethane	ND	1.0	ug/l	1	10/13/14 20:40	
Chloroprene	ND	1.0	ug/l	1	10/14/14 04:10	
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/13/14 20:40	
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/13/14 20:40	
Dibromochloromethane	ND	1.0	ug/l	1	10/13/14 20:40	
Dibromomethane	ND	1.0	ug/l	1	10/13/14 20:40	
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/13/14 20:40	
Ethyl methacrylate	ND	1.0	ug/l	1	10/14/14 04:10	
Ethylbenzene	ND	1.0	ug/l	1	10/13/14 20:40	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/13/14 20:40	
Iodomethane	ND	1.0	ug/l	1	10/14/14 04:10	
Isobutanol	ND	5.0	ug/l	1	10/14/14 04:10	
m,p-Xylene	ND	1.0	ug/l	1	10/13/14 20:40	
m-Dichlorobenzene	ND	1.0	ug/l	1	10/13/14 20:40	
Methacrylonitrile	ND	5.0	ug/l	1	10/14/14 04:10	
Methyl methacrylate	ND	1.0	ug/l	1	10/14/14 04:10	
Methylene chloride	ND	1.0	ug/l	1	10/13/14 20:40	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-02 **DVC Monitoring Well GW306**

Sampled: 10/09/14 07:46 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0602 Prepared: 10/13/14 09:53 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Naphthalene	ND		1.0	ug/l	1	10/13/14 20:40	
o-Dichlorobenzene	ND		1.0	ug/l	1	10/13/14 20:40	
o-Xylene	ND		1.0	ug/l	1	10/13/14 20:40	
p-Dichlorobenzene	ND		1.0	ug/l	1	10/13/14 20:40	
Propionitrile	ND		5.0	ug/l	1	10/14/14 04:10	
sec-Butylbenzene	ND		1.0	ug/l	1	10/13/14 20:40	
Styrene	ND		1.0	ug/l	1	10/13/14 20:40	
Tetrachloroethene	ND		1.0	ug/l	1	10/13/14 20:40	
Toluene	ND		1.0	ug/l	1	10/13/14 20:40	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/13/14 20:40	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/13/14 20:40	
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/14/14 04:10	
Trichloroethene	ND		1.0	ug/l	1	10/13/14 20:40	
Trichlorofluoromethane	ND		1.0	ug/l	1	10/13/14 20:40	
Vinyl acetate	ND		1.0	ug/l	1	10/14/14 04:10	
Vinyl chloride	ND		1.0	ug/l	1	10/13/14 20:40	
Surr: 1,2-Dichloroethane-d4	*106 %*	Conc:*53.1*	*86-126*	%			
Surr: 4-Bromofluorobenzene	*100 %*	Conc:*49.8*	*80-112*	%			
Surr: Dibromofluoromethane	*108 %*	Conc:*53.8*	*89-120*	%			
Surr: Toluene-d8	*100 %*	Conc:*50.2*	*91-111*	%			

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4J09025-03 **DVC Monitoring Well GW11**

Sampled: 10/09/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 353.2 Batch: W4J0564 Prepared: 10/10/14 17:29 Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**3.7**	0.50	mg/l	1	10/10/14 18:45	

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Date Reported: 11/07/14 15:11

4J09025-04 **DVC Monitoring Well GW10A**

Sampled: 10/09/14 10:01 **Sampled By:** Katherine West **Matrix:** Water

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 353.2 Batch: W4J0564 Prepared: 10/10/14 17:29 Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	ND	0.50	mg/l	1	10/10/14 18:48	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

4J09025-05 **DVC Monitoring Well GW09A**

Sampled: 10/09/14 09:54 **Sampled By:** Katherine West **Matrix:** Water

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: EPA 353.2 Batch: W4J0564 Prepared: 10/10/14 17:29 Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**3.0**	0.50	mg/l	1	10/10/14 18:50	

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QUALITY CONTROL SECTION

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Date Received: 10/09/14 10:10
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Anions by IC, EPA Method 9056 - Quality Control

Batch W4J0909 - EPA 300.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0909-BLK1)				Analyzed: 10/18/14 01:22						
Fluoride, Total	ND	0.10	mg/l							
LCS (W4J0909-BS1)				Analyzed: 10/18/14 01:22						
Fluoride, Total	2.17	0.10	mg/l	2.00		108	90-110			
Matrix Spike (W4J0909-MS1)		**Source: 4J14074-02**		Analyzed: 10/18/14 01:22						
Fluoride, Total	20.8	1.0	mg/l	20.0	0.158	103	86-107			
Matrix Spike Dup (W4J0909-MSD1)		**Source: 4J14074-02**		Analyzed: 10/18/14 01:22						
Fluoride, Total	20.9	1.0	mg/l	20.0	0.158	104	86-107	0.6	20	

Chlorinated Herbicides - Quality Control

Batch W4J0441 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0441-BLK1)				Analyzed: 10/14/14 13:02						
2,4,5-T	ND	0.25	ug/l							
2,4,5-TP (Silvex)	ND	0.25	ug/l							
2,4-D	ND	0.50	ug/l							
2,4-DB	ND	2.5	ug/l							
3,5-Dichlorobenzoic acid	ND	1.2	ug/l							
4-Nitrophenol	ND	1.2	ug/l							
Acifluorfen	ND	0.50	ug/l							
Bentazon	ND	2.5	ug/l							
Dalapon	ND	0.50	ug/l							
DCPA	ND	0.25	ug/l							
Dicamba	ND	0.75	ug/l							
Dichloroprop	ND	1.0	ug/l							
Dinoseb	ND	0.50	ug/l							
MCPA	ND	100	ug/l							
MCPP	ND	100	ug/l							
Pentachlorophenol	ND	0.25	ug/l							
Picloram	ND	0.75	ug/l							
Surr: 2,4-DCAA	*16.0*		*ug/l*	*20.0*		*80*	*56-156*			
Blank (W4J0441-BLK2)				Analyzed: 10/15/14 17:58						
2,4,5-T	ND	0.25	ug/l							QC-2
2,4,5-TP (Silvex)	ND	0.25	ug/l							QC-2
2,4-D	ND	0.50	ug/l							QC-2
2,4-DB	ND	2.5	ug/l							QC-2
3,5-Dichlorobenzoic acid	ND	1.2	ug/l							QC-2
4-Nitrophenol	ND	1.2	ug/l							QC-2
Acifluorfen	ND	0.50	ug/l							QC-2

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Chlorinated Herbicides - Quality Control

Batch W4J0441 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0441-BLK2)				Analyzed: 10/15/14 17:58						
Bentazon	ND	2.5	ug/l							QC-2
Dalapon	ND	0.50	ug/l							QC-2
DCPA	ND	0.25	ug/l							QC-2
Dicamba	ND	0.75	ug/l							QC-2
Dichloroprop	ND	1.0	ug/l							QC-2
Dinoseb	ND	0.50	ug/l							QC-2
MCPA	ND	100	ug/l							QC-2
MCPP	ND	100	ug/l							QC-2
Pentachlorophenol	ND	0.25	ug/l							QC-2
Picloram	ND	0.75	ug/l							QC-2
Surr: 2,4-DCAA	*16.2*		*ug/l*	*20.0*		*81*	*56-156*			QC-2
LCS (W4J0441-BS1)				Analyzed: 10/14/14 13:35						
2,4,5-T	2.24	0.25	ug/l	2.50		89	39-151			
2,4,5-TP (Silvex)	2.21	0.25	ug/l	2.50		89	46-142			
2,4-D	5.60	0.50	ug/l	5.00		112	56-164			
2,4-DB	7.19	2.5	ug/l	10.0		72	27-161			
3,5-Dichlorobenzoic acid	4.92	1.2	ug/l	5.00		98	54-154			
4-Nitrophenol	8.72	1.2	ug/l	10.0		87	3-105			
Acifluorfen	2.64	0.50	ug/l	2.50		105	39-134			
Bentazon	7.68	2.5	ug/l	10.0		77	44-139			
Dalapon	3.53	0.50	ug/l	5.00		71	40-139			
DCPA	1.74	0.25	ug/l	2.50		70	34-135			
Dicamba	4.52	0.75	ug/l	5.00		90	46-140			
Dichloroprop	4.77	1.0	ug/l	5.00		95	43-158			
Dinoseb	1.91	0.50	ug/l	2.50		76	42-146			
MCPA	462	100	ug/l	500		92	28-144			
MCPP	363	100	ug/l	500		73	31-153			
Pentachlorophenol	1.98	0.25	ug/l	2.50		79	37-136			
Picloram	2.55	0.75	ug/l	2.50		102	35-138			
Surr: 2,4-DCAA	*16.9*		*ug/l*	*20.0*		*84*	*56-156*			
LCS (W4J0441-BS2)				Analyzed: 10/15/14 18:31						
2,4,5-T	2.26	0.25	ug/l	2.50		91	39-151			QC-2
2,4,5-TP (Silvex)	2.23	0.25	ug/l	2.50		89	46-142			QC-2
2,4-D	5.86	0.50	ug/l	5.00		117	56-164			QC-2
2,4-DB	7.36	2.5	ug/l	10.0		74	27-161			QC-2
3,5-Dichlorobenzoic acid	4.99	1.2	ug/l	5.00		100	54-154			QC-2
4-Nitrophenol	8.60	1.2	ug/l	10.0		86	3-105			QC-2
Acifluorfen	2.14	0.50	ug/l	2.50		86	39-134			QC-2
Bentazon	7.80	2.5	ug/l	10.0		78	44-139			QC-2

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Chlorinated Herbicides - Quality Control

Batch W4J0441 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0441-BS2)				Analyzed: 10/15/14 18:31						
Dalapon	3.55	0.50	ug/l	5.00		71	40-139			QC-2
DCPA	1.81	0.25	ug/l	2.50		72	34-135			QC-2
Dicamba	4.55	0.75	ug/l	5.00		91	46-140			QC-2
Dichloroprop	4.85	1.0	ug/l	5.00		97	43-158			QC-2
Dinoseb	1.57	0.50	ug/l	2.50		63	42-146			QC-2
MCPA	499	100	ug/l	500		100	28-144			QC-2
MCPP	371	100	ug/l	500		74	31-153			QC-2
Pentachlorophenol	1.98	0.25	ug/l	2.50		79	37-136			QC-2
Picloram	2.54	0.75	ug/l	2.50		102	35-138			QC-2
Surr: 2,4-DCAA	*17.1*		*ug/l*	*20.0*		*86*	*56-156*			QC-2
Matrix Spike (W4J0441-MS1)	**Source: 4J07035-01**			Analyzed: 10/15/14 19:03						
2,4,5-T	15.3	25	ug/l	25.0	ND	61	15-159			M-02, M-04
2,4,5-TP (Silvex)	27.1	25	ug/l	25.0	ND	109	39-142			M-02, M-04
2,4-D	37.5	50	ug/l	50.0	ND	75	17-180			M-02, M-04
2,4-DB	63.5	250	ug/l	100	ND	63	0.1-201			M-02, M-04
3,5-Dichlorobenzoic acid	58.8	120	ug/l	50.0	ND	118	47-166			M-02, M-04
4-Nitrophenol	48.5	120	ug/l	100	ND	49	0.1-94			M-02, M-04
Acifluorfen	22.7	50	ug/l	25.0	ND	91	2-160			M-02, M-04
Bentazon	761	250	ug/l	100	ND	761	35-140			MS-05, M-02, M-04
Dalapon	29.7	50	ug/l	50.0	ND	59	14-172			M-02, M-04
DCPA	11.8	25	ug/l	25.0	ND	47	21-167			M-02, M-04
Dicamba	34.5	75	ug/l	50.0	ND	69	44-134			M-02, M-04
Dichloroprop	154	100	ug/l	50.0	96.4	116	36-161			M-02, M-04
Dinoseb	9.21	50	ug/l	25.0	ND	37	53-146			M-02, M-04, MS-05
MCPA	5680	10000	ug/l	5000	ND	114	13-179			M-02, M-04
MCPP	56400	10000	ug/l	5000	ND	NR	30-154			MS-05, M-02, M-04
Pentachlorophenol	7.64	25	ug/l	25.0	ND	31	18-113			M-02, M-04

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Batch W4J0441 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0441-MS1)	**Source: 4J07035-01**			Analyzed: 10/15/14 19:03						
Picloram	19.0	75	ug/l	25.0	ND	76	22-152			M-02, M-04
Surr: 2,4-DCAA	*112*		*ug/l*	*200*		*56*	*56-156*			*M-02, M-04*
Matrix Spike Dup (W4J0441-MSD1)	**Source: 4J07035-01**			Analyzed: 10/15/14 19:36						
2,4,5-T	16.5	25	ug/l	25.0	ND	66	15-159	8	25	M-02, M-04
2,4,5-TP (Silvex)	29.0	25	ug/l	25.0	ND	116	39-142	7	25	M-02, M-04
2,4-D	37.2	50	ug/l	50.0	ND	74	17-180	0.8	25	M-02, M-04
2,4-DB	68.3	250	ug/l	100	ND	68	0.1-201	NR	25	M-02, M-04
3,5-Dichlorobenzoic acid	61.5	120	ug/l	50.0	ND	123	47-166	5	25	M-02, M-04
4-Nitrophenol	79.2	120	ug/l	100	ND	79	0.1-94	NR	25	M-02, M-04, MS-05
Acifluorfen	23.3	50	ug/l	25.0	ND	93	2-160	3	25	M-02, M-04
Bentazon	808	250	ug/l	100	ND	808	35-140	6	25	M-02, M-04, MS-05
Dalapon	32.4	50	ug/l	50.0	ND	65	14-172	9	25	M-02, M-04
DCPA	12.5	25	ug/l	25.0	ND	50	21-167	NR	25	M-02, M-04
Dicamba	33.9	75	ug/l	50.0	ND	68	44-134	NR	25	M-02, M-04
Dichloroprop	86.8	100	ug/l	50.0	96.4	NR	36-161	56	25	MS-05, M-02, M-04
Dinoseb	10.9	50	ug/l	25.0	ND	44	53-146	NR	25	M-02, M-04, MS-05
MCPA	5260	10000	ug/l	5000	ND	105	13-179	8	25	M-02, M-04
MCPP	45900	10000	ug/l	5000	ND	919	30-154	20	25	M-02, M-04, MS-05
Pentachlorophenol	10.3	25	ug/l	25.0	ND	41	18-113	NR	25	M-02, M-04, MS-05
Picloram	19.5	75	ug/l	25.0	ND	78	22-152	NR	25	M-02, M-04
Surr: 2,4-DCAA	*121*		*ug/l*	*200*		*60*	*56-156*			*M-02, M-04*

Batch W4J0579 - EPA 8081A

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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0579 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0579-BLK1)				Analyzed: 10/17/14 18:40						
4,4´-DDD	ND	0.050	ug/l							
4,4´-DDE	ND	0.050	ug/l							
4,4´-DDT	ND	0.050	ug/l							
Aldrin	ND	0.050	ug/l							
alpha-BHC	ND	0.050	ug/l							
beta-BHC	ND	0.050	ug/l							
Chlordane (tech)	ND	0.50	ug/l							
delta-BHC	ND	0.050	ug/l							
Dieldrin	ND	0.050	ug/l							
Endosulfan I	ND	0.050	ug/l							
Endosulfan II	ND	0.050	ug/l							
Endosulfan sulfate	ND	0.050	ug/l							
Endrin	ND	0.050	ug/l							
Endrin aldehyde	ND	0.050	ug/l							
gamma-BHC (Lindane)	ND	0.050	ug/l							
Heptachlor	ND	0.050	ug/l							
Heptachlor epoxide	ND	0.050	ug/l							
Methoxychlor	ND	0.050	ug/l							
Toxaphene	ND	2.0	ug/l							
Surr: Decachlorobiphenyl	*0.537*		*ug/l*	*0.500*		*107*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.452*		*ug/l*	*0.500*		*90*	*10-137*			
LCS (W4J0579-BS1)				Analyzed: 10/17/14 19:10						
4,4´-DDD	0.585	0.050	ug/l	0.500		117	59-143			
4,4´-DDE	0.602	0.050	ug/l	0.500		120	63-126			
4,4´-DDT	0.608	0.050	ug/l	0.500		122	43-165			
Aldrin	0.497	0.050	ug/l	0.500		99	54-116			
alpha-BHC	0.558	0.050	ug/l	0.500		112	70-121			
beta-BHC	0.574	0.050	ug/l	0.500		115	71-126			
delta-BHC	0.602	0.050	ug/l	0.500		120	72-129			
Dieldrin	0.554	0.050	ug/l	0.500		111	70-130			
Endosulfan I	0.429	0.050	ug/l	0.500		86	48-113			
Endosulfan II	0.468	0.050	ug/l	0.500		94	58-118			
Endosulfan sulfate	0.596	0.050	ug/l	0.500		119	68-142			
Endrin	0.623	0.050	ug/l	0.500		125	53-150			
Endrin aldehyde	0.463	0.050	ug/l	0.500		93	56-147			
gamma-BHC (Lindane)	0.565	0.050	ug/l	0.500		113	71-123			
Heptachlor	0.584	0.050	ug/l	0.500		117	58-138			
Heptachlor epoxide	0.524	0.050	ug/l	0.500		105	71-127			
Methoxychlor	0.660	0.050	ug/l	0.500		132	49-158			

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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0579 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0579-BS1)				Analyzed: 10/17/14 19:10						
Surr: Decachlorobiphenyl	*0.569*		*ug/l*	*0.500*		*114*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.498*		*ug/l*	*0.500*		*100*	*10-137*			
LCS Dup (W4J0579-BSD1)				Analyzed: 10/17/14 19:41						
4,4´-DDD	0.509	0.050	ug/l	0.500		102	59-143	14	25	
4,4´-DDE	0.533	0.050	ug/l	0.500		107	63-126	12	25	
4,4´-DDT	0.520	0.050	ug/l	0.500		104	43-165	16	25	
Aldrin	0.483	0.050	ug/l	0.500		97	54-116	3	25	
alpha-BHC	0.519	0.050	ug/l	0.500		104	70-121	7	25	
beta-BHC	0.529	0.050	ug/l	0.500		106	71-126	8	25	
delta-BHC	0.564	0.050	ug/l	0.500		113	72-129	7	25	
Dieldrin	0.502	0.050	ug/l	0.500		100	70-130	10	25	
Endosulfan I	0.392	0.050	ug/l	0.500		78	48-113	9	25	
Endosulfan II	0.415	0.050	ug/l	0.500		83	58-118	12	25	
Endosulfan sulfate	0.520	0.050	ug/l	0.500		104	68-142	14	25	
Endrin	0.563	0.050	ug/l	0.500		113	53-150	10	25	
Endrin aldehyde	0.453	0.050	ug/l	0.500		91	56-147	2	25	
gamma-BHC (Lindane)	0.526	0.050	ug/l	0.500		105	71-123	7	25	
Heptachlor	0.537	0.050	ug/l	0.500		107	58-138	8	25	
Heptachlor epoxide	0.484	0.050	ug/l	0.500		97	71-127	8	25	
Methoxychlor	0.562	0.050	ug/l	0.500		112	49-158	16	25	
Surr: Decachlorobiphenyl	*0.473*		*ug/l*	*0.500*		*95*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.435*		*ug/l*	*0.500*		*87*	*10-137*			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0489 - ASTM D7511

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0489-BLK1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	ND	2.0	ug/l							
LCS (W4J0489-BS1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	46.7	2.0	ug/l	50.0		93	84-116			
Matrix Spike (W4J0489-MS1)	**Source: 4J02013-01**			Analyzed: 10/10/14 17:06						
Cyanide, Total	42.6	2.0	ug/l	50.0	ND	85	64-136			
Matrix Spike (W4J0489-MS2)	**Source: 4J03011-01**			Analyzed: 10/10/14 17:06						
Cyanide, Total	46.4	2.0	ug/l	50.0	ND	93	64-136			
Matrix Spike Dup (W4J0489-MSD1)	**Source: 4J02013-01**			Analyzed: 10/10/14 17:06						
Cyanide, Total	42.1	2.0	ug/l	50.0	ND	84	64-136	1	47	
Matrix Spike Dup (W4J0489-MSD2)	**Source: 4J03011-01**			Analyzed: 10/10/14 17:06						
Cyanide, Total	47.5	2.0	ug/l	50.0	ND	95	64-136	2	47	

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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0512 - SM 4500H+-B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0512-BS1)				Analyzed: 10/09/14 20:23						
pH	7.40	0.10	Units	7.41		100	98.8-101			
Duplicate (W4J0512-DUP1)		**Source: 4J09025-01**		Analyzed: 10/09/14 20:23						
pH	7.27	0.10	Units		7.10			2	3.1	

Batch W4J0564 - EPA 353.2

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0564-BLK1)				Analyzed: 10/10/14 18:20						
Nitrate as NO3	ND	0.50	mg/l							
LCS (W4J0564-BS1)				Analyzed: 10/10/14 18:22						
Nitrate as NO3	4.40	0.50	mg/l	4.43		99	90-110			
Matrix Spike (W4J0564-MS1)		**Source: 4J09040-02**		Analyzed: 10/10/14 18:30						
Nitrate as NO3	27.8	0.50	mg/l	8.86	19.4	94	90-110			
Matrix Spike (W4J0564-MS2)		**Source: 4J09040-03**		Analyzed: 10/10/14 18:37						
Nitrate as NO3	50.8	0.50	mg/l	8.86	42.8	90	90-110			
Matrix Spike Dup (W4J0564-MSD1)		**Source: 4J09040-02**		Analyzed: 10/10/14 18:33						
Nitrate as NO3	28.1	0.50	mg/l	8.86	19.4	98	90-110	1	20	
Matrix Spike Dup (W4J0564-MSD2)		**Source: 4J09040-03**		Analyzed: 10/10/14 18:39						
Nitrate as NO3	52.0	0.50	mg/l	8.86	42.8	103	90-110	2	20	

Batch W4J0616 - EPA 9034

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0616-BLK1)				Analyzed: 10/13/14 12:30						
Sulfide, Total	ND	0.10	mg/l							
LCS (W4J0616-BS1)				Analyzed: 10/13/14 12:30						
Sulfide, Total	0.100	0.10	mg/l	0.0999		100	95-104			
Duplicate (W4J0616-DUP1)		**Source: 4J09025-02**		Analyzed: 10/13/14 12:30						
Sulfide, Total	ND	0.10	mg/l		ND					

Batch W4J0700 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0700-BLK1)				Analyzed: 10/14/14 18:45						
Total Dissolved Solids	ND	10	mg/l							
LCS (W4J0700-BS1)				Analyzed: 10/14/14 18:45						
Total Dissolved Solids	827	10	mg/l	824		100	96-102			
Duplicate (W4J0700-DUP1)		**Source: 4J08077-01**		Analyzed: 10/14/14 18:45						
Total Dissolved Solids	2090	10	mg/l		2070			1	10	
Duplicate (W4J0700-DUP2)		**Source: 4J09076-01**		Analyzed: 10/14/14 18:45						
Total Dissolved Solids	1590	10	mg/l		1590			0.2	10	

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0531 - EPA 7470A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0531-BLK1)				Analyzed: 10/14/14 17:56						
Mercury, Total	ND	0.10	ug/l							
LCS (W4J0531-BS1)				Analyzed: 10/14/14 17:56						
Mercury, Total	0.978	0.10	ug/l	1.00		98	80-120			
Matrix Spike (W4J0531-MS1)		**Source: 4J09025-01**		Analyzed: 10/14/14 17:56						
Mercury, Total	0.997	0.10	ug/l	1.00	0.0110	99	60-129			
Matrix Spike Dup (W4J0531-MSD1)		**Source: 4J09025-01**		Analyzed: 10/14/14 17:56						
Mercury, Total	0.985	0.10	ug/l	1.00	0.0110	97	60-129	1	20	

Batch W4J1009 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J1009-BLK1)				Analyzed: 10/22/14 16:25						
Antimony, Total	ND	0.040	mg/l							
Arsenic, Total	ND	0.010	mg/l							
Barium, Total	ND	0.010	mg/l							
Beryllium, Total	ND	0.010	mg/l							
Cadmium, Total	ND	0.010	mg/l							
Chromium, Total	ND	0.010	mg/l							
Cobalt, Total	ND	0.010	mg/l							
Copper, Total	ND	0.020	mg/l							
Lead, Total	ND	0.010	mg/l							
Molybdenum, Total	ND	0.010	mg/l							
Nickel, Total	ND	0.010	mg/l							
Selenium, Total	ND	0.030	mg/l							
Silver, Total	ND	0.0050	mg/l							
Thallium, Total	ND	0.050	mg/l							
Tin, Total	ND	0.020	mg/l							
Vanadium, Total	ND	0.010	mg/l							
Zinc, Total	ND	0.050	mg/l							
Blank (W4J1009-BLK2)				Analyzed: 10/24/14 15:49						
Antimony, Total	ND	0.040	mg/l							
Arsenic, Total	ND	0.010	mg/l							
Barium, Total	ND	0.010	mg/l							
Beryllium, Total	ND	0.010	mg/l							
Cadmium, Total	ND	0.010	mg/l							
Chromium, Total	ND	0.010	mg/l							
Cobalt, Total	ND	0.010	mg/l							
Copper, Total	ND	0.020	mg/l							
Lead, Total	ND	0.010	mg/l							
Molybdenum, Total	ND	0.010	mg/l							

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J1009 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J1009-BLK2)				Analyzed: 10/24/14 15:49						
Nickel, Total	ND	0.010	mg/l							
Selenium, Total	ND	0.030	mg/l							
Silver, Total	ND	0.0050	mg/l							
Thallium, Total	ND	0.050	mg/l							
Tin, Total	ND	0.020	mg/l							
Vanadium, Total	ND	0.010	mg/l							
Zinc, Total	ND	0.050	mg/l							
LCS (W4J1009-BS1)				Analyzed: 10/22/14 16:27						
Antimony, Total	1.00	0.040	mg/l	1.00		100	80-120			
Arsenic, Total	1.03	0.010	mg/l	1.00		103	80-125			
Barium, Total	0.954	0.010	mg/l	1.00		95	80-125			
Beryllium, Total	1.01	0.010	mg/l	1.00		101	80-120			
Cadmium, Total	0.944	0.010	mg/l	1.00		94	80-120			
Chromium, Total	0.977	0.010	mg/l	1.00		98	80-120			
Cobalt, Total	0.902	0.010	mg/l	1.00		90	80-120			
Copper, Total	0.920	0.020	mg/l	1.00		92	80-120			
Lead, Total	0.952	0.010	mg/l	1.00		95	80-120			
Molybdenum, Total	0.992	0.010	mg/l	1.00		99	80-120			
Nickel, Total	0.971	0.010	mg/l	1.00		97	80-120			
Selenium, Total	0.995	0.030	mg/l	1.00		100	80-120			
Silver, Total	0.952	0.0050	mg/l	1.00		95	80-125			
Thallium, Total	0.951	0.050	mg/l	1.00		95	80-120			
Tin, Total	0.895	0.020	mg/l	1.00		90	80-120			
Vanadium, Total	1.03	0.010	mg/l	1.00		103	80-120			
Zinc, Total	0.883	0.050	mg/l	1.00		88	80-120			
LCS (W4J1009-BS2)				Analyzed: 10/24/14 15:52						
Antimony, Total	1.04	0.040	mg/l	1.00		104	80-120			
Arsenic, Total	1.13	0.010	mg/l	1.00		113	80-125			
Barium, Total	1.06	0.010	mg/l	1.00		106	80-125			
Beryllium, Total	1.07	0.010	mg/l	1.00		107	80-120			
Cadmium, Total	1.01	0.010	mg/l	1.00		101	80-120			
Chromium, Total	1.03	0.010	mg/l	1.00		103	80-120			
Cobalt, Total	0.954	0.010	mg/l	1.00		95	80-120			
Copper, Total	0.949	0.020	mg/l	1.00		95	80-120			
Lead, Total	0.979	0.010	mg/l	1.00		98	80-120			
Molybdenum, Total	1.07	0.010	mg/l	1.00		107	80-120			
Nickel, Total	1.02	0.010	mg/l	1.00		102	80-120			
Selenium, Total	1.07	0.030	mg/l	1.00		107	80-120			
Silver, Total	0.999	0.0050	mg/l	1.00		100	80-125			

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J1009 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J1009-BS2)				Analyzed: 10/24/14 15:52						
Thallium, Total	0.969	0.050	mg/l	1.00		97	80-120			
Tin, Total	0.900	0.020	mg/l	1.00		90	80-120			
Vanadium, Total	1.10	0.010	mg/l	1.00		110	80-120			
Zinc, Total	0.942	0.050	mg/l	1.00		94	80-120			
Matrix Spike (W4J1009-MS1)	**Source: 4J09025-02**			Analyzed: 10/22/14 17:13						
Antimony, Total	1.06	0.040	mg/l	1.00	ND	106	75-125			
Arsenic, Total	1.11	0.010	mg/l	1.00	ND	111	75-125			
Barium, Total	1.01	0.010	mg/l	1.00	0.0277	99	75-125			
Beryllium, Total	1.02	0.010	mg/l	1.00	ND	102	75-125			
Cadmium, Total	0.950	0.010	mg/l	1.00	ND	95	75-125			
Chromium, Total	0.980	0.010	mg/l	1.00	ND	98	75-125			
Cobalt, Total	0.934	0.010	mg/l	1.00	ND	93	75-125			
Copper, Total	0.961	0.020	mg/l	1.00	0.00509	96	75-125			
Lead, Total	0.953	0.010	mg/l	1.00	0.00291	95	75-125			
Molybdenum, Total	1.03	0.010	mg/l	1.00	0.0194	101	75-125			
Nickel, Total	1.01	0.010	mg/l	1.00	0.00265	101	75-125			
Selenium, Total	1.03	0.030	mg/l	1.00	ND	103	75-125			
Silver, Total	0.962	0.0050	mg/l	1.00	ND	96	75-125			
Thallium, Total	0.936	0.050	mg/l	1.00	ND	94	75-125			
Tin, Total	0.960	0.020	mg/l	1.00	ND	96	75-125			
Vanadium, Total	1.04	0.010	mg/l	1.00	0.00221	104	75-125			
Zinc, Total	0.907	0.050	mg/l	1.00	0.00696	90	75-125			
Matrix Spike (W4J1009-MS2)	**Source: 4J09025-02**			Analyzed: 10/24/14 16:07						
Antimony, Total	1.08	0.040	mg/l	1.00	ND	108	75-125			
Arsenic, Total	1.20	0.010	mg/l	1.00	ND	120	75-125			
Barium, Total	1.11	0.010	mg/l	1.00	0.0277	108	75-125			
Beryllium, Total	1.04	0.010	mg/l	1.00	ND	105	75-125			
Cadmium, Total	1.02	0.010	mg/l	1.00	ND	102	75-125			
Chromium, Total	1.03	0.010	mg/l	1.00	ND	103	75-125			
Cobalt, Total	0.962	0.010	mg/l	1.00	ND	96	75-125			
Copper, Total	0.956	0.020	mg/l	1.00	0.00509	95	75-125			
Lead, Total	0.968	0.010	mg/l	1.00	0.00291	97	75-125			
Molybdenum, Total	1.10	0.010	mg/l	1.00	0.0194	109	75-125			
Nickel, Total	1.03	0.010	mg/l	1.00	0.00265	102	75-125			
Selenium, Total	1.09	0.030	mg/l	1.00	ND	109	75-125			
Silver, Total	1.00	0.0050	mg/l	1.00	ND	100	75-125			
Thallium, Total	0.918	0.050	mg/l	1.00	ND	92	75-125			
Tin, Total	0.959	0.020	mg/l	1.00	ND	96	75-125			
Vanadium, Total	1.13	0.010	mg/l	1.00	0.00221	112	75-125			

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Date Received: 10/09/14 10:10
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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J1009 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J1009-MS2)	**Source: 4J09025-02**			Analyzed: 10/24/14 16:07						
Zinc, Total	0.962	0.050	mg/l	1.00	0.00696	96	75-125			
Matrix Spike Dup (W4J1009-MSD1)	**Source: 4J09025-02**			Analyzed: 10/22/14 17:15						
Antimony, Total	1.04	0.040	mg/l	1.00	ND	104	75-125	2	20	
Arsenic, Total	1.10	0.010	mg/l	1.00	ND	110	75-125	1	20	
Barium, Total	1.01	0.010	mg/l	1.00	0.0277	98	75-125	0.6	20	
Beryllium, Total	1.00	0.010	mg/l	1.00	ND	100	75-125	1	20	
Cadmium, Total	0.950	0.010	mg/l	1.00	ND	95	75-125	0.03	20	
Chromium, Total	0.971	0.010	mg/l	1.00	ND	97	75-125	1	20	
Cobalt, Total	0.926	0.010	mg/l	1.00	ND	93	75-125	0.8	20	
Copper, Total	0.950	0.020	mg/l	1.00	0.00509	95	75-125	1	20	
Lead, Total	0.933	0.010	mg/l	1.00	0.00291	93	75-125	2	20	
Molybdenum, Total	1.00	0.010	mg/l	1.00	0.0194	99	75-125	2	20	
Nickel, Total	0.989	0.010	mg/l	1.00	0.00265	99	75-125	2	20	
Selenium, Total	1.01	0.030	mg/l	1.00	ND	101	75-125	2	20	
Silver, Total	0.950	0.0050	mg/l	1.00	ND	95	75-125	1	20	
Thallium, Total	0.917	0.050	mg/l	1.00	ND	92	75-125	2	20	
Tin, Total	0.944	0.020	mg/l	1.00	ND	94	75-125	2	20	
Vanadium, Total	1.03	0.010	mg/l	1.00	0.00221	102	75-125	2	20	
Zinc, Total	1.02	0.050	mg/l	1.00	0.00696	101	75-125	12	20	
Matrix Spike Dup (W4J1009-MSD2)	**Source: 4J09025-02**			Analyzed: 10/24/14 16:10						
Antimony, Total	1.05	0.040	mg/l	1.00	ND	105	75-125	3	20	
Arsenic, Total	1.17	0.010	mg/l	1.00	ND	117	75-125	3	20	
Barium, Total	1.08	0.010	mg/l	1.00	0.0277	105	75-125	3	20	
Beryllium, Total	1.03	0.010	mg/l	1.00	ND	103	75-125	1	20	
Cadmium, Total	0.995	0.010	mg/l	1.00	ND	100	75-125	3	20	
Chromium, Total	1.00	0.010	mg/l	1.00	ND	100	75-125	2	20	
Cobalt, Total	0.939	0.010	mg/l	1.00	ND	94	75-125	2	20	
Copper, Total	0.937	0.020	mg/l	1.00	0.00509	93	75-125	2	20	
Lead, Total	0.943	0.010	mg/l	1.00	0.00291	94	75-125	3	20	
Molybdenum, Total	1.07	0.010	mg/l	1.00	0.0194	106	75-125	3	20	
Nickel, Total	0.998	0.010	mg/l	1.00	0.00265	100	75-125	3	20	
Selenium, Total	1.05	0.030	mg/l	1.00	ND	105	75-125	4	20	
Silver, Total	0.978	0.0050	mg/l	1.00	ND	98	75-125	2	20	
Thallium, Total	0.898	0.050	mg/l	1.00	ND	90	75-125	2	20	
Tin, Total	0.938	0.020	mg/l	1.00	ND	94	75-125	2	20	
Vanadium, Total	1.10	0.010	mg/l	1.00	0.00221	110	75-125	3	20	
Zinc, Total	1.07	0.050	mg/l	1.00	0.00696	106	75-125	10	20	

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Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Batch W4J0580 - EPA 8082

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0580-BLK1)				Analyzed: 10/17/14 18:40						
Aroclor 1016	ND	1.0	ug/l							
Aroclor 1221	ND	1.0	ug/l							
Aroclor 1232	ND	1.0	ug/l							
Aroclor 1242	ND	1.0	ug/l							
Aroclor 1248	ND	1.0	ug/l							
Aroclor 1254	ND	1.0	ug/l							
Aroclor 1260	ND	1.0	ug/l							
Surr: Decachlorobiphenyl	*0.485*		*ug/l*	*0.500*		*97*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.406*		*ug/l*	*0.500*		*81*	*18-139*			
LCS (W4J0580-BS1)				Analyzed: 10/17/14 20:12						
Aroclor 1016	4.32	1.0	ug/l	5.00		86	46-151			
Aroclor 1260	4.39	1.0	ug/l	5.00		88	46-160			
Surr: Decachlorobiphenyl	*0.444*		*ug/l*	*0.500*		*89*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.410*		*ug/l*	*0.500*		*82*	*18-139*			
LCS Dup (W4J0580-BSD1)				Analyzed: 10/17/14 20:42						
Aroclor 1016	4.45	1.0	ug/l	5.00		89	46-151	3	25	
Aroclor 1260	4.54	1.0	ug/l	5.00		91	46-160	3	25	
Surr: Decachlorobiphenyl	*0.469*		*ug/l*	*0.500*		*94*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.412*		*ug/l*	*0.500*		*82*	*18-139*			

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0647-BLK1)				Analyzed: 10/21/14 15:57						
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							
1,2-Dichlorobenzene	ND	1.0	ug/l							
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l							
1,3,5-Trinitrobenzene	ND	10	ug/l							
1,3-Dichlorobenzene	ND	1.0	ug/l							
1,3-Dinitrobenzene	ND	1.0	ug/l							
1,4-Dichlorobenzene	ND	1.0	ug/l							
1,4-Naphthoquinone	ND	10	ug/l							
1,4-Phenylenediamine	ND	10	ug/l							
1-Methylnaphthalene	ND	1.0	ug/l							
1-Naphthylamine	ND	10	ug/l							
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l							
2,4,5-Trichlorophenol	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0647-BLK1)				Analyzed: 10/21/14 15:57						
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,4-Dichlorophenol	ND	1.0	ug/l							
2,4-Dimethylphenol	ND	1.0	ug/l							
2,4-Dinitrophenol	ND	10	ug/l							
2,4-Dinitrotoluene	ND	1.0	ug/l							
2,6-Dichlorophenol	ND	10	ug/l							
2,6-Dinitrotoluene	ND	1.0	ug/l							
2-Acetylaminofluorene	ND	10	ug/l							
2-Chloronaphthalene	ND	1.0	ug/l							
2-Chlorophenol	ND	1.0	ug/l							
2-Methylnaphthalene	ND	1.0	ug/l							
2-Methylphenol	ND	1.0	ug/l							
2-Naphthylamine	ND	10	ug/l							
2-Nitroaniline	ND	1.0	ug/l							
2-Nitrophenol	ND	1.0	ug/l							
2-Picoline	ND	10	ug/l							
3 & 4-Methylphenol	ND	1.0	ug/l							
3,3'- Dimethylbenzidine	ND	10	ug/l							
3,3'-Dichlorobenzidine	ND	5.0	ug/l							
3-Methylcholanthrene	ND	10	ug/l							
3-Nitroaniline	ND	1.0	ug/l							
4,4´-DDD	ND	5.0	ug/l							
4,4´-DDE	ND	5.0	ug/l							
4,4´-DDT	ND	5.0	ug/l							
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l							
4-Aminobiphenyl	ND	10	ug/l							
4-Bromophenyl phenyl ether	ND	1.0	ug/l							
4-Chloro-3-methylphenol	ND	1.0	ug/l							
4-Chloroaniline	ND	1.0	ug/l							
4-Chlorophenyl phenyl ether	ND	1.0	ug/l							
4-Nitroaniline	ND	1.0	ug/l							
4-Nitrophenol	ND	5.0	ug/l							
4-Nitroquinoline-n-oxide	ND	50	ug/l							
5-Nitro-o-toluidine	ND	10	ug/l							
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l							
a,a-Dimethylphenethylamine	ND	10	ug/l							
Acenaphthene	ND	1.0	ug/l							
Acenaphthylene	ND	1.0	ug/l							
Acetophenone	ND	10	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0647-BLK1)				Analyzed: 10/21/14 15:57						
Aldrin	ND	5.0	ug/l							
alpha-BHC	ND	5.0	ug/l							
Aniline	ND	1.0	ug/l							
Anthracene	ND	1.0	ug/l							
Aramite	ND	10	ug/l							
Benzidine	ND	10	ug/l							
Benzo (a) anthracene	ND	1.0	ug/l							
Benzo (a) pyrene	ND	1.0	ug/l							
Benzo (b) fluoranthene	ND	1.0	ug/l							
Benzo (g,h,i) perylene	ND	2.0	ug/l							
Benzo (k) fluoranthene	ND	1.0	ug/l							
Benzoic acid	ND	100	ug/l							
Benzyl alcohol	ND	1.0	ug/l							
beta-BHC	ND	5.0	ug/l							
Bis(2-chloroethoxy)methane	ND	1.0	ug/l							
Bis(2-chloroethyl)ether	ND	1.0	ug/l							
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l							
Butyl benzyl phthalate	ND	1.0	ug/l							
Chlorobenzilate	ND	10	ug/l							
Chrysene	ND	1.0	ug/l							
delta-BHC	ND	5.0	ug/l							
Diallate (cis or trans)	ND	10	ug/l							
Dibenzo (a,h) anthracene	ND	2.0	ug/l							
Dibenzofuran	ND	1.0	ug/l							
Dieldrin	ND	5.0	ug/l							
Diethyl phthalate	ND	1.0	ug/l							
Dimethoate	ND	10	ug/l							
Dimethyl phthalate	ND	1.0	ug/l							
Dimethylaminoazobenzene	ND	10	ug/l							
Di-n-butyl phthalate	ND	1.0	ug/l							
Di-n-octyl phthalate	ND	1.0	ug/l							
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l							
Disulfoton	ND	10	ug/l							
Endosulfan I	ND	10	ug/l							
Endosulfan II	ND	10	ug/l							
Endosulfan sulfate	ND	5.0	ug/l							
Endrin	ND	5.0	ug/l							

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Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0647-BLK1)				Analyzed: 10/21/14 15:57						
Endrin aldehyde	ND	5.0	ug/l							
Ethyl methanesulfonate	ND	10	ug/l							
Famphur	ND	10	ug/l							
Fluoranthene	ND	1.0	ug/l							
Fluorene	ND	1.0	ug/l							
gamma-BHC (Lindane)	ND	5.0	ug/l							
Heptachlor	ND	5.0	ug/l							
Heptachlor epoxide	ND	5.0	ug/l							
Hexachlorobenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Hexachlorocyclopentadiene	ND	5.0	ug/l							
Hexachloroethane	ND	1.0	ug/l							
Hexachloropropene	ND	10	ug/l							
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l							
Isodrin	ND	10	ug/l							
Isophorone	ND	1.0	ug/l							
Isosafrole	ND	10	ug/l							
Kepone	ND	50	ug/l							
Methapyrilene	ND	50	ug/l							
Methoxychlor	ND	5.0	ug/l							
Methyl methanesulfonate	ND	10	ug/l							
Methyl parathion	ND	10	ug/l							
Naphthalene	ND	1.0	ug/l							
Nitrobenzene	ND	1.0	ug/l							
N-Nitrosodiethylamine	ND	10	ug/l							
N-Nitrosodimethylamine	ND	1.0	ug/l							
N-Nitrosodi-n-butylamine	ND	10	ug/l							
N-Nitrosodi-n-propylamine	ND	1.0	ug/l							
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l							
N-Nitrosomethylethylamine	ND	10	ug/l							
N-Nitrosomorpholine	ND	10	ug/l							
N-Nitrosopiperidine	ND	10	ug/l							
N-Nitrosopyrrolidine	ND	10	ug/l							
o,o,o-Triethyl phosphorothioate	ND	10	ug/l							
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND	10	ug/l							
o-Toluidine	ND	10	ug/l							
Parathion	ND	10	ug/l							
Pentachlorobenzene	ND	10	ug/l							

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Date Reported: 11/07/14 15:11

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0647-BLK1)				Analyzed: 10/21/14 15:57						
Pentachloronitrobenzene (PCNB)	ND	10	ug/l							
Pentachlorophenol	ND	1.0	ug/l							
Phenacetin	ND	10	ug/l							
Phenanthrene	ND	1.0	ug/l							
Phenol	ND	1.0	ug/l							
Phorate	ND	10	ug/l							
Pronamide	ND	10	ug/l							
Pyrene	ND	1.0	ug/l							
Pyridine	ND	5.0	ug/l							
Safrole	ND	10	ug/l							
Surr: 2,4,6-Tribromophenol	*40.7*		*ug/l*	*50.0*		*81*	*33-96*			
Surr: 2-Fluorobiphenyl	*19.8*		*ug/l*	*25.0*		*79*	*28-100*			
Surr: 2-Fluorophenol	*25.1*		*ug/l*	*50.0*		*50*	*5-76*			
Surr: Nitrobenzene-d5	*20.8*		*ug/l*	*25.0*		*83*	*34-104*			
Surr: Phenol-d5	*17.2*		*ug/l*	*50.0*		*34*	*0.1-57*			
Surr: Terphenyl-d14	*19.8*		*ug/l*	*25.0*		*79*	*39-104*			
Blank (W4J0647-BLK2)				Analyzed: 11/03/14 16:11						
2-Picoline	ND	10	ug/l							
Aramite	ND	10	ug/l							
Hexachlorophene	ND	50	ug/l							
LCS (W4J0647-BS1)				Analyzed: 10/21/14 16:55						
1,2,4-Trichlorobenzene	20.8	1.0	ug/l	25.0		83	27-99			
1,2-Dichlorobenzene	21.0	1.0	ug/l	25.0		84	22-102			
1,3-Dichlorobenzene	19.0	1.0	ug/l	25.0		76	22-100			
1,4-Dichlorobenzene	20.8	1.0	ug/l	25.0		83	24-101			
2,4,6-Trichlorophenol	21.5	1.0	ug/l	25.0		86	39-105			
2,4-Dichlorophenol	22.3	1.0	ug/l	25.0		89	39-102			
2,4-Dimethylphenol	19.8	1.0	ug/l	25.0		79	27-102			
2,4-Dinitrophenol	23.4	10	ug/l	25.0		93	11-142			
2,4-Dinitrotoluene	22.6	1.0	ug/l	25.0		90	44-105			
2,6-Dinitrotoluene	22.7	1.0	ug/l	25.0		91	44-106			
2-Chloronaphthalene	22.2	1.0	ug/l	25.0		89	36-100			
2-Chlorophenol	19.4	1.0	ug/l	25.0		77	34-96			
2-Nitrophenol	21.4	1.0	ug/l	25.0		85	38-103			
3,3'-Dichlorobenzidine	3.57	5.0	ug/l	25.0		14	0.1-308			
4,6-Dinitro-2-methylphenol	25.4	5.0	ug/l	25.0		102	42-111			
4-Bromophenyl phenyl ether	19.2	1.0	ug/l	25.0		77	38-92			
4-Chloro-3-methylphenol	22.6	1.0	ug/l	25.0		91	39-103			
4-Chlorophenyl phenyl ether	21.8	1.0	ug/l	25.0		87	40-102			
4-Nitrophenol	12.7	5.0	ug/l	25.0		51	4-50			Q-08

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Date Reported: 11/07/14 15:11

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0647-BS1)				Analyzed: 10/21/14 16:55						
Acenaphthene	22.5	1.0	ug/l	25.0		90	41-110			
Acenaphthylene	23.4	1.0	ug/l	25.0		94	39-110			
Anthracene	22.6	1.0	ug/l	25.0		90	45-114			
Benzo (a) anthracene	24.9	1.0	ug/l	25.0		100	44-109			
Benzo (a) pyrene	22.6	1.0	ug/l	25.0		90	26-122			
Benzo (b) fluoranthene	24.7	1.0	ug/l	25.0		99	37-121			
Benzo (g,h,i) perylene	23.4	2.0	ug/l	25.0		94	13-135			
Benzo (k) fluoranthene	23.9	1.0	ug/l	25.0		96	36-119			
Bis(2-chloroethoxy)methane	22.4	1.0	ug/l	25.0		90	42-105			
Bis(2-chloroethyl)ether	19.9	1.0	ug/l	25.0		80	38-100			
Bis(2-chloroisopropyl)ether	23.8	1.0	ug/l	25.0		95	29-130			
Bis(2-ethylhexyl)phthalate	27.6	5.0	ug/l	25.0		111	41-118			
Butyl benzyl phthalate	24.6	1.0	ug/l	25.0		98	49-109			
Chrysene	24.2	1.0	ug/l	25.0		97	48-116			
Dibenzo (a,h) anthracene	23.1	2.0	ug/l	25.0		92	45-110			
Diethyl phthalate	22.4	1.0	ug/l	25.0		90	44-113			
Dimethyl phthalate	24.2	1.0	ug/l	25.0		97	26-123			
Di-n-butyl phthalate	23.2	1.0	ug/l	25.0		93	45-108			
Di-n-octyl phthalate	23.0	1.0	ug/l	25.0		92	41-100			
Fluoranthene	24.8	1.0	ug/l	25.0		99	44-114			
Fluorene	22.3	1.0	ug/l	25.0		89	41-109			
Hexachlorobenzene	22.2	1.0	ug/l	25.0		89	44-106			
Hexachlorobutadiene	21.8	1.0	ug/l	25.0		87	26-107			
Hexachlorocyclopentadiene	10.5	5.0	ug/l	25.0		42	6-100			
Hexachloroethane	20.4	1.0	ug/l	25.0		82	20-91			
Indeno (1,2,3-cd) pyrene	22.7	2.0	ug/l	25.0		91	15-131			
Isophorone	22.0	1.0	ug/l	25.0		88	41-94			
Naphthalene	21.6	1.0	ug/l	25.0		86	31-107			
Nitrobenzene	22.1	1.0	ug/l	25.0		88	41-100			
N-Nitrosodimethylamine	13.3	1.0	ug/l	25.0		53	14-63			
N-Nitrosodi-n-propylamine	23.4	1.0	ug/l	25.0		94	38-105			
Pentachlorophenol	23.4	1.0	ug/l	25.0		94	36-105			
Phenanthrene	23.6	1.0	ug/l	25.0		94	46-115			
Phenol	8.86	1.0	ug/l	25.0		35	7-44			
Pyrene	24.8	1.0	ug/l	25.0		99	38-123			
Surr: 2,4,6-Tribromophenol	*44.5*		*ug/l*	*50.0*		*89*	*33-96*			
Surr: 2-Fluorobiphenyl	*22.4*		*ug/l*	*25.0*		*90*	*28-100*			
Surr: 2-Fluorophenol	*26.5*		*ug/l*	*50.0*		*53*	*5-76*			
Surr: Nitrobenzene-d5	*22.2*		*ug/l*	*25.0*		*89*	*34-104*			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0647-BS1)				Analyzed: 10/21/14 16:55						
Surr: Phenol-d5	*18.8*		*ug/l*	*50.0*		*38*	*0.1-57*			
Surr: Terphenyl-d14	*23.7*		*ug/l*	*25.0*		*95*	*39-104*			
LCS Dup (W4J0647-BSD1)				Analyzed: 10/21/14 16:26						
1,2,4-Trichlorobenzene	18.5	1.0	ug/l	25.0		74	27-99	11	30	
1,2-Dichlorobenzene	19.6	1.0	ug/l	25.0		78	22-102	7	30	
1,3-Dichlorobenzene	17.8	1.0	ug/l	25.0		71	22-100	7	30	
1,4-Dichlorobenzene	19.4	1.0	ug/l	25.0		78	24-101	7	30	
2,4,6-Trichlorophenol	20.0	1.0	ug/l	25.0		80	39-105	7	30	
2,4-Dichlorophenol	19.8	1.0	ug/l	25.0		79	39-102	12	30	
2,4-Dimethylphenol	17.6	1.0	ug/l	25.0		70	27-102	12	30	
2,4-Dinitrophenol	21.4	10	ug/l	25.0		85	11-142	9	30	
2,4-Dinitrotoluene	21.3	1.0	ug/l	25.0		85	44-105	6	30	
2,6-Dinitrotoluene	21.0	1.0	ug/l	25.0		84	44-106	8	30	
2-Chloronaphthalene	19.9	1.0	ug/l	25.0		80	36-100	11	30	
2-Chlorophenol	17.5	1.0	ug/l	25.0		70	34-96	10	30	
2-Nitrophenol	18.8	1.0	ug/l	25.0		75	38-103	13	30	
3,3'-Dichlorobenzidine	0.400	5.0	ug/l	25.0		2	0.1-308	160	30	Q-12
4,6-Dinitro-2-methylphenol	23.0	5.0	ug/l	25.0		92	42-111	10	30	
4-Bromophenyl phenyl ether	18.0	1.0	ug/l	25.0		72	38-92	6	30	
4-Chloro-3-methylphenol	20.2	1.0	ug/l	25.0		81	39-103	11	30	
4-Chlorophenyl phenyl ether	20.3	1.0	ug/l	25.0		81	40-102	7	30	
4-Nitrophenol	11.2	5.0	ug/l	25.0		45	4-50	12	30	
Acenaphthene	20.8	1.0	ug/l	25.0		83	41-110	8	30	
Acenaphthylene	20.9	1.0	ug/l	25.0		84	39-110	11	30	
Anthracene	21.3	1.0	ug/l	25.0		85	45-114	6	30	
Benzo (a) anthracene	24.1	1.0	ug/l	25.0		96	44-109	3	30	
Benzo (a) pyrene	22.7	1.0	ug/l	25.0		91	26-122	0.6	30	
Benzo (b) fluoranthene	23.2	1.0	ug/l	25.0		93	37-121	6	30	
Benzo (g,h,i) perylene	23.6	2.0	ug/l	25.0		94	13-135	0.6	30	
Benzo (k) fluoranthene	26.6	1.0	ug/l	25.0		106	36-119	11	30	
Bis(2-chloroethoxy)methane	19.8	1.0	ug/l	25.0		79	42-105	12	30	
Bis(2-chloroethyl)ether	18.6	1.0	ug/l	25.0		74	38-100	7	30	
Bis(2-chloroisopropyl)ether	21.3	1.0	ug/l	25.0		85	29-130	11	30	
Bis(2-ethylhexyl)phthalate	25.4	5.0	ug/l	25.0		102	41-118	8	30	
Butyl benzyl phthalate	23.6	1.0	ug/l	25.0		94	49-109	4	30	
Chrysene	23.0	1.0	ug/l	25.0		92	48-116	5	30	
Dibenzo (a,h) anthracene	22.9	2.0	ug/l	25.0		91	45-110	0.9	30	
Diethyl phthalate	20.8	1.0	ug/l	25.0		83	44-113	7	30	
Dimethyl phthalate	22.2	1.0	ug/l	25.0		89	26-123	9	30	

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0647 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0647-BSD1)				Analyzed: 10/21/14 16:26						
Di-n-butyl phthalate	21.7	1.0	ug/l	25.0		87	45-108	7	30	
Di-n-octyl phthalate	22.8	1.0	ug/l	25.0		91	41-100	0.7	30	
Fluoranthene	23.5	1.0	ug/l	25.0		94	44-114	5	30	
Fluorene	21.0	1.0	ug/l	25.0		84	41-109	6	30	
Hexachlorobenzene	21.2	1.0	ug/l	25.0		85	44-106	5	30	
Hexachlorobutadiene	19.6	1.0	ug/l	25.0		78	26-107	11	30	
Hexachlorocyclopentadiene	8.45	5.0	ug/l	25.0		34	6-100	22	30	
Hexachloroethane	18.8	1.0	ug/l	25.0		75	20-91	8	30	
Indeno (1,2,3-cd) pyrene	21.0	2.0	ug/l	25.0		84	15-131	8	30	
Isophorone	19.3	1.0	ug/l	25.0		77	41-94	13	30	
Naphthalene	19.3	1.0	ug/l	25.0		77	31-107	11	30	
Nitrobenzene	19.9	1.0	ug/l	25.0		80	41-100	11	30	
N-Nitrosodimethylamine	12.9	1.0	ug/l	25.0		52	14-63	3	30	
N-Nitrosodi-n-propylamine	20.6	1.0	ug/l	25.0		82	38-105	13	30	
Pentachlorophenol	21.8	1.0	ug/l	25.0		87	36-105	7	30	
Phenanthrene	22.6	1.0	ug/l	25.0		90	46-115	4	30	
Phenol	7.80	1.0	ug/l	25.0		31	7-44	13	30	
Pyrene	23.5	1.0	ug/l	25.0		94	38-123	5	30	
Surr: 2,4,6-Tribromophenol	*42.4*		*ug/l*	*50.0*		*85*	*33-96*			
Surr: 2-Fluorobiphenyl	*20.3*		*ug/l*	*25.0*		*81*	*28-100*			
Surr: 2-Fluorophenol	*24.9*		*ug/l*	*50.0*		*50*	*5-76*			
Surr: Nitrobenzene-d5	*19.7*		*ug/l*	*25.0*		*79*	*34-104*			
Surr: Phenol-d5	*16.3*		*ug/l*	*50.0*		*33*	*0.1-57*			
Surr: Terphenyl-d14	*22.3*		*ug/l*	*25.0*		*89*	*39-104*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0602-BLK1)				Analyzed: 10/14/14 00:08						
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,1-Trichloroethane	ND	1.0	ug/l							
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,2-Trichloroethane	ND	1.0	ug/l							
1,1-Dichloroethane	ND	1.0	ug/l							
1,1-Dichloroethene	ND	1.0	ug/l							
1,1-Dichloropropene	ND	1.0	ug/l							
1,2,3-Trichloropropane	ND	1.0	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0602-BLK1)				Analyzed: 10/14/14 00:08						
1,2,4-Trimethylbenzene	ND	1.0	ug/l							
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l							
1,2-Dibromoethane (EDB)	ND	1.0	ug/l							
1,2-Dichloroethane	ND	1.0	ug/l							
1,2-Dichloropropane	ND	1.0	ug/l							
1,3-Dichloropropane	ND	1.0	ug/l							
2,2-Dichloropropane	ND	1.0	ug/l							
2-Butanone	ND	5.0	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	ug/l							
2-Hexanone	ND	5.0	ug/l							
4-Methyl-2-pentanone	ND	5.0	ug/l							
Acetone	ND	5.0	ug/l							
Acetonitrile	ND	5.0	ug/l							
Acrolein	ND	5.0	ug/l							
Acrylonitrile	ND	5.0	ug/l							
Allyl chloride	ND	1.0	ug/l							
Benzene	ND	1.0	ug/l							
Bromochloromethane	ND	1.0	ug/l							
Bromodichloromethane	ND	1.0	ug/l							
Bromoform	ND	1.0	ug/l							
Bromomethane	ND	1.0	ug/l							
Carbon Disulfide	ND	1.0	ug/l							
Carbon tetrachloride	ND	1.0	ug/l							
Chlorobenzene	ND	1.0	ug/l							
Chloroethane	ND	1.0	ug/l							
Chloroform	ND	1.0	ug/l							
Chloromethane	ND	1.0	ug/l							
Chloroprene	ND	1.0	ug/l							
cis-1,2-Dichloroethene	ND	1.0	ug/l							
cis-1,3-Dichloropropene	ND	1.0	ug/l							
Dibromochloromethane	ND	1.0	ug/l							
Dibromomethane	ND	1.0	ug/l							
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l							
Ethyl methacrylate	ND	1.0	ug/l							
Ethylbenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Iodomethane	ND	1.0	ug/l							
Isobutanol	ND	5.0	ug/l							
m,p-Xylene	ND	1.0	ug/l							

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0602-BLK1)				Analyzed: 10/14/14 00:08						
m-Dichlorobenzene	ND	1.0	ug/l							
Methacrylonitrile	ND	5.0	ug/l							
Methyl methacrylate	ND	1.0	ug/l							
Methylene chloride	ND	1.0	ug/l							
Naphthalene	ND	1.0	ug/l							
o-Dichlorobenzene	ND	1.0	ug/l							
o-Xylene	ND	1.0	ug/l							
p-Dichlorobenzene	ND	1.0	ug/l							
Propionitrile	ND	5.0	ug/l							
sec-Butylbenzene	ND	1.0	ug/l							
Styrene	ND	1.0	ug/l							
Tetrachloroethene	ND	1.0	ug/l							
Toluene	ND	1.0	ug/l							
trans-1,2-Dichloroethene	ND	1.0	ug/l							
trans-1,3-Dichloropropene	ND	1.0	ug/l							
trans-1,4-Dichloro-2-butene	ND	1.0	ug/l							
Trichloroethene	ND	1.0	ug/l							
Trichlorofluoromethane	ND	1.0	ug/l							
Vinyl acetate	ND	1.0	ug/l							
Vinyl chloride	ND	1.0	ug/l							
Surr: 1,2-Dichloroethane-d4	*51.0*		*ug/l*	*50.0*		*102*	*86-126*			
Surr: 4-Bromofluorobenzene	*49.9*		*ug/l*	*50.0*		*100*	*80-112*			
Surr: Dibromofluoromethane	*53.4*		*ug/l*	*50.0*		*107*	*89-120*			
Surr: Toluene-d8	*50.1*		*ug/l*	*50.0*		*100*	*91-111*			
Blank (W4J0602-BLK2)				Analyzed: 10/20/14 18:08						
Acetonitrile	ND	5.0	ug/l							
Allyl chloride	ND	1.0	ug/l							
Chloroprene	ND	1.0	ug/l							
Ethyl methacrylate	ND	1.0	ug/l							
Iodomethane	ND	1.0	ug/l							
Isobutanol	ND	5.0	ug/l							
Methacrylonitrile	ND	5.0	ug/l							
Methyl methacrylate	ND	1.0	ug/l							
Propionitrile	ND	5.0	ug/l							
trans-1,4-Dichloro-2-butene	ND	1.0	ug/l							
Vinyl acetate	ND	1.0	ug/l							
Surr: 1,2-Dichloroethane-d4	*52.2*		*ug/l*	*50.0*		*104*	*86-126*			
Surr: 4-Bromofluorobenzene	*42.8*		*ug/l*	*50.0*		*86*	*80-112*			
Surr: Dibromofluoromethane	*54.3*		*ug/l*	*50.0*		*109*	*89-120*			
Surr: Toluene-d8	*48.1*		*ug/l*	*50.0*		*96*	*91-111*			

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0602-BS1)				Analyzed: 10/13/14 11:48						
1,1,1,2-Tetrachloroethane	54.4	1.0	ug/l	50.0		109	83-118			
1,1,1-Trichloroethane	50.0	1.0	ug/l	50.0		100	82-123			
1,1,2,2-Tetrachloroethane	56.1	1.0	ug/l	50.0		112	72-116			
1,1,2-Trichloroethane	51.5	1.0	ug/l	50.0		103	84-118			
1,1-Dichloroethane	49.9	1.0	ug/l	50.0		100	83-114			
1,1-Dichloroethene	47.0	1.0	ug/l	50.0		94	76-130			
1,1-Dichloropropene	49.2	1.0	ug/l	50.0		98	82-128			
1,2,3-Trichloropropane	53.6	1.0	ug/l	50.0		107	72-117			
1,2,4-Trichlorobenzene	53.9	1.0	ug/l	50.0		108	70-131			
1,2,4-Trimethylbenzene	50.0	1.0	ug/l	50.0		100	83-119			
1,2-Dibromo-3-chloropropane	59.9	1.0	ug/l	50.0		120	67-126			
1,2-Dibromoethane (EDB)	54.2	1.0	ug/l	50.0		108	85-123			
1,2-Dichloroethane	48.6	1.0	ug/l	50.0		97	79-117			
1,2-Dichloropropane	48.7	1.0	ug/l	50.0		97	79-124			
1,3-Dichloropropane	52.3	1.0	ug/l	50.0		105	79-129			
2,2-Dichloropropane	49.8	1.0	ug/l	50.0		100	73-131			
2-Butanone	56.8	5.0	ug/l	50.0		114	66-134			
2-Chloroethyl vinyl ether	51.2	5.0	ug/l	50.0		102	55-141			
2-Hexanone	58.6	5.0	ug/l	50.0		117	66-142			
4-Methyl-2-pentanone	60.8	5.0	ug/l	50.0		122	68-139			
Acetone	61.1	5.0	ug/l	50.0		122	58-147			
Acetonitrile	229	5.0	ug/l	250		91	60-140			
Acrolein	59.8	5.0	ug/l	50.0		120	40-158			
Acrylonitrile	60.4	5.0	ug/l	50.0		121	67-131			
Allyl chloride	44.2	1.0	ug/l	50.0		88	74-129			
Benzene	48.8	1.0	ug/l	50.0		98	80-117			
Bromochloromethane	52.1	1.0	ug/l	50.0		104	79-117			
Bromodichloromethane	49.0	1.0	ug/l	50.0		98	83-132			
Bromoform	53.2	1.0	ug/l	50.0		106	72-129			
Bromomethane	44.6	1.0	ug/l	50.0		89	52-144			
Carbon Disulfide	45.6	1.0	ug/l	50.0		91	76-124			
Carbon tetrachloride	41.8	1.0	ug/l	50.0		84	77-134			
Chlorobenzene	51.5	1.0	ug/l	50.0		103	82-114			
Chloroethane	44.5	1.0	ug/l	50.0		89	68-127			
Chloroform	48.6	1.0	ug/l	50.0		97	83-118			
Chloromethane	46.5	1.0	ug/l	50.0		93	59-120			
Chloroprene	30.2	1.0	ug/l	50.0		60	66-135			Q-01
cis-1,2-Dichloroethene	51.3	1.0	ug/l	50.0		103	80-126			
cis-1,3-Dichloropropene	54.5	1.0	ug/l	50.0		109	84-130			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0602-BS1)				Analyzed: 10/13/14 11:48						
Dibromochloromethane	49.7	1.0	ug/l	50.0		99	83-132			
Dibromomethane	51.3	1.0	ug/l	50.0		103	80-122			
Dichlorodifluoromethane (Freon 12)	43.5	1.0	ug/l	50.0		87	65-119			
Ethyl methacrylate	54.3	1.0	ug/l	50.0		109	67-135			
Ethylbenzene	51.5	1.0	ug/l	50.0		103	76-131			
Hexachlorobutadiene	52.3	1.0	ug/l	50.0		105	71-124			
Iodomethane	46.7	1.0	ug/l	50.0		93	74-134			
Isobutanol	181	5.0	ug/l	250		72	66-133			
m,p-Xylene	51.6	1.0	ug/l	50.0		103	80-126			
m-Dichlorobenzene	50.3	1.0	ug/l	50.0		101	79-119			
Methacrylonitrile	256	5.0	ug/l	250		102	69-131			
Methyl methacrylate	64.6	1.0	ug/l	50.0		129	72-133			
Methylene chloride	45.9	1.0	ug/l	50.0		92	78-115			
Naphthalene	60.6	1.0	ug/l	50.0		121	64-145			
o-Dichlorobenzene	51.3	1.0	ug/l	50.0		103	80-117			
o-Xylene	51.9	1.0	ug/l	50.0		104	84-121			
p-Dichlorobenzene	49.4	1.0	ug/l	50.0		99	80-117			
Propionitrile	271	5.0	ug/l	250		108	64-133			
sec-Butylbenzene	51.8	1.0	ug/l	50.0		104	83-118			
Styrene	53.5	1.0	ug/l	50.0		107	87-126			
Tetrachloroethene	50.0	1.0	ug/l	50.0		100	79-126			
Toluene	48.3	1.0	ug/l	50.0		97	82-122			
trans-1,2-Dichloroethene	49.1	1.0	ug/l	50.0		98	83-121			
trans-1,3-Dichloropropene	51.2	1.0	ug/l	50.0		102	82-137			
trans-1,4-Dichloro-2-butene	43.6	1.0	ug/l	50.0		87	73-136			
Trichloroethene	48.3	1.0	ug/l	50.0		97	81-121			
Trichlorofluoromethane	44.9	1.0	ug/l	50.0		90	71-131			
Vinyl acetate	42.9	1.0	ug/l	50.0		86	71-127			
Vinyl chloride	46.8	1.0	ug/l	50.0		94	66-124			
Surr: 1,2-Dichloroethane-d4	*50.8*		*ug/l*	*50.0*		*102*	*86-126*			
Surr: 4-Bromofluorobenzene	*53.5*		*ug/l*	*50.0*		*107*	*80-112*			
Surr: Dibromofluoromethane	*49.8*		*ug/l*	*50.0*		*100*	*89-120*			
Surr: Toluene-d8	*49.8*		*ug/l*	*50.0*		*100*	*91-111*			
LCS (W4J0602-BS2)				Analyzed: 10/20/14 16:13						
Acetonitrile	231	5.0	ug/l	250		92	60-140			
Allyl chloride	45.8	1.0	ug/l	50.0		92	74-129			
Chloroprene	50.7	1.0	ug/l	50.0		101	66-135			
Ethyl methacrylate	41.4	1.0	ug/l	50.0		83	67-135			
Iodomethane	48.0	1.0	ug/l	50.0		96	74-134			
Isobutanol	301	5.0	ug/l	250		120	66-133			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0602-BS2)				Analyzed: 10/20/14 16:13						
Methacrylonitrile	220	5.0	ug/l	250		88	69-131			
Methyl methacrylate	47.3	1.0	ug/l	50.0		95	72-133			
Propionitrile	267	5.0	ug/l	250		107	64-133			
trans-1,4-Dichloro-2-butene	44.7	1.0	ug/l	50.0		89	73-136			
Vinyl acetate	40.5	1.0	ug/l	50.0		81	71-127			
Surr: 1,2-Dichloroethane-d4	*49.9*		*ug/l*	*50.0*		*100*	*86-126*			
Surr: 4-Bromofluorobenzene	*46.8*		*ug/l*	*50.0*		*94*	*80-112*			
Surr: Dibromofluoromethane	*46.1*		*ug/l*	*50.0*		*92*	*89-120*			
Surr: Toluene-d8	*47.7*		*ug/l*	*50.0*		*95*	*91-111*			
LCS Dup (W4J0602-BSD1)				Analyzed: 10/13/14 12:18						
1,1,1,2-Tetrachloroethane	54.4	1.0	ug/l	50.0		109	83-118	0.02	25	
1,1,1-Trichloroethane	45.9	1.0	ug/l	50.0		92	82-123	8	25	
1,1,2,2-Tetrachloroethane	49.5	1.0	ug/l	50.0		99	72-116	12	25	
1,1,2-Trichloroethane	45.5	1.0	ug/l	50.0		91	84-118	12	25	
1,1-Dichloroethane	46.4	1.0	ug/l	50.0		93	83-114	7	25	
1,1-Dichloroethene	42.2	1.0	ug/l	50.0		84	76-130	11	25	
1,1-Dichloropropene	46.1	1.0	ug/l	50.0		92	82-128	6	25	
1,2,3-Trichloropropane	47.6	1.0	ug/l	50.0		95	72-117	12	25	
1,2,4-Trichlorobenzene	50.4	1.0	ug/l	50.0		101	70-131	7	25	
1,2,4-Trimethylbenzene	51.8	1.0	ug/l	50.0		104	83-119	4	25	
1,2-Dibromo-3-chloropropane	49.6	1.0	ug/l	50.0		99	67-126	19	25	
1,2-Dibromoethane (EDB)	46.6	1.0	ug/l	50.0		93	85-123	15	25	
1,2-Dichloroethane	41.5	1.0	ug/l	50.0		83	79-117	16	25	
1,2-Dichloropropane	46.8	1.0	ug/l	50.0		94	79-124	4	25	
1,3-Dichloropropane	45.4	1.0	ug/l	50.0		91	79-129	14	25	
2,2-Dichloropropane	44.8	1.0	ug/l	50.0		90	73-131	11	25	
2-Butanone	45.5	5.0	ug/l	50.0		91	66-134	22	25	
2-Chloroethyl vinyl ether	45.8	5.0	ug/l	50.0		92	55-141	11	25	
2-Hexanone	45.1	5.0	ug/l	50.0		90	66-142	26	25	QR-BS
4-Methyl-2-pentanone	47.8	5.0	ug/l	50.0		96	68-139	24	25	
Acetone	45.5	5.0	ug/l	50.0		91	58-147	29	25	QR-BS
Acetonitrile	209	5.0	ug/l	250		84	60-140	9	25	
Acrolein	45.3	5.0	ug/l	50.0		91	40-158	28	25	QR-BS
Acrylonitrile	49.0	5.0	ug/l	50.0		98	67-131	21	25	
Allyl chloride	47.4	1.0	ug/l	50.0		95	74-129	7	25	
Benzene	47.5	1.0	ug/l	50.0		95	80-117	3	25	
Bromochloromethane	47.3	1.0	ug/l	50.0		95	79-117	10	25	
Bromodichloromethane	45.1	1.0	ug/l	50.0		90	83-132	8	25	
Bromoform	47.0	1.0	ug/l	50.0		94	72-129	13	25	
Bromomethane	41.3	1.0	ug/l	50.0		83	52-144	8	25	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0602-BSD1)				Analyzed: 10/13/14 12:18						
Carbon Disulfide	41.8	1.0	ug/l	50.0		84	76-124	9	25	
Carbon tetrachloride	40.3	1.0	ug/l	50.0		81	77-134	4	25	
Chlorobenzene	52.1	1.0	ug/l	50.0		104	82-114	1	25	
Chloroethane	41.2	1.0	ug/l	50.0		82	68-127	8	25	
Chloroform	45.7	1.0	ug/l	50.0		91	83-118	6	25	
Chloromethane	43.9	1.0	ug/l	50.0		88	59-120	6	25	
Chloroprene	32.3	1.0	ug/l	50.0		65	66-135	6	25	Q-01
cis-1,2-Dichloroethene	47.0	1.0	ug/l	50.0		94	80-126	9	25	
cis-1,3-Dichloropropene	50.6	1.0	ug/l	50.0		101	84-130	8	25	
Dibromochloromethane	43.6	1.0	ug/l	50.0		87	83-132	13	25	
Dibromomethane	44.7	1.0	ug/l	50.0		89	80-122	14	25	
Dichlorodifluoromethane (Freon 12)	39.7	1.0	ug/l	50.0		79	65-119	9	25	
Ethyl methacrylate	53.8	1.0	ug/l	50.0		108	67-135	1	25	
Ethylbenzene	52.1	1.0	ug/l	50.0		104	76-131	1	25	
Hexachlorobutadiene	51.6	1.0	ug/l	50.0		103	71-124	1	25	
Iodomethane	47.1	1.0	ug/l	50.0		94	74-134	0.9	25	
Isobutanol	212	5.0	ug/l	250		85	66-133	16	25	
m,p-Xylene	52.0	1.0	ug/l	50.0		104	80-126	0.7	25	
m-Dichlorobenzene	51.6	1.0	ug/l	50.0		103	79-119	3	25	
Methacrylonitrile	267	5.0	ug/l	250		107	69-131	4	25	
Methyl methacrylate	69.8	1.0	ug/l	50.0		140	72-133	8	25	Q-08
Methylene chloride	40.6	1.0	ug/l	50.0		81	78-115	12	25	
Naphthalene	50.1	1.0	ug/l	50.0		100	64-145	19	25	
o-Dichlorobenzene	50.4	1.0	ug/l	50.0		101	80-117	2	25	
o-Xylene	52.4	1.0	ug/l	50.0		105	84-121	0.8	25	
p-Dichlorobenzene	49.7	1.0	ug/l	50.0		99	80-117	0.6	25	
Propionitrile	285	5.0	ug/l	250		114	64-133	5	25	
sec-Butylbenzene	51.9	1.0	ug/l	50.0		104	83-118	0.3	25	
Styrene	54.0	1.0	ug/l	50.0		108	87-126	0.9	25	
Tetrachloroethene	48.2	1.0	ug/l	50.0		96	79-126	4	25	
Toluene	47.0	1.0	ug/l	50.0		94	82-122	3	25	
trans-1,2-Dichloroethene	46.2	1.0	ug/l	50.0		92	83-121	6	25	
trans-1,3-Dichloropropene	45.1	1.0	ug/l	50.0		90	82-137	13	25	
trans-1,4-Dichloro-2-butene	45.3	1.0	ug/l	50.0		91	73-136	4	25	
Trichloroethene	46.4	1.0	ug/l	50.0		93	81-121	4	25	
Trichlorofluoromethane	40.0	1.0	ug/l	50.0		80	71-131	12	25	
Vinyl acetate	47.7	1.0	ug/l	50.0		95	71-127	11	25	
Vinyl chloride	42.5	1.0	ug/l	50.0		85	66-124	10	25	
Surr: 1,2-Dichloroethane-d4	*44.1*		*ug/l*	*50.0*		*88*	*86-126*			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0602-BSD1)				Analyzed: 10/13/14 12:18						
Surr: 4-Bromofluorobenzene	*54.0*		*ug/l*	*50.0*		*108*	*80-112*			
Surr: Dibromofluoromethane	*48.0*		*ug/l*	*50.0*		*96*	*89-120*			
Surr: Toluene-d8	*49.6*		*ug/l*	*50.0*		*99*	*91-111*			
LCS Dup (W4J0602-BSD2)				Analyzed: 10/20/14 16:40						
Acetonitrile	242	5.0	ug/l	250		97	60-140	5	25	
Allyl chloride	47.3	1.0	ug/l	50.0		95	74-129	3	25	
Chloroprene	51.2	1.0	ug/l	50.0		102	66-135	1	25	
Ethyl methacrylate	45.9	1.0	ug/l	50.0		92	67-135	10	25	
Iodomethane	50.0	1.0	ug/l	50.0		100	74-134	4	25	
Isobutanol	260	5.0	ug/l	250		104	66-133	15	25	
Methacrylonitrile	239	5.0	ug/l	250		96	69-131	8	25	
Methyl methacrylate	45.2	1.0	ug/l	50.0		90	72-133	4	25	
Propionitrile	327	5.0	ug/l	250		131	64-133	20	25	
trans-1,4-Dichloro-2-butene	51.0	1.0	ug/l	50.0		102	73-136	13	25	
Vinyl acetate	37.1	1.0	ug/l	50.0		74	71-127	9	25	
Surr: 1,2-Dichloroethane-d4	*48.9*		*ug/l*	*50.0*		*98*	*86-126*			
Surr: 4-Bromofluorobenzene	*46.4*		*ug/l*	*50.0*		*93*	*80-112*			
Surr: Dibromofluoromethane	*47.0*		*ug/l*	*50.0*		*94*	*89-120*			
Surr: Toluene-d8	*45.7*		*ug/l*	*50.0*		*91*	*91-111*			
Matrix Spike (W4J0602-MS1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:28						
1,1,1,2-Tetrachloroethane	54.7	1.0	ug/l	50.0	ND	109	80-119			
1,1,1-Trichloroethane	57.3	1.0	ug/l	50.0	ND	115	77-132			
1,1,2,2-Tetrachloroethane	42.7	1.0	ug/l	50.0	ND	85	59-119			
1,1,2-Trichloroethane	46.3	1.0	ug/l	50.0	ND	93	77-124			
1,1-Dichloroethane	50.0	1.0	ug/l	50.0	ND	100	83-118			
1,1-Dichloroethene	52.9	1.0	ug/l	50.0	ND	106	64-140			
1,1-Dichloropropene	52.6	1.0	ug/l	50.0	ND	105	78-134			
1,2,3-Trichloropropane	41.4	1.0	ug/l	50.0	ND	83	54-133			
1,2,4-Trichlorobenzene	44.4	1.0	ug/l	50.0	ND	89	57-127			
1,2,4-Trimethylbenzene	49.5	1.0	ug/l	50.0	ND	99	76-120			
1,2-Dibromo-3-chloropropane	46.2	1.0	ug/l	50.0	ND	92	52-131			
1,2-Dibromoethane (EDB)	48.9	1.0	ug/l	50.0	ND	98	78-124			
1,2-Dichloroethane	50.9	1.0	ug/l	50.0	ND	102	70-125			
1,2-Dichloropropane	46.5	1.0	ug/l	50.0	ND	93	77-121			
1,3-Dichloropropane	47.0	1.0	ug/l	50.0	ND	94	79-122			
2,2-Dichloropropane	49.8	1.0	ug/l	50.0	ND	100	59-139			
2-Butanone	46.0	5.0	ug/l	50.0	ND	92	52-134			
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	45.2	5.0	ug/l	50.0	ND	90	54-144			
4-Methyl-2-pentanone	47.9	5.0	ug/l	50.0	ND	96	59-144			

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7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0602-MS1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:28						
Acetone	46.5	5.0	ug/l	50.0	ND	93	29-151			
Acetonitrile	281	5.0	ug/l	250	ND	112	55-144			
Acrolein	45.4	5.0	ug/l	50.0	ND	91	0.1-178			
Acrylonitrile	44.6	5.0	ug/l	50.0	ND	89	62-129			
Allyl chloride	51.6	1.0	ug/l	50.0	ND	103	62-135			
Benzene	48.7	1.0	ug/l	50.0	ND	97	74-114			
Bromochloromethane	46.8	1.0	ug/l	50.0	ND	94	74-121			
Bromodichloromethane	52.9	1.0	ug/l	50.0	ND	106	79-132			
Bromoform	48.0	1.0	ug/l	50.0	ND	96	78-133			
Bromomethane	62.3	1.0	ug/l	50.0	ND	125	41-155			
Carbon Disulfide	51.5	1.0	ug/l	50.0	ND	103	72-125			
Carbon tetrachloride	59.2	1.0	ug/l	50.0	ND	118	73-145			
Chlorobenzene	48.0	1.0	ug/l	50.0	ND	96	78-115			
Chloroethane	50.1	1.0	ug/l	50.0	ND	100	69-134			
Chloroform	52.2	1.0	ug/l	50.0	ND	104	78-123			
Chloromethane	43.3	1.0	ug/l	50.0	ND	87	65-123			
Chloroprene	48.2	1.0	ug/l	50.0	ND	96	56-139			
cis-1,2-Dichloroethene	51.4	1.0	ug/l	50.0	ND	103	80-123			
cis-1,3-Dichloropropene	51.1	1.0	ug/l	50.0	ND	102	74-127			
Dibromochloromethane	50.6	1.0	ug/l	50.0	ND	101	79-132			
Dibromomethane	49.0	1.0	ug/l	50.0	ND	98	74-124			
Dichlorodifluoromethane (Freon 12)	54.1	1.0	ug/l	50.0	ND	108	72-124			
Ethyl methacrylate	52.0	1.0	ug/l	50.0	ND	104	60-134			
Ethylbenzene	50.0	1.0	ug/l	50.0	ND	100	75-123			
Hexachlorobutadiene	48.1	1.0	ug/l	50.0	ND	96	68-119			
Iodomethane	57.6	1.0	ug/l	50.0	ND	115	58-147			
Isobutanol	428	5.0	ug/l	250	ND	171	51-147			MS-05
m,p-Xylene	50.9	1.0	ug/l	50.0	ND	102	76-124			
m-Dichlorobenzene	48.9	1.0	ug/l	50.0	ND	98	74-113			
Methacrylonitrile	321	5.0	ug/l	250	ND	128	65-134			
Methyl methacrylate	177	1.0	ug/l	50.0	ND	354	61-135			MS-05
Methylene chloride	48.1	1.0	ug/l	50.0	ND	96	75-118			
Naphthalene	40.0	1.0	ug/l	50.0	ND	80	48-143			
o-Dichlorobenzene	47.4	1.0	ug/l	50.0	ND	95	73-115			
o-Xylene	51.0	1.0	ug/l	50.0	ND	102	76-123			
p-Dichlorobenzene	47.4	1.0	ug/l	50.0	ND	95	74-117			
Propionitrile	294	5.0	ug/l	250	ND	118	62-133			
sec-Butylbenzene	ND	1.0	ug/l	50.0	ND	NR	75-125			MS-05
Styrene	50.1	1.0	ug/l	50.0	ND	100	73-124			

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0602-MS1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:28						
Tetrachloroethene	55.4	1.0	ug/l	50.0	ND	111	80-129			
Toluene	50.6	1.0	ug/l	50.0	ND	101	79-123			
trans-1,2-Dichloroethene	52.0	1.0	ug/l	50.0	ND	104	80-123			
trans-1,3-Dichloropropene	47.5	1.0	ug/l	50.0	ND	95	76-130			
trans-1,4-Dichloro-2-butene	43.2	1.0	ug/l	50.0	ND	86	64-129			
Trichloroethene	52.0	1.0	ug/l	50.0	ND	104	79-126			
Trichlorofluoromethane	59.4	1.0	ug/l	50.0	ND	119	73-139			
Vinyl acetate	55.1	1.0	ug/l	50.0	ND	110	28-134			
Vinyl chloride	50.7	1.0	ug/l	50.0	ND	101	73-131			
Surr: 1,2-Dichloroethane-d4	*53.4*		*ug/l*	*50.0*		*107*	*86-126*			
Surr: 4-Bromofluorobenzene	*52.6*		*ug/l*	*50.0*		*105*	*80-112*			
Surr: Dibromofluoromethane	*53.2*		*ug/l*	*50.0*		*106*	*89-120*			
Surr: Toluene-d8	*51.2*		*ug/l*	*50.0*		*102*	*91-111*			
Matrix Spike Dup (W4J0602-MSD1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:58						
1,1,1,2-Tetrachloroethane	54.3	1.0	ug/l	50.0	ND	109	80-119	0.8	25	
1,1,1-Trichloroethane	58.5	1.0	ug/l	50.0	ND	117	77-132	2	25	
1,1,2,2-Tetrachloroethane	43.2	1.0	ug/l	50.0	ND	86	59-119	1	25	
1,1,2-Trichloroethane	45.8	1.0	ug/l	50.0	ND	92	77-124	1	25	
1,1-Dichloroethane	49.3	1.0	ug/l	50.0	ND	99	83-118	1	25	
1,1-Dichloroethene	49.1	1.0	ug/l	50.0	ND	98	64-140	8	25	
1,1-Dichloropropene	51.0	1.0	ug/l	50.0	ND	102	78-134	3	25	
1,2,3-Trichloropropane	41.8	1.0	ug/l	50.0	ND	84	54-133	1	25	
1,2,4-Trichlorobenzene	45.1	1.0	ug/l	50.0	ND	90	57-127	1	25	
1,2,4-Trimethylbenzene	49.6	1.0	ug/l	50.0	ND	99	76-120	0.2	25	
1,2-Dibromo-3-chloropropane	46.4	1.0	ug/l	50.0	ND	93	52-131	0.5	25	
1,2-Dibromoethane (EDB)	47.6	1.0	ug/l	50.0	ND	95	78-124	3	25	
1,2-Dichloroethane	48.7	1.0	ug/l	50.0	ND	97	70-125	4	25	
1,2-Dichloropropane	45.8	1.0	ug/l	50.0	ND	92	77-121	2	25	
1,3-Dichloropropane	45.7	1.0	ug/l	50.0	ND	91	79-122	3	25	
2,2-Dichloropropane	51.9	1.0	ug/l	50.0	ND	104	59-139	4	25	
2-Butanone	36.0	5.0	ug/l	50.0	ND	72	52-134	24	25	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	45.4	5.0	ug/l	50.0	ND	91	54-144	0.4	25	
4-Methyl-2-pentanone	47.5	5.0	ug/l	50.0	ND	95	59-144	0.8	25	
Acetone	45.5	5.0	ug/l	50.0	ND	91	29-151	2	25	
Acetonitrile	359	5.0	ug/l	250	ND	144	55-144	25	25	
Acrolein	46.5	5.0	ug/l	50.0	ND	93	0.1-178	2	25	
Acrylonitrile	43.0	5.0	ug/l	50.0	ND	86	62-129	4	25	
Allyl chloride	62.9	1.0	ug/l	50.0	ND	126	62-135	20	25	
Benzene	48.6	1.0	ug/l	50.0	ND	97	74-114	0.08	25	

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Date Received: 10/09/14 10:10
Date Reported: 11/07/14 15:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0602-MSD1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:58						
Bromochloromethane	49.8	1.0	ug/l	50.0	ND	100	74-121	6	25	
Bromodichloromethane	51.9	1.0	ug/l	50.0	ND	104	79-132	2	25	
Bromoform	47.5	1.0	ug/l	50.0	ND	95	78-133	1	25	
Bromomethane	60.9	1.0	ug/l	50.0	ND	122	41-155	2	25	
Carbon Disulfide	51.5	1.0	ug/l	50.0	ND	103	72-125	0.04	25	
Carbon tetrachloride	55.0	1.0	ug/l	50.0	ND	110	73-145	7	25	
Chlorobenzene	48.1	1.0	ug/l	50.0	ND	96	78-115	0.2	25	
Chloroethane	49.2	1.0	ug/l	50.0	ND	98	69-134	2	25	
Chloroform	52.1	1.0	ug/l	50.0	ND	104	78-123	0.1	25	
Chloromethane	48.1	1.0	ug/l	50.0	ND	96	65-123	11	25	
Chloroprene	59.5	1.0	ug/l	50.0	ND	119	56-139	21	25	
cis-1,2-Dichloroethene	52.1	1.0	ug/l	50.0	ND	104	80-123	1	25	
cis-1,3-Dichloropropene	49.6	1.0	ug/l	50.0	ND	99	74-127	3	25	
Dibromochloromethane	49.6	1.0	ug/l	50.0	ND	99	79-132	2	25	
Dibromomethane	48.6	1.0	ug/l	50.0	ND	97	74-124	0.8	25	
Dichlorodifluoromethane (Freon 12)	54.2	1.0	ug/l	50.0	ND	108	72-124	0.2	25	
Ethyl methacrylate	54.2	1.0	ug/l	50.0	ND	108	60-134	4	25	
Ethylbenzene	50.2	1.0	ug/l	50.0	ND	100	75-123	0.3	25	
Hexachlorobutadiene	51.2	1.0	ug/l	50.0	ND	102	68-119	6	25	
Iodomethane	72.4	1.0	ug/l	50.0	ND	145	58-147	23	25	
Isobutanol	459	5.0	ug/l	250	ND	183	51-147	7	25	MS-05
m,p-Xylene	50.6	1.0	ug/l	50.0	ND	101	76-124	0.7	25	
m-Dichlorobenzene	48.6	1.0	ug/l	50.0	ND	97	74-113	0.8	25	
Methacrylonitrile	352	5.0	ug/l	250	ND	141	65-134	9	25	MS-05
Methyl methacrylate	286	1.0	ug/l	50.0	ND	572	61-135	47	25	MS-05
Methylene chloride	47.2	1.0	ug/l	50.0	ND	94	75-118	2	25	
Naphthalene	42.2	1.0	ug/l	50.0	ND	84	48-143	5	25	
o-Dichlorobenzene	47.2	1.0	ug/l	50.0	ND	94	73-115	0.3	25	
o-Xylene	50.7	1.0	ug/l	50.0	ND	101	76-123	0.4	25	
p-Dichlorobenzene	47.2	1.0	ug/l	50.0	ND	94	74-117	0.3	25	
Propionitrile	316	5.0	ug/l	250	ND	127	62-133	7	25	
sec-Butylbenzene	49.9	1.0	ug/l	50.0	ND	100	75-125	NR	25	MS-05
Styrene	50.3	1.0	ug/l	50.0	ND	101	73-124	0.3	25	
Tetrachloroethene	53.8	1.0	ug/l	50.0	ND	108	80-129	3	25	
Toluene	49.6	1.0	ug/l	50.0	ND	99	79-123	2	25	
trans-1,2-Dichloroethene	51.0	1.0	ug/l	50.0	ND	102	80-123	2	25	
trans-1,3-Dichloropropene	47.7	1.0	ug/l	50.0	ND	95	76-130	0.6	25	
trans-1,4-Dichloro-2-butene	61.6	1.0	ug/l	50.0	ND	123	64-129	35	25	MS-05
Trichloroethene	51.0	1.0	ug/l	50.0	ND	102	79-126	2	25	

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Date Received: 10/09/14 10:10
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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0602 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0602-MSD1)	**Source: 4J07107-01**			Analyzed: 10/14/14 10:58						
Trichlorofluoromethane	56.5	1.0	ug/l	50.0	ND	113	73-139	5	25	
Vinyl acetate	65.7	1.0	ug/l	50.0	ND	131	28-134	18	25	
Vinyl chloride	52.4	1.0	ug/l	50.0	ND	105	73-131	3	25	
Surr: 1,2-Dichloroethane-d4	*52.4*		*ug/l*	*50.0*		*105*	*86-126*			
Surr: 4-Bromofluorobenzene	*52.1*		*ug/l*	*50.0*		*104*	*80-112*			
Surr: Dibromofluoromethane	*52.5*		*ug/l*	*50.0*		*105*	*89-120*			
Surr: Toluene-d8	*50.7*		*ug/l*	*50.0*		*101*	*91-111*			

EPA 1613B m - Quality Control

Batch 3795713 - EPA 1613B m

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (3795713-BLK)				Analyzed: 10/23/14 00:00						
2,3,7,8-Tetra CDD	ND	3.8	pg/L			NR	-			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*174*		*pg/L*	*200*		*87*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*192*		*pg/L*	*200*		*96*	*24-164*			*S_MAXX*
LCS (3795713-LCS)				Analyzed: 10/23/14 00:00						
2,3,7,8-Tetra CDD	184	3.8	pg/L	200		92	67-158			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*178*		*pg/L*	*200*		*89*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*186*		*pg/L*	*200*		*93*	*24-164*			*S_MAXX*

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Notes and Definitions

S_MAXX	Analysis subcontracted to Maxxam Analytics, INC. NELAC #02106A
QR-BS	The RPD value for the BS/BSD (LCS/LCSD) was outside of QC acceptance limits however both recoveries were acceptable. The QC batch was accepted based on acceptable results for the recoveries of the BS (LCS) and BSD (LCSD).
QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
Q-12	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on the percent recoveries and/or other acceptable QC data.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
Q-01	The recovery of this analyte in QC sample was outside control limits. Sample was justified as ND based on the low level standard at or below the reporting limit.
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
*	The recommended holding time for this analysis is only 15 minutes. The sample was analyzed as soon as it was possible but it was received and analyzed past holding time.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reportable
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Sub	Subcontracted analysis, original report available upon request
MDL	Method Detection Limit
MDA	Minimum Detectable Activity
MRL	Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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4J09025

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STANDARD ~~4509024~~ BST ~~4J09024~~ BT

CLIENT NAME:	PROJECT: DVC 5 Year
CalEnergy Operating Corporation	
ADDRESS:	PHONE: **760-348-4241**
	FAX:
7030 Gentry Road, Calipatria, CA 92233	EMAIL: antonio.campos@calenergy.com
PROJECT MANAGER **Stella Minaev**	SAMPLER: Katherine West

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS Under Ice

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	Cyanide, Total - ASTM D7511	Dioxin 2378TCDD - EPA 1613B	EPA 8081A/8082 -Pesticides & PCB	EPA 8151A - Chlorinated Herbicides	EPA 8260B - VOC	EPA 8270C - Semivolatile Organics	EPA 300.0 - Fluoride	EPA 7470 - Mercury	EPA 6010 Metals, CAM	EPA 300.0 Nitrate-NO3
	10/08/14	8:59	GW	DVC Monitoring Well GW302	17	X	X	X	X	X	X	X	X	X	X
	10/08/14	7:46	GW	DVC Monitoring Well GW306	17	X	X	X	X	X	X	X	X	X	X
	10/08/14	9:45	GW	DVC Monitoring Well GW11	1										X
	10/08/14	10:01	GW	DVC Monitoring Well GW10A	1										X
	10/08/14	9:54	GW	DVC Monitoring Well GW09A	1										X

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	10-8-14 12:00	1010 10/8/14
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature:	1.0
Received On Ice	(Y) / N
Preserved	(Y) / N
Evidence Seals Present	Y / (N)
Container Attacked	Y / (N)
Preserved at Lab	Y / N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION
Please send invoices to payables@calenergy.com **P.O# 210007**

CHAIN OF CUSTODY RECORD

4J0902S

STANDARD

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Analytical Laboratory Services - Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CLIENT NAME: **CalEnergy Operating Corporation**

PROJECT: DVC 5 Year Source Test

ADDRESS: **7030 Gentry Road, Calipatria, CA 92233**

PHONE: **760-348-4241**
FAX:
EMAIL: antonio.campos@calenergy.com

PROJECT MANAGER **Stella Minaev**

SAMPLER: Katherine West/Antonio Campos

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS: Under Ice

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	SM 4500H B - pH	EPA 9030B/9034 - Sulfide, Total	EPA 6010B - Tin	SM2540C - Total Dissolved Solids						
	10/08/14	8:59	GW	DVC Monitoring Well GW302	SEE PAGE 1 OF 2	X	X	X	X						
	10/08/14	7:46	GW	DVC Monitoring Well GW306	SEE PAGE 1 OF 2	X	X	X	X						

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	10-8-14/2:00	1010 10/8/14
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature:	1.6
Received On Ice	(Y) / N
Preserved	(Y) / N
Evidence Seals Present	(Y) / N
Container Attacked	Y / (N)
Preserved at Lab	Y / (N)

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION
Please send invoices to payables@calenergy.com **P.O# 210007**

CALENERGY
OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
(760) 348-4000

SHIPPING NOTICE

SHIP TO: Neck Laboratories
14859 East Clark Avenue
Industry, CA 91745
tel # 626-336-2139

DATE	PURCHASE ORDER CONTRACT NO
10/8/14	210007
O.S. & D. NO.	RELEASE NO.
RETURN TAG NO.	SHIPPING NOTICE NO.

NAME OF VENDOR ON P. O. / CONTRACT	RETURNED FOR	*RETURN TO:
VENDOR NO.	☐ CREDIT ☐ REPAIR & RETURN* ☐ REPLACE*	**CalEnergy Company, Inc.** 7030 Gentry Road Calipatria, CA 92233 (760) 348-4000

SHIP: PREPAID ☐ COLLECT ☐	SHIP VIA	SHIPPING DATE	NO. OF CARTONS	WEIGHT	SHIPPING
	UPS Next Day Air	10/8/14	2	64LB 65LB	Next Day

REASON FOR RETURN:

Item No.	Area Store	Distribution/Cost Elem. Stock Code	Quantity	Unit	DESCRIPTION	Unit Price	Accounting Use Only
1			2	cooler	37 Liquid samples from DVC shipped for Analysis		

ORIGINATOR	BUYER	COMPLETED BY

The above material received

or _____ by Edwin Rios Date 10-8-14
(Name of Company)

IMPERIAL PRINTERS • 71448

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 4J09025
Your C.O.C. #: na

Attention:Kim G Tu

Weck Laboratories Inc
14859 East Clark Ave
Industry, CA
USA 91745

Report Date: 2014/10/24
Report #: R3199349
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4I9723
Received: 2014/10/10, 12:30

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
2,3,7,8-TCDD in Water (1613B)	2	2014/10/16	2014/10/23	BRL SOP-00410	EPA 1613B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Ivana Vukovic
24 Oct 2014 15:50:10 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ivana Vukovic, Env Project Manager
Email: IVukovic@maxxam.ca
Phone# (905) 817-5700
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B4I9723
Report Date: 2014/10/24

Weck Laboratories Inc
Client Project #: 4J09025

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XY5630							
Sampling Date		2014/10/09 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J09025-01	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.5 U	1.5	3.6	N/A	1.00	1.50	N/A	3795713
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.50	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	88	N/A	N/A	N/A	N/A	N/A	N/A	3795713
C13-2378 TetraCDD *	%	94	N/A	N/A	N/A	N/A	N/A	N/A	3795713

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

Maxxam ID		XY5631							
Sampling Date		2014/10/09 07:46							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J09025-02	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.3 U	1.3	3.6	N/A	1.00	1.30	N/A	3795713
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.30	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	87	N/A	N/A	N/A	N/A	N/A	N/A	3795713
C13-2378 TetraCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	3795713

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B4I9723
Report Date: 2014/10/24

Weck Laboratories Inc
Client Project #: 4J09025

TEST SUMMARY

Maxxam ID: XY5630
Sample ID: 4J09025-01
Matrix: Water

Collected: 2014/10/09
Shipped:
Received: 2014/10/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3795713	2014/10/16	2014/10/23	Vica Cioranic

Maxxam ID: XY5631
Sample ID: 4J09025-02
Matrix: Water

Collected: 2014/10/09
Shipped:
Received: 2014/10/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3795713	2014/10/16	2014/10/23	Vica Cioranic

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Maxxam Job #: B4I9723
Report Date: 2014/10/24

Weck Laboratories Inc
Client Project #: 4J09025

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.5°C

Results relate only to the items tested.

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Maxxam Job #: B4I9723
Report Date: 2014/10/24

Weck Laboratories Inc
Client Project #: 4J09025

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	Units	QC Limits
3795713	VCI	Spiked Blank	2,3,7,8-Tetra CDD	2014/10/23		92	%	67 - 158
			37CL4 2378 Tetra CDD	2014/10/23		89	%	40 - 130
			C13-2378 TetraCDD	2014/10/23		93	%	24 - 164
3795713	VCI	Method Blank	2,3,7,8-Tetra CDD	2014/10/23	1.1 U, EDL=1.1		pg/L	
			37CL4 2378 Tetra CDD	2014/10/23		87	%	40 - 130
			C13-2378 TetraCDD	2014/10/23		96	%	24 - 164

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Maxxam Job #: B4I9723
Report Date: 2014/10/24

Weck Laboratories Inc
Client Project #: 4J09025

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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AIR

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

SUBCONTRACT ORDER

Subcontract Laboratory:
Maxxam Analytics, Inc. - Burlington
7070 Mississauga Road Suite #240
Mississauga-Ontario, CANADA L5N 7G2
Phone :(800) 668-0639
Fax: (905) 817-5775

Turn Around Time: Normal
Project Manager: Kim G Tu
Sampler Employed by: _____

Sample ID: 4J09025-01 **Sample ID:** DVC Monitoring Well GW302 **Matrix:** Water **Date Sampled:** 10/09/14 **Time Sampled:**10:10
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10/09/15 10:10	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J09025-02 **Sample ID:** DVC Monitoring Well GW306 **Matrix:** Water **Date Sampled:** 10/09/14 **Time Sampled:**07:46
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10/09/15 07:46	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

10-Oct-14 12:30
Ivana Vukovic
B4I9723
M_P ENV-951

Remarks / Special Comments:

Sample Condition:
Temperature: _____
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By: [signature] Date / Time: 10/09/14 13:00 Received By: Fedex Date / Time:

Relinquished by: Date / Time: Received By: on MAGDALENA COP Date / Time: 2014/10/10 12:30 4.9, 4.2, 4.5

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CERTIFICATE OF ANALYSIS

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Attention: Antonio Campos

Phone: 760-348-4241

Fax: (760) 348-4222

Work Order(s): 4J03011

Report Date: 11/10/14 13:36

Received Date: 10/03/14 10:00

Turn Around: Normal

Client Project: DVC 5 Year

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Antonio Campos :

Enclosed are the results of analyses for samples received 10/03/14 10:00 with the Chain of Custody document. The samples were received in good condition, at 1.5 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Case Narrative:

Reviewed by:

Kim G Tu
Project Manager

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
DVC Monitoring Well GW309	Katherine West		4J03011-01	Water	10/02/14 08:30
DVC Monitoring Well GW307	Katherine West		4J03011-02	Water	10/02/14 09:32
DVC Monitoring Well GW308	Katherine West		4J03011-03	Water	10/02/14 10:30

ANALYSES

Anions by IC, EPA Method 9056
Chlorinated Herbicides
Chlorinated Pesticides and/or PCBs
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods
EPA 1613B m
Metals (Aqueous) by EPA 6000/7000 Series Methods
Polychlorinated Biphenyls by EPA Method 8082
Semivolatile Organic Compounds by GC/MS
Subcontracted Analyses
Volatile Organic Compounds by EPA Method 8260B

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0188 Prepared: 10/03/14 16:26 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**1.0**	0.40	mg/l	4	10/03/14 19:56	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/09/14 21:00	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/09/14 21:00	
2,4-D	ND		0.50	ug/l	1	10/09/14 21:00	
2,4-DB	ND		2.5	ug/l	1	10/09/14 21:00	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/09/14 21:00	
4-Nitrophenol	ND		1.2	ug/l	1	10/09/14 21:00	
Acifluorfen	ND		0.50	ug/l	1	10/09/14 21:00	
Bentazon	ND		2.5	ug/l	1	10/09/14 21:00	
Dalapon	ND		0.50	ug/l	1	10/09/14 21:00	
DCPA	ND		0.25	ug/l	1	10/09/14 21:00	
Dicamba	ND		0.75	ug/l	1	10/09/14 21:00	
Dichloroprop	ND		1.0	ug/l	1	10/09/14 21:00	
Dinoseb	ND		0.50	ug/l	1	10/09/14 21:00	
MCPA	ND		100	ug/l	1	10/09/14 21:00	
MCPP	ND		100	ug/l	1	10/09/14 21:00	
Pentachlorophenol	ND		0.25	ug/l	1	10/09/14 21:00	
Picloram	ND		0.75	ug/l	1	10/09/14 21:00	
Surr: 2,4-DCAA	*85 %*	Conc:*16.1*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 03:49	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 03:49	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 03:49	
Aldrin	ND	0.050	ug/l	1	10/10/14 03:49	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 03:49	
beta-BHC	ND	0.050	ug/l	1	10/10/14 03:49	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 03:49	
delta-BHC	ND	0.050	ug/l	1	10/10/14 03:49	
Dieldrin	ND	0.050	ug/l	1	10/10/14 03:49	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 03:49	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 03:49	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 03:49	
Endrin	ND	0.050	ug/l	1	10/10/14 03:49	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A | Batch: W4J0201 | Prepared: 10/03/14 14:13 | Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 03:49	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 03:49	
Heptachlor	ND		0.050	ug/l	1	10/10/14 03:49	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 03:49	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 03:49	
Toxaphene	ND		2.0	ug/l	1	10/10/14 03:49	
Surr: Decachlorobiphenyl	*82 %*	Conc:*0.392*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*92 %*	Conc:*0.437*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 | Batch: W4J0489 | Prepared: 10/09/14 14:28 | Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 | Batch: W4J0202 | Prepared: 10/03/14 14:14 | Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**1.2**	0.50	mg/l	1	10/03/14 18:10	

Method: EPA 9034 | Batch: W4J0279 | Prepared: 10/06/14 11:32 | Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/06/14 12:10	

Method: SM 2540C | Batch: W4J0363 | Prepared: 10/07/14 17:29 | Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**4400**	10	mg/l	1	10/07/14 19:30	

Method: SM 4500H+-B | Batch: W4J0215 | Prepared: 10/03/14 17:05 | Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.32**	0.10	Units	1	10/03/14 19:00	*

EPA 1613B m

Method: EPA 1613B m | Batch: 3783579 | Prepared: 10/08/14 00:00 | Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		3.6	pg/L	1	10/15/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*95 %*	Conc:*190*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*92 %*	Conc:*184*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B | Batch: W4J0268 | Prepared: 10/06/14 10:02 | Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 DVC Monitoring Well GW309

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/07/14 12:00	
Arsenic, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Barium, Total	**0.016**	0.010	mg/l	1	10/07/14 12:00	
Beryllium, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Cadmium, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Chromium, Total	**0.052**	0.010	mg/l	1	10/07/14 12:00	
Cobalt, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Copper, Total	ND	0.020	mg/l	1	10/07/14 12:00	
Lead, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Molybdenum, Total	**0.017**	0.010	mg/l	1	10/07/14 12:00	
Nickel, Total	**0.050**	0.010	mg/l	1	10/07/14 12:00	
Selenium, Total	ND	0.030	mg/l	1	10/07/14 12:00	
Silver, Total	ND	0.0050	mg/l	1	10/07/14 12:00	
Thallium, Total	ND	0.050	mg/l	1	10/07/14 12:00	
Tin, Total	ND	0.020	mg/l	1	10/07/14 12:00	
Vanadium, Total	ND	0.010	mg/l	1	10/07/14 12:00	
Zinc, Total	ND	0.050	mg/l	1	10/07/14 12:00	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 03:49	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 03:49	
Surr: Decachlorobiphenyl	*74 %*	Conc:*0.354*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*82 %*	Conc:*0.391*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/10/14 22:25	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/10/14 22:25	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
1,4-Naphthoquinone	ND	10	ug/l	1	10/10/14 22:25	
1,4-Phenylenediamine	ND	10	ug/l	1	10/10/14 22:25	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 22:25	
1-Naphthylamine	ND	10	ug/l	1	10/10/14 22:25	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/10/14 22:25	
2,4-Dinitrophenol	ND	10	ug/l	1	10/10/14 22:25	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 22:25	
2,6-Dichlorophenol	ND	10	ug/l	1	10/10/14 22:25	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 22:25	
2-Acetylaminofluorene	ND	10	ug/l	1	10/10/14 22:25	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/10/14 22:25	
2-Chlorophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 22:25	
2-Methylphenol	ND	1.0	ug/l	1	10/10/14 22:25	
2-Naphthylamine	ND	10	ug/l	1	10/10/14 22:25	
2-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:25	
2-Nitrophenol	ND	1.0	ug/l	1	10/10/14 22:25	
2-Picoline	ND	10	ug/l	1	10/10/14 22:25	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/10/14 22:25	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/10/14 22:25	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/10/14 22:25	
3-Methylcholanthrene	ND	10	ug/l	1	10/10/14 22:25	
3-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:25	
4,4´-DDD	ND	5.0	ug/l	1	10/10/14 22:25	
4,4´-DDE	ND	5.0	ug/l	1	10/10/14 22:25	
4,4´-DDT	ND	5.0	ug/l	1	10/10/14 22:25	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/10/14 22:25	
4-Aminobiphenyl	ND	10	ug/l	1	10/10/14 22:25	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 22:25	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/10/14 22:25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chloroaniline	ND	1.0	ug/l	1	10/10/14 22:25	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 22:25	
4-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:25	
4-Nitrophenol	ND	5.0	ug/l	1	10/10/14 22:25	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/10/14 22:25	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/10/14 22:25	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/10/14 22:25	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/10/14 22:25	
Acenaphthene	ND	1.0	ug/l	1	10/10/14 22:25	
Acenaphthylene	ND	1.0	ug/l	1	10/10/14 22:25	
Acetophenone	ND	10	ug/l	1	10/10/14 22:25	
Aldrin	ND	5.0	ug/l	1	10/10/14 22:25	
alpha-BHC	ND	5.0	ug/l	1	10/10/14 22:25	
Aniline	ND	1.0	ug/l	1	10/10/14 22:25	
Anthracene	ND	1.0	ug/l	1	10/10/14 22:25	
Aramite	ND	10	ug/l	1	10/10/14 22:25	
Benzidine	ND	10	ug/l	1	10/10/14 22:25	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/10/14 22:25	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/10/14 22:25	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/10/14 22:25	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/10/14 22:25	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/10/14 22:25	
Benzoic acid	ND	100	ug/l	1	10/10/14 22:25	
Benzyl alcohol	ND	1.0	ug/l	1	10/10/14 22:25	
beta-BHC	ND	5.0	ug/l	1	10/10/14 22:25	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/10/14 22:25	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/10/14 22:25	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/10/14 22:25	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/10/14 22:25	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/10/14 22:25	
Chlorobenzilate	ND	10	ug/l	1	10/10/14 22:25	
Chrysene	ND	1.0	ug/l	1	10/10/14 22:25	
delta-BHC	ND	5.0	ug/l	1	10/10/14 22:25	
Diallate (cis or trans)	ND	10	ug/l	1	10/10/14 22:25	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/10/14 22:25	
Dibenzofuran	ND	1.0	ug/l	1	10/10/14 22:25	
Dieldrin	ND	5.0	ug/l	1	10/10/14 22:25	
Diethyl phthalate	ND	1.0	ug/l	1	10/10/14 22:25	
Dimethoate	ND	10	ug/l	1	10/10/14 22:25	
Dimethyl phthalate	ND	1.0	ug/l	1	10/10/14 22:25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethylaminoazobenzene	ND	10	ug/l	1	10/10/14 22:25	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/10/14 22:25	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/10/14 22:25	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/10/14 22:25	
Disulfoton	ND	10	ug/l	1	10/10/14 22:25	
Endosulfan I	ND	10	ug/l	1	10/10/14 22:25	
Endosulfan II	ND	10	ug/l	1	10/10/14 22:25	
Endosulfan sulfate	ND	5.0	ug/l	1	10/10/14 22:25	
Endrin	ND	5.0	ug/l	1	10/10/14 22:25	
Endrin aldehyde	ND	5.0	ug/l	1	10/10/14 22:25	
Ethyl methanesulfonate	ND	10	ug/l	1	10/10/14 22:25	
Famphur	ND	10	ug/l	1	10/10/14 22:25	
Fluoranthene	ND	1.0	ug/l	1	10/10/14 22:25	
Fluorene	ND	1.0	ug/l	1	10/10/14 22:25	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/10/14 22:25	
Heptachlor	ND	5.0	ug/l	1	10/10/14 22:25	
Heptachlor epoxide	ND	5.0	ug/l	1	10/10/14 22:25	
Hexachlorobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/10/14 22:25	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/10/14 22:25	
Hexachloroethane	ND	1.0	ug/l	1	10/10/14 22:25	
Hexachlorophene	ND	50	ug/l	1	11/05/14 21:31	
Hexachloropropene	ND	10	ug/l	1	10/10/14 22:25	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/10/14 22:25	
Isodrin	ND	10	ug/l	1	10/10/14 22:25	
Isophorone	ND	1.0	ug/l	1	10/10/14 22:25	
Isosafrole	ND	10	ug/l	1	10/10/14 22:25	
Kepone	ND	50	ug/l	1	10/10/14 22:25	
Methapyrilene	ND	50	ug/l	1	10/10/14 22:25	
Methoxychlor	ND	5.0	ug/l	1	10/10/14 22:25	
Methyl methanesulfonate	ND	10	ug/l	1	10/10/14 22:25	
Methyl parathion	ND	10	ug/l	1	10/10/14 22:25	
Naphthalene	ND	1.0	ug/l	1	10/10/14 22:25	
Nitrobenzene	ND	1.0	ug/l	1	10/10/14 22:25	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/10/14 22:25	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/10/14 22:25	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/10/14 22:25	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/10/14 22:25	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/10/14 22:25	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/10/14 22:25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosomorpholine	ND		10	ug/l	1	10/10/14 22:25	
N-Nitrosopiperidine	ND		10	ug/l	1	10/10/14 22:25	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/10/14 22:25	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/10/14 22:25	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/10/14 22:25	
o-Toluidine	ND		10	ug/l	1	10/10/14 22:25	
Parathion	ND		10	ug/l	1	10/10/14 22:25	
Pentachlorobenzene	ND		10	ug/l	1	10/10/14 22:25	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/10/14 22:25	
Pentachlorophenol	ND		1.0	ug/l	1	10/10/14 22:25	
Phenacetin	ND		10	ug/l	1	10/10/14 22:25	
Phenanthrene	ND		1.0	ug/l	1	10/10/14 22:25	
Phenol	ND		1.0	ug/l	1	10/10/14 22:25	
Phorate	ND		10	ug/l	1	10/10/14 22:25	
Pronamide	ND		10	ug/l	1	10/10/14 22:25	
Pyrene	ND		1.0	ug/l	1	10/10/14 22:25	
Pyridine	ND		5.0	ug/l	1	10/10/14 22:25	
Safrole	ND		10	ug/l	1	10/10/14 22:25	
Surr: 2,4,6-Tribromophenol	*89 %*	Conc:*42.3*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*82 %*	Conc:*19.5*	*28-100*	%			
Surr: 2-Fluorophenol	*51 %*	Conc:*24.1*	*5-76*	%			
Surr: Nitrobenzene-d5	*85 %*	Conc:*20.3*	*34-104*	%			
Surr: Phenol-d5	*32 %*	Conc:*15.1*	*0.1-57*	%			
Surr: Terphenyl-d14	*77 %*	Conc:*18.4*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,1-Dichloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,1-Dichloroethene	ND	1.0	ug/l	1	10/09/14 19:38	
1,1-Dichloropropene	ND	1.0	ug/l	1	10/09/14 19:38	
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/09/14 19:38	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/09/14 19:38	
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/09/14 19:38	
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/09/14 19:38	
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/09/14 19:38	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
1,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 19:38	
1,3-Dichloropropane	ND	1.0	ug/l	1	10/09/14 19:38	
2,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 19:38	
2-Butanone	ND	5.0	ug/l	1	10/09/14 19:38	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/09/14 19:38	
2-Hexanone	ND	5.0	ug/l	1	10/09/14 19:38	
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/09/14 19:38	
Acetone	ND	5.0	ug/l	1	10/09/14 19:38	
Acetonitrile	ND	5.0	ug/l	1	10/10/14 12:04	O-04
Acrolein	ND	5.0	ug/l	1	10/09/14 19:38	
Acrylonitrile	ND	5.0	ug/l	1	10/09/14 19:38	
Allyl chloride	ND	1.0	ug/l	1	10/10/14 12:04	O-04
Benzene	ND	1.0	ug/l	1	10/09/14 19:38	
Bromochloromethane	ND	1.0	ug/l	1	10/09/14 19:38	
Bromodichloromethane	ND	1.0	ug/l	1	10/09/14 19:38	
Bromoform	ND	1.0	ug/l	1	10/09/14 19:38	
Bromomethane	ND	1.0	ug/l	1	10/09/14 19:38	
Carbon Disulfide	ND	1.0	ug/l	1	10/09/14 19:38	
Carbon tetrachloride	ND	1.0	ug/l	1	10/09/14 19:38	
Chlorobenzene	ND	1.0	ug/l	1	10/09/14 19:38	
Chloroethane	ND	1.0	ug/l	1	10/09/14 19:38	
Chloroform	ND	1.0	ug/l	1	10/09/14 19:38	
Chloromethane	ND	1.0	ug/l	1	10/09/14 19:38	
Chloroprene	ND	1.0	ug/l	1	10/10/14 12:04	O-04
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/09/14 19:38	
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/09/14 19:38	
Dibromochloromethane	ND	1.0	ug/l	1	10/09/14 19:38	
Dibromomethane	ND	1.0	ug/l	1	10/09/14 19:38	
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/09/14 19:38	
Ethyl methacrylate	ND	1.0	ug/l	1	10/10/14 12:04	O-04
Ethylbenzene	ND	1.0	ug/l	1	10/09/14 19:38	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/09/14 19:38	
Iodomethane	ND	1.0	ug/l	1	10/10/14 12:04	O-04
Isobutanol	ND	5.0	ug/l	1	10/10/14 12:04	O-04
m,p-Xylene	ND	1.0	ug/l	1	10/09/14 19:38	
m-Dichlorobenzene	ND	1.0	ug/l	1	10/09/14 19:38	
Methacrylonitrile	ND	5.0	ug/l	1	10/10/14 12:04	O-04
Methyl methacrylate	ND	1.0	ug/l	1	10/10/14 12:04	O-04
Methylene chloride	ND	1.0	ug/l	1	10/09/14 19:38	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-01 **DVC Monitoring Well GW309**

Sampled: 10/02/14 08:30 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Naphthalene	ND		1.0	ug/l	1	10/09/14 19:38	
o-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 19:38	
o-Xylene	ND		1.0	ug/l	1	10/09/14 19:38	
p-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 19:38	
Propionitrile	ND		5.0	ug/l	1	10/10/14 12:04	O-04
sec-Butylbenzene	ND		1.0	ug/l	1	10/09/14 19:38	
Styrene	ND		1.0	ug/l	1	10/09/14 19:38	
Tetrachloroethene	ND		1.0	ug/l	1	10/09/14 19:38	
Toluene	ND		1.0	ug/l	1	10/09/14 19:38	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/09/14 19:38	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/09/14 19:38	
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/10/14 12:04	O-04
Trichloroethene	ND		1.0	ug/l	1	10/09/14 19:38	
Trichlorofluoromethane	ND		1.0	ug/l	1	10/09/14 19:38	
Vinyl acetate	ND		1.0	ug/l	1	10/10/14 12:04	O-04
Vinyl chloride	ND		1.0	ug/l	1	10/09/14 19:38	
Surr: 1,2-Dichloroethane-d4	*124 %*	Conc:*62.2*	*86-126*	%			
Surr: 4-Bromofluorobenzene	*90 %*	Conc:*45.1*	*80-112*	%			
Surr: Dibromofluoromethane	*113 %*	Conc:*56.4*	*89-120*	%			
Surr: Toluene-d8	*102 %*	Conc:*51.1*	*91-111*	%			

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4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0188 Prepared: 10/03/14 16:26 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**1.1**	0.50	mg/l	5	10/03/14 19:56	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/09/14 21:33	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/09/14 21:33	
2,4-D	ND		0.50	ug/l	1	10/09/14 21:33	
2,4-DB	ND		2.5	ug/l	1	10/09/14 21:33	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/09/14 21:33	
4-Nitrophenol	ND		1.2	ug/l	1	10/09/14 21:33	
Acifluorfen	ND		0.50	ug/l	1	10/09/14 21:33	
Bentazon	ND		2.5	ug/l	1	10/09/14 21:33	
Dalapon	ND		0.50	ug/l	1	10/09/14 21:33	
DCPA	ND		0.25	ug/l	1	10/09/14 21:33	
Dicamba	ND		0.75	ug/l	1	10/09/14 21:33	
Dichloroprop	ND		1.0	ug/l	1	10/09/14 21:33	
Dinoseb	ND		0.50	ug/l	1	10/09/14 21:33	
MCPA	ND		100	ug/l	1	10/09/14 21:33	
MCPP	ND		100	ug/l	1	10/09/14 21:33	
Pentachlorophenol	ND		0.25	ug/l	1	10/09/14 21:33	
Picloram	ND		0.75	ug/l	1	10/09/14 21:33	
Surr: 2,4-DCAA	*89 %*	Conc:*17.0*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 04:20	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 04:20	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 04:20	
Aldrin	ND	0.050	ug/l	1	10/10/14 04:20	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 04:20	
beta-BHC	ND	0.050	ug/l	1	10/10/14 04:20	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 04:20	
delta-BHC	ND	0.050	ug/l	1	10/10/14 04:20	
Dieldrin	ND	0.050	ug/l	1	10/10/14 04:20	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 04:20	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 04:20	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 04:20	
Endrin	ND	0.050	ug/l	1	10/10/14 04:20	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A | Batch: W4J0201 | Prepared: 10/03/14 14:13 | Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 04:20	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 04:20	
Heptachlor	ND		0.050	ug/l	1	10/10/14 04:20	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 04:20	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 04:20	
Toxaphene	ND		2.0	ug/l	1	10/10/14 04:20	
Surr: Decachlorobiphenyl	*70 %*	Conc:*0.331*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*98 %*	Conc:*0.469*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 | Batch: W4J0489 | Prepared: 10/09/14 14:28 | Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 | Batch: W4J0202 | Prepared: 10/03/14 14:14 | Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**0.61**	0.50	mg/l	1	10/03/14 18:12	

Method: EPA 9034 | Batch: W4J0279 | Prepared: 10/06/14 11:32 | Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/06/14 12:10	

Method: SM 2540C | Batch: W4J0374 | Prepared: 10/07/14 20:13 | Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**3900**	10	mg/l	1	10/08/14 17:22	

Method: SM 4500H+-B | Batch: W4J0215 | Prepared: 10/03/14 17:05 | Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.57**	0.10	Units	1	10/03/14 19:00	*

EPA 1613B m

Method: EPA 1613B m | Batch: 3783579 | Prepared: 10/08/14 00:00 | Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		3.6	pg/L	1	10/15/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*61 %*	Conc:*122*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*64 %*	Conc:*128*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B | Batch: W4J0268 | Prepared: 10/06/14 10:02 | Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/07/14 12:03	
Arsenic, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Barium, Total	**0.019**	0.010	mg/l	1	10/07/14 12:03	
Beryllium, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Cadmium, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Chromium, Total	**0.014**	0.010	mg/l	1	10/07/14 12:03	
Cobalt, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Copper, Total	ND	0.020	mg/l	1	10/07/14 12:03	
Lead, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Molybdenum, Total	**0.018**	0.010	mg/l	1	10/07/14 12:03	
Nickel, Total	**0.022**	0.010	mg/l	1	10/07/14 12:03	
Selenium, Total	ND	0.030	mg/l	1	10/07/14 12:03	
Silver, Total	ND	0.0050	mg/l	1	10/07/14 12:03	
Thallium, Total	ND	0.050	mg/l	1	10/07/14 12:03	
Tin, Total	ND	0.020	mg/l	1	10/07/14 12:03	
Vanadium, Total	ND	0.010	mg/l	1	10/07/14 12:03	
Zinc, Total	ND	0.050	mg/l	1	10/07/14 12:03	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 04:20	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 04:20	
Surr: Decachlorobiphenyl	*63 %*	Conc:*0.300*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*87 %*	Conc:*0.416*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/10/14 22:54	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:54	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/10/14 22:54	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
1,4-Naphthoquinone	ND	10	ug/l	1	10/10/14 22:54	
1,4-Phenylenediamine	ND	10	ug/l	1	10/10/14 22:54	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 22:54	
1-Naphthylamine	ND	10	ug/l	1	10/10/14 22:54	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/10/14 22:54	
2,4-Dinitrophenol	ND	10	ug/l	1	10/10/14 22:54	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 22:54	
2,6-Dichlorophenol	ND	10	ug/l	1	10/10/14 22:54	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 22:54	
2-Acetylaminofluorene	ND	10	ug/l	1	10/10/14 22:54	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/10/14 22:54	
2-Chlorophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 22:54	
2-Methylphenol	ND	1.0	ug/l	1	10/10/14 22:54	
2-Naphthylamine	ND	10	ug/l	1	10/10/14 22:54	
2-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:54	
2-Nitrophenol	ND	1.0	ug/l	1	10/10/14 22:54	
2-Picoline	ND	10	ug/l	1	10/10/14 22:54	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/10/14 22:54	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/10/14 22:54	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/10/14 22:54	
3-Methylcholanthrene	ND	10	ug/l	1	10/10/14 22:54	
3-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:54	
4,4´-DDD	ND	5.0	ug/l	1	10/10/14 22:54	
4,4´-DDE	ND	5.0	ug/l	1	10/10/14 22:54	
4,4´-DDT	ND	5.0	ug/l	1	10/10/14 22:54	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/10/14 22:54	
4-Aminobiphenyl	ND	10	ug/l	1	10/10/14 22:54	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 22:54	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/10/14 22:54	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chloroaniline	ND	1.0	ug/l	1	10/10/14 22:54	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 22:54	
4-Nitroaniline	ND	1.0	ug/l	1	10/10/14 22:54	
4-Nitrophenol	ND	5.0	ug/l	1	10/10/14 22:54	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/10/14 22:54	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/10/14 22:54	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/10/14 22:54	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/10/14 22:54	
Acenaphthene	ND	1.0	ug/l	1	10/10/14 22:54	
Acenaphthylene	ND	1.0	ug/l	1	10/10/14 22:54	
Acetophenone	ND	10	ug/l	1	10/10/14 22:54	
Aldrin	ND	5.0	ug/l	1	10/10/14 22:54	
alpha-BHC	ND	5.0	ug/l	1	10/10/14 22:54	
Aniline	ND	1.0	ug/l	1	10/10/14 22:54	
Anthracene	ND	1.0	ug/l	1	10/10/14 22:54	
Aramite	ND	10	ug/l	1	10/10/14 22:54	
Benzidine	ND	10	ug/l	1	10/10/14 22:54	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/10/14 22:54	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/10/14 22:54	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/10/14 22:54	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/10/14 22:54	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/10/14 22:54	
Benzoic acid	ND	100	ug/l	1	10/10/14 22:54	
Benzyl alcohol	ND	1.0	ug/l	1	10/10/14 22:54	
beta-BHC	ND	5.0	ug/l	1	10/10/14 22:54	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/10/14 22:54	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/10/14 22:54	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/10/14 22:54	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/10/14 22:54	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/10/14 22:54	
Chlorobenzilate	ND	10	ug/l	1	10/10/14 22:54	
Chrysene	ND	1.0	ug/l	1	10/10/14 22:54	
delta-BHC	ND	5.0	ug/l	1	10/10/14 22:54	
Diallate (cis or trans)	ND	10	ug/l	1	10/10/14 22:54	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/10/14 22:54	
Dibenzofuran	ND	1.0	ug/l	1	10/10/14 22:54	
Dieldrin	ND	5.0	ug/l	1	10/10/14 22:54	
Diethyl phthalate	ND	1.0	ug/l	1	10/10/14 22:54	
Dimethoate	ND	10	ug/l	1	10/10/14 22:54	
Dimethyl phthalate	ND	1.0	ug/l	1	10/10/14 22:54	

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CalEnergy Corporation
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Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethylaminoazobenzene	ND	10	ug/l	1	10/10/14 22:54	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/10/14 22:54	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/10/14 22:54	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/10/14 22:54	
Disulfoton	ND	10	ug/l	1	10/10/14 22:54	
Endosulfan I	ND	10	ug/l	1	10/10/14 22:54	
Endosulfan II	ND	10	ug/l	1	10/10/14 22:54	
Endosulfan sulfate	ND	5.0	ug/l	1	10/10/14 22:54	
Endrin	ND	5.0	ug/l	1	10/10/14 22:54	
Endrin aldehyde	ND	5.0	ug/l	1	10/10/14 22:54	
Ethyl methanesulfonate	ND	10	ug/l	1	10/10/14 22:54	
Famphur	ND	10	ug/l	1	10/10/14 22:54	
Fluoranthene	ND	1.0	ug/l	1	10/10/14 22:54	
Fluorene	ND	1.0	ug/l	1	10/10/14 22:54	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/10/14 22:54	
Heptachlor	ND	5.0	ug/l	1	10/10/14 22:54	
Heptachlor epoxide	ND	5.0	ug/l	1	10/10/14 22:54	
Hexachlorobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/10/14 22:54	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/10/14 22:54	
Hexachloroethane	ND	1.0	ug/l	1	10/10/14 22:54	
Hexachlorophene	ND	50	ug/l	1	11/05/14 22:00	
Hexachloropropene	ND	10	ug/l	1	10/10/14 22:54	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/10/14 22:54	
Isodrin	ND	10	ug/l	1	10/10/14 22:54	
Isophorone	ND	1.0	ug/l	1	10/10/14 22:54	
Isosafrole	ND	10	ug/l	1	10/10/14 22:54	
Kepone	ND	50	ug/l	1	10/10/14 22:54	
Methapyrilene	ND	50	ug/l	1	10/10/14 22:54	
Methoxychlor	ND	5.0	ug/l	1	10/10/14 22:54	
Methyl methanesulfonate	ND	10	ug/l	1	10/10/14 22:54	
Methyl parathion	ND	10	ug/l	1	10/10/14 22:54	
Naphthalene	ND	1.0	ug/l	1	10/10/14 22:54	
Nitrobenzene	ND	1.0	ug/l	1	10/10/14 22:54	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/10/14 22:54	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/10/14 22:54	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/10/14 22:54	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/10/14 22:54	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/10/14 22:54	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/10/14 22:54	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosomorpholine	ND		10	ug/l	1	10/10/14 22:54	
N-Nitrosopiperidine	ND		10	ug/l	1	10/10/14 22:54	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/10/14 22:54	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/10/14 22:54	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/10/14 22:54	
o-Toluidine	ND		10	ug/l	1	10/10/14 22:54	
Parathion	ND		10	ug/l	1	10/10/14 22:54	
Pentachlorobenzene	ND		10	ug/l	1	10/10/14 22:54	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/10/14 22:54	
Pentachlorophenol	ND		1.0	ug/l	1	10/10/14 22:54	
Phenacetin	ND		10	ug/l	1	10/10/14 22:54	
Phenanthrene	ND		1.0	ug/l	1	10/10/14 22:54	
Phenol	ND		1.0	ug/l	1	10/10/14 22:54	
Phorate	ND		10	ug/l	1	10/10/14 22:54	
Pronamide	ND		10	ug/l	1	10/10/14 22:54	
Pyrene	ND		1.0	ug/l	1	10/10/14 22:54	
Pyridine	ND		5.0	ug/l	1	10/10/14 22:54	
Safrole	ND		10	ug/l	1	10/10/14 22:54	
Surr: 2,4,6-Tribromophenol	*86 %*	Conc:*41.0*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*76 %*	Conc:*18.0*	*28-100*	%			
Surr: 2-Fluorophenol	*46 %*	Conc:*22.0*	*5-76*	%			
Surr: Nitrobenzene-d5	*78 %*	Conc:*18.5*	*34-104*	%			
Surr: Phenol-d5	*29 %*	Conc:*13.6*	*0.1-57*	%			
Surr: Terphenyl-d14	*93 %*	Conc:*22.1*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,1-Dichloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,1-Dichloroethene	ND	1.0	ug/l	1	10/09/14 20:07	
1,1-Dichloropropene	ND	1.0	ug/l	1	10/09/14 20:07	
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/09/14 20:07	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/09/14 20:07	
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/09/14 20:07	
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/09/14 20:07	
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/09/14 20:07	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
1,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:07	
1,3-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:07	
2,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:07	
2-Butanone	ND	5.0	ug/l	1	10/09/14 20:07	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/09/14 20:07	
2-Hexanone	ND	5.0	ug/l	1	10/09/14 20:07	
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/09/14 20:07	
Acetone	ND	5.0	ug/l	1	10/09/14 20:07	
Acetonitrile	ND	5.0	ug/l	1	10/10/14 12:33	O-04
Acrolein	ND	5.0	ug/l	1	10/09/14 20:07	
Acrylonitrile	ND	5.0	ug/l	1	10/09/14 20:07	
Allyl chloride	ND	1.0	ug/l	1	10/10/14 12:33	O-04
Benzene	ND	1.0	ug/l	1	10/09/14 20:07	
Bromochloromethane	ND	1.0	ug/l	1	10/09/14 20:07	
Bromodichloromethane	ND	1.0	ug/l	1	10/09/14 20:07	
Bromoform	ND	1.0	ug/l	1	10/09/14 20:07	
Bromomethane	ND	1.0	ug/l	1	10/09/14 20:07	
Carbon Disulfide	ND	1.0	ug/l	1	10/09/14 20:07	
Carbon tetrachloride	ND	1.0	ug/l	1	10/09/14 20:07	
Chlorobenzene	ND	1.0	ug/l	1	10/09/14 20:07	
Chloroethane	ND	1.0	ug/l	1	10/09/14 20:07	
Chloroform	ND	1.0	ug/l	1	10/09/14 20:07	
Chloromethane	ND	1.0	ug/l	1	10/09/14 20:07	
Chloroprene	ND	1.0	ug/l	1	10/10/14 12:33	O-04
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/09/14 20:07	
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/09/14 20:07	
Dibromochloromethane	ND	1.0	ug/l	1	10/09/14 20:07	
Dibromomethane	ND	1.0	ug/l	1	10/09/14 20:07	
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/09/14 20:07	
Ethyl methacrylate	ND	1.0	ug/l	1	10/10/14 12:33	O-04
Ethylbenzene	ND	1.0	ug/l	1	10/09/14 20:07	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/09/14 20:07	
Iodomethane	ND	1.0	ug/l	1	10/10/14 12:33	O-04
Isobutanol	ND	5.0	ug/l	1	10/10/14 12:33	O-04
m,p-Xylene	ND	1.0	ug/l	1	10/09/14 20:07	
m-Dichlorobenzene	ND	1.0	ug/l	1	10/09/14 20:07	
Methacrylonitrile	ND	5.0	ug/l	1	10/10/14 12:33	O-04
Methyl methacrylate	ND	1.0	ug/l	1	10/10/14 12:33	O-04
Methylene chloride	ND	1.0	ug/l	1	10/09/14 20:07	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-02 **DVC Monitoring Well GW307**

Sampled: 10/02/14 09:32 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Naphthalene	ND		1.0	ug/l	1	10/09/14 20:07	
o-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 20:07	
o-Xylene	ND		1.0	ug/l	1	10/09/14 20:07	
p-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 20:07	
Propionitrile	ND		5.0	ug/l	1	10/10/14 12:33	O-04
sec-Butylbenzene	ND		1.0	ug/l	1	10/09/14 20:07	
Styrene	ND		1.0	ug/l	1	10/09/14 20:07	
Tetrachloroethene	ND		1.0	ug/l	1	10/09/14 20:07	
Toluene	ND		1.0	ug/l	1	10/09/14 20:07	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/09/14 20:07	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/09/14 20:07	
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/10/14 12:33	O-04
Trichloroethene	ND		1.0	ug/l	1	10/09/14 20:07	
Trichlorofluoromethane	ND		1.0	ug/l	1	10/09/14 20:07	
Vinyl acetate	ND		1.0	ug/l	1	10/10/14 12:33	O-04
Vinyl chloride	ND		1.0	ug/l	1	10/09/14 20:07	
Surr: 1,2-Dichloroethane-d4	*124 %*	Conc:*62.2*	*86-126*	%			
Surr: 4-Bromofluorobenzene	*90 %*	Conc:*44.9*	*80-112*	%			
Surr: Dibromofluoromethane	*115 %*	Conc:*57.4*	*89-120*	%			
Surr: Toluene-d8	*102 %*	Conc:*50.8*	*91-111*	%			

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Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0188 Prepared: 10/03/14 16:26 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**1.3**	0.50	mg/l	5	10/03/14 19:56	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/09/14 22:06	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/09/14 22:06	
2,4-D	ND		0.50	ug/l	1	10/09/14 22:06	
2,4-DB	ND		2.5	ug/l	1	10/09/14 22:06	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/09/14 22:06	
4-Nitrophenol	ND		1.2	ug/l	1	10/09/14 22:06	
Acifluorfen	ND		0.50	ug/l	1	10/09/14 22:06	
Bentazon	ND		2.5	ug/l	1	10/09/14 22:06	
Dalapon	ND		0.50	ug/l	1	10/09/14 22:06	
DCPA	ND		0.25	ug/l	1	10/09/14 22:06	
Dicamba	ND		0.75	ug/l	1	10/09/14 22:06	
Dichloroprop	ND		1.0	ug/l	1	10/09/14 22:06	
Dinoseb	ND		0.50	ug/l	1	10/09/14 22:06	
MCPA	ND		100	ug/l	1	10/09/14 22:06	
MCPP	ND		100	ug/l	1	10/09/14 22:06	
Pentachlorophenol	ND		0.25	ug/l	1	10/09/14 22:06	
Picloram	ND		0.75	ug/l	1	10/09/14 22:06	
Surr: 2,4-DCAA	*90 %*	Conc:*17.1*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 04:51	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 04:51	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 04:51	
Aldrin	ND	0.050	ug/l	1	10/10/14 04:51	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 04:51	
beta-BHC	ND	0.050	ug/l	1	10/10/14 04:51	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 04:51	
delta-BHC	ND	0.050	ug/l	1	10/10/14 04:51	
Dieldrin	ND	0.050	ug/l	1	10/10/14 04:51	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 04:51	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 04:51	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 04:51	
Endrin	ND	0.050	ug/l	1	10/10/14 04:51	

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Date Received: 10/03/14 10:00
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4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A | Batch: W4J0201 | Prepared: 10/03/14 14:13 | Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 04:51	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 04:51	
Heptachlor	ND		0.050	ug/l	1	10/10/14 04:51	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 04:51	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 04:51	
Toxaphene	ND		2.0	ug/l	1	10/10/14 04:51	
Surr: Decachlorobiphenyl	*71 %*	Conc:*0.339*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*92 %*	Conc:*0.437*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 | Batch: W4J0489 | Prepared: 10/09/14 14:28 | Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 | Batch: W4J0202 | Prepared: 10/03/14 14:14 | Analyst: Marilyn B Christian

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	ND	0.50	mg/l	1	10/03/14 18:14	

Method: EPA 9034 | Batch: W4J0279 | Prepared: 10/06/14 11:32 | Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/06/14 12:10	

Method: SM 2540C | Batch: W4J0374 | Prepared: 10/07/14 20:13 | Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**3400**	10	mg/l	1	10/08/14 17:22	

Method: SM 4500H+-B | Batch: W4J0215 | Prepared: 10/03/14 17:05 | Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.43**	0.10	Units	1	10/03/14 19:00	*

EPA 1613B m

Method: EPA 1613B m | Batch: 3783579 | Prepared: 10/08/14 00:00 | Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		3.6	pg/L	1	10/15/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*96 %*	Conc:*192*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*92 %*	Conc:*184*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B | Batch: W4J0268 | Prepared: 10/06/14 10:02 | Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/07/14 12:06	
Arsenic, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Barium, Total	**0.023**	0.010	mg/l	1	10/07/14 12:06	
Beryllium, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Cadmium, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Chromium, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Cobalt, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Copper, Total	ND	0.020	mg/l	1	10/07/14 12:06	
Lead, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Molybdenum, Total	**0.022**	0.010	mg/l	1	10/07/14 12:06	
Nickel, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Selenium, Total	ND	0.030	mg/l	1	10/07/14 12:06	
Silver, Total	ND	0.0050	mg/l	1	10/07/14 12:06	
Thallium, Total	ND	0.050	mg/l	1	10/07/14 12:06	
Tin, Total	ND	0.020	mg/l	1	10/07/14 12:06	
Vanadium, Total	ND	0.010	mg/l	1	10/07/14 12:06	
Zinc, Total	ND	0.050	mg/l	1	10/07/14 12:06	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 04:51	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 04:51	
Surr: Decachlorobiphenyl	*65 %*	Conc:*0.307*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*81 %*	Conc:*0.385*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/10/14 23:23	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/10/14 23:23	

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CalEnergy Corporation
7030 Gentry Rd.
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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/10/14 23:23	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
1,4-Naphthoquinone	ND	10	ug/l	1	10/10/14 23:23	
1,4-Phenylenediamine	ND	10	ug/l	1	10/10/14 23:23	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 23:23	
1-Naphthylamine	ND	10	ug/l	1	10/10/14 23:23	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/10/14 23:23	
2,4-Dinitrophenol	ND	10	ug/l	1	10/10/14 23:23	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 23:23	
2,6-Dichlorophenol	ND	10	ug/l	1	10/10/14 23:23	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/10/14 23:23	
2-Acetylaminofluorene	ND	10	ug/l	1	10/10/14 23:23	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/10/14 23:23	
2-Chlorophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/10/14 23:23	
2-Methylphenol	ND	1.0	ug/l	1	10/10/14 23:23	
2-Naphthylamine	ND	10	ug/l	1	10/10/14 23:23	
2-Nitroaniline	ND	1.0	ug/l	1	10/10/14 23:23	
2-Nitrophenol	ND	1.0	ug/l	1	10/10/14 23:23	
2-Picoline	ND	10	ug/l	1	10/10/14 23:23	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/10/14 23:23	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/10/14 23:23	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/10/14 23:23	
3-Methylcholanthrene	ND	10	ug/l	1	10/10/14 23:23	
3-Nitroaniline	ND	1.0	ug/l	1	10/10/14 23:23	
4,4´-DDD	ND	5.0	ug/l	1	10/10/14 23:23	
4,4´-DDE	ND	5.0	ug/l	1	10/10/14 23:23	
4,4´-DDT	ND	5.0	ug/l	1	10/10/14 23:23	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/10/14 23:23	
4-Aminobiphenyl	ND	10	ug/l	1	10/10/14 23:23	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 23:23	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/10/14 23:23	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chloroaniline	ND	1.0	ug/l	1	10/10/14 23:23	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/10/14 23:23	
4-Nitroaniline	ND	1.0	ug/l	1	10/10/14 23:23	
4-Nitrophenol	ND	5.0	ug/l	1	10/10/14 23:23	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/10/14 23:23	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/10/14 23:23	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/10/14 23:23	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/10/14 23:23	
Acenaphthene	ND	1.0	ug/l	1	10/10/14 23:23	
Acenaphthylene	ND	1.0	ug/l	1	10/10/14 23:23	
Acetophenone	ND	10	ug/l	1	10/10/14 23:23	
Aldrin	ND	5.0	ug/l	1	10/10/14 23:23	
alpha-BHC	ND	5.0	ug/l	1	10/10/14 23:23	
Aniline	ND	1.0	ug/l	1	10/10/14 23:23	
Anthracene	ND	1.0	ug/l	1	10/10/14 23:23	
Aramite	ND	10	ug/l	1	10/10/14 23:23	
Benzidine	ND	10	ug/l	1	10/10/14 23:23	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/10/14 23:23	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/10/14 23:23	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/10/14 23:23	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/10/14 23:23	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/10/14 23:23	
Benzoic acid	ND	100	ug/l	1	10/10/14 23:23	
Benzyl alcohol	ND	1.0	ug/l	1	10/10/14 23:23	
beta-BHC	ND	5.0	ug/l	1	10/10/14 23:23	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/10/14 23:23	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/10/14 23:23	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/10/14 23:23	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/10/14 23:23	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/10/14 23:23	
Chlorobenzilate	ND	10	ug/l	1	10/10/14 23:23	
Chrysene	ND	1.0	ug/l	1	10/10/14 23:23	
delta-BHC	ND	5.0	ug/l	1	10/10/14 23:23	
Diallate (cis or trans)	ND	10	ug/l	1	10/10/14 23:23	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/10/14 23:23	
Dibenzofuran	ND	1.0	ug/l	1	10/10/14 23:23	
Dieldrin	ND	5.0	ug/l	1	10/10/14 23:23	
Diethyl phthalate	ND	1.0	ug/l	1	10/10/14 23:23	
Dimethoate	ND	10	ug/l	1	10/10/14 23:23	
Dimethyl phthalate	ND	1.0	ug/l	1	10/10/14 23:23	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethylaminoazobenzene	ND	10	ug/l	1	10/10/14 23:23	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/10/14 23:23	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/10/14 23:23	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/10/14 23:23	
Disulfoton	ND	10	ug/l	1	10/10/14 23:23	
Endosulfan I	ND	10	ug/l	1	10/10/14 23:23	
Endosulfan II	ND	10	ug/l	1	10/10/14 23:23	
Endosulfan sulfate	ND	5.0	ug/l	1	10/10/14 23:23	
Endrin	ND	5.0	ug/l	1	10/10/14 23:23	
Endrin aldehyde	ND	5.0	ug/l	1	10/10/14 23:23	
Ethyl methanesulfonate	ND	10	ug/l	1	10/10/14 23:23	
Famphur	ND	10	ug/l	1	10/10/14 23:23	
Fluoranthene	ND	1.0	ug/l	1	10/10/14 23:23	
Fluorene	ND	1.0	ug/l	1	10/10/14 23:23	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/10/14 23:23	
Heptachlor	ND	5.0	ug/l	1	10/10/14 23:23	
Heptachlor epoxide	ND	5.0	ug/l	1	10/10/14 23:23	
Hexachlorobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/10/14 23:23	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/10/14 23:23	
Hexachloroethane	ND	1.0	ug/l	1	10/10/14 23:23	
Hexachlorophene	ND	50	ug/l	1	11/04/14 22:29	
Hexachloropropene	ND	10	ug/l	1	10/10/14 23:23	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/10/14 23:23	
Isodrin	ND	10	ug/l	1	10/10/14 23:23	
Isophorone	ND	1.0	ug/l	1	10/10/14 23:23	
Isosafrole	ND	10	ug/l	1	10/10/14 23:23	
Kepone	ND	50	ug/l	1	10/10/14 23:23	
Methapyrilene	ND	50	ug/l	1	10/10/14 23:23	
Methoxychlor	ND	5.0	ug/l	1	10/10/14 23:23	
Methyl methanesulfonate	ND	10	ug/l	1	10/10/14 23:23	
Methyl parathion	ND	10	ug/l	1	10/10/14 23:23	
Naphthalene	ND	1.0	ug/l	1	10/10/14 23:23	
Nitrobenzene	ND	1.0	ug/l	1	10/10/14 23:23	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/10/14 23:23	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/10/14 23:23	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/10/14 23:23	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/10/14 23:23	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/10/14 23:23	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/10/14 23:23	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0222 Prepared: 10/04/14 08:38 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosomorpholine	ND		10	ug/l	1	10/10/14 23:23	
N-Nitrosopiperidine	ND		10	ug/l	1	10/10/14 23:23	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/10/14 23:23	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/10/14 23:23	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/10/14 23:23	
o-Toluidine	ND		10	ug/l	1	10/10/14 23:23	
Parathion	ND		10	ug/l	1	10/10/14 23:23	
Pentachlorobenzene	ND		10	ug/l	1	10/10/14 23:23	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/10/14 23:23	
Pentachlorophenol	ND		1.0	ug/l	1	10/10/14 23:23	
Phenacetin	ND		10	ug/l	1	10/10/14 23:23	
Phenanthrene	ND		1.0	ug/l	1	10/10/14 23:23	
Phenol	ND		1.0	ug/l	1	10/10/14 23:23	
Phorate	ND		10	ug/l	1	10/10/14 23:23	
Pronamide	ND		10	ug/l	1	10/10/14 23:23	
Pyrene	ND		1.0	ug/l	1	10/10/14 23:23	
Pyridine	ND		5.0	ug/l	1	10/10/14 23:23	
Safrole	ND		10	ug/l	1	10/10/14 23:23	
Surr: 2,4,6-Tribromophenol	*86 %*	Conc:*40.7*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*80 %*	Conc:*19.0*	*28-100*	%			
Surr: 2-Fluorophenol	*45 %*	Conc:*21.5*	*5-76*	%			
Surr: Nitrobenzene-d5	*81 %*	Conc:*19.4*	*34-104*	%			
Surr: Phenol-d5	*27 %*	Conc:*12.9*	*0.1-57*	%			
Surr: Terphenyl-d14	*87 %*	Conc:*20.6*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,1-Dichloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,1-Dichloroethene	ND	1.0	ug/l	1	10/09/14 20:37	
1,1-Dichloropropene	ND	1.0	ug/l	1	10/09/14 20:37	
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/09/14 20:37	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/09/14 20:37	
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/09/14 20:37	
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/09/14 20:37	
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/09/14 20:37	

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Date Received: 10/03/14 10:00
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4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
1,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:37	
1,3-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:37	
2,2-Dichloropropane	ND	1.0	ug/l	1	10/09/14 20:37	
2-Butanone	ND	5.0	ug/l	1	10/09/14 20:37	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/09/14 20:37	
2-Hexanone	ND	5.0	ug/l	1	10/09/14 20:37	
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/09/14 20:37	
Acetone	ND	5.0	ug/l	1	10/09/14 20:37	
Acetonitrile	ND	5.0	ug/l	1	10/10/14 13:01	O-04
Acrolein	ND	5.0	ug/l	1	10/09/14 20:37	
Acrylonitrile	ND	5.0	ug/l	1	10/09/14 20:37	
Allyl chloride	ND	1.0	ug/l	1	10/10/14 13:01	O-04
Benzene	ND	1.0	ug/l	1	10/09/14 20:37	
Bromochloromethane	ND	1.0	ug/l	1	10/09/14 20:37	
Bromodichloromethane	ND	1.0	ug/l	1	10/09/14 20:37	
Bromoform	ND	1.0	ug/l	1	10/09/14 20:37	
Bromomethane	ND	1.0	ug/l	1	10/09/14 20:37	
Carbon Disulfide	ND	1.0	ug/l	1	10/09/14 20:37	
Carbon tetrachloride	ND	1.0	ug/l	1	10/09/14 20:37	
Chlorobenzene	ND	1.0	ug/l	1	10/09/14 20:37	
Chloroethane	ND	1.0	ug/l	1	10/09/14 20:37	
Chloroform	ND	1.0	ug/l	1	10/09/14 20:37	
Chloromethane	ND	1.0	ug/l	1	10/09/14 20:37	
Chloroprene	ND	1.0	ug/l	1	10/10/14 13:01	O-04
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/09/14 20:37	
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/09/14 20:37	
Dibromochloromethane	ND	1.0	ug/l	1	10/09/14 20:37	
Dibromomethane	ND	1.0	ug/l	1	10/09/14 20:37	
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/09/14 20:37	
Ethyl methacrylate	ND	1.0	ug/l	1	10/10/14 13:01	O-04
Ethylbenzene	ND	1.0	ug/l	1	10/09/14 20:37	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/09/14 20:37	
Iodomethane	ND	1.0	ug/l	1	10/10/14 13:01	O-04
Isobutanol	ND	5.0	ug/l	1	10/10/14 13:01	O-04
m,p-Xylene	ND	1.0	ug/l	1	10/09/14 20:37	
m-Dichlorobenzene	ND	1.0	ug/l	1	10/09/14 20:37	
Methacrylonitrile	ND	5.0	ug/l	1	10/10/14 13:01	O-04
Methyl methacrylate	ND	1.0	ug/l	1	10/10/14 13:01	O-04
Methylene chloride	ND	1.0	ug/l	1	10/09/14 20:37	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

4J03011-03 **DVC Monitoring Well GW308**

Sampled: 10/02/14 10:30 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0451 Prepared: 10/09/14 09:36 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Naphthalene	ND		1.0	ug/l	1	10/09/14 20:37	
o-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 20:37	
o-Xylene	ND		1.0	ug/l	1	10/09/14 20:37	
p-Dichlorobenzene	ND		1.0	ug/l	1	10/09/14 20:37	
Propionitrile	ND		5.0	ug/l	1	10/10/14 13:01	O-04
sec-Butylbenzene	ND		1.0	ug/l	1	10/09/14 20:37	
Styrene	ND		1.0	ug/l	1	10/09/14 20:37	
Tetrachloroethene	ND		1.0	ug/l	1	10/09/14 20:37	
Toluene	ND		1.0	ug/l	1	10/09/14 20:37	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/09/14 20:37	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/09/14 20:37	
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/10/14 13:01	O-04
Trichloroethene	ND		1.0	ug/l	1	10/09/14 20:37	
Trichlorofluoromethane	ND		1.0	ug/l	1	10/09/14 20:37	
Vinyl acetate	ND		1.0	ug/l	1	10/10/14 13:01	O-04
Vinyl chloride	ND		1.0	ug/l	1	10/09/14 20:37	
Surr: 1,2-Dichloroethane-d4	*128 %*	Conc:*64.0*	*86-126*	%			*S-04*
Surr: 4-Bromofluorobenzene	*90 %*	Conc:*44.8*	*80-112*	%			
Surr: Dibromofluoromethane	*117 %*	Conc:*58.3*	*89-120*	%			
Surr: Toluene-d8	*101 %*	Conc:*50.7*	*91-111*	%			

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QUALITY CONTROL SECTION

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Anions by IC, EPA Method 9056 - Quality Control

Batch W4J0188 - EPA 300.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0188-BLK1)				Analyzed: 10/03/14 19:56						
Fluoride, Total	ND	0.10	mg/l							
LCS (W4J0188-BS1)				Analyzed: 10/03/14 19:56						
Fluoride, Total	2.12	0.10	mg/l	2.00		106	90-110			
Matrix Spike (W4J0188-MS1)		**Source: 4J03019-01**		Analyzed: 10/03/14 19:56						
Fluoride, Total	52.7	2.5	mg/l	50.0	1.32	103	86-107			
Matrix Spike (W4J0188-MS2)		**Source: 4J03019-02**		Analyzed: 10/03/14 19:56						
Fluoride, Total	53.1	2.5	mg/l	50.0	1.21	104	86-107			
Matrix Spike Dup (W4J0188-MSD1)		**Source: 4J03019-01**		Analyzed: 10/03/14 19:56						
Fluoride, Total	53.1	2.5	mg/l	50.0	1.32	104	86-107	0.7	20	
Matrix Spike Dup (W4J0188-MSD2)		**Source: 4J03019-02**		Analyzed: 10/03/14 19:56						
Fluoride, Total	52.9	2.5	mg/l	50.0	1.21	103	86-107	0.4	20	

Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0201-BLK1)				Analyzed: 10/09/14 21:41						
4,4´-DDD	ND	0.050	ug/l							
4,4´-DDE	ND	0.050	ug/l							
4,4´-DDT	ND	0.050	ug/l							
Aldrin	ND	0.050	ug/l							
alpha-BHC	ND	0.050	ug/l							
beta-BHC	ND	0.050	ug/l							
Chlordane (tech)	ND	0.50	ug/l							
delta-BHC	ND	0.050	ug/l							
Dieldrin	ND	0.050	ug/l							
Endosulfan I	ND	0.050	ug/l							
Endosulfan II	ND	0.050	ug/l							
Endosulfan sulfate	ND	0.050	ug/l							
Endrin	ND	0.050	ug/l							
Endrin aldehyde	ND	0.050	ug/l							
gamma-BHC (Lindane)	ND	0.050	ug/l							
Heptachlor	ND	0.050	ug/l							
Heptachlor epoxide	ND	0.050	ug/l							
Methoxychlor	ND	0.050	ug/l							
Toxaphene	ND	2.0	ug/l							
Surr: Decachlorobiphenyl	*0.479*		*ug/l*	*0.500*		*96*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.478*		*ug/l*	*0.500*		*96*	*10-137*			
LCS (W4J0201-BS1)				Analyzed: 10/09/14 22:11						

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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0201-BS1)				Analyzed: 10/09/14 22:11						
4,4´-DDD	0.586	0.050	ug/l	0.500		117	59-143			
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126			
4,4´-DDT	0.593	0.050	ug/l	0.500		119	43-165			
Aldrin	0.568	0.050	ug/l	0.500		114	54-116			
alpha-BHC	0.604	0.050	ug/l	0.500		121	70-121			
beta-BHC	0.607	0.050	ug/l	0.500		121	71-126			
delta-BHC	0.645	0.050	ug/l	0.500		129	72-129			
Dieldrin	0.587	0.050	ug/l	0.500		117	70-130			
Endosulfan I	0.468	0.050	ug/l	0.500		94	48-113			
Endosulfan II	0.497	0.050	ug/l	0.500		99	58-118			
Endosulfan sulfate	0.606	0.050	ug/l	0.500		121	68-142			
Endrin	0.640	0.050	ug/l	0.500		128	53-150			
Endrin aldehyde	0.566	0.050	ug/l	0.500		113	56-147			
gamma-BHC (Lindane)	0.608	0.050	ug/l	0.500		122	71-123			
Heptachlor	0.610	0.050	ug/l	0.500		122	58-138			
Heptachlor epoxide	0.568	0.050	ug/l	0.500		114	71-127			
Methoxychlor	0.613	0.050	ug/l	0.500		123	49-158			
Surr: Decachlorobiphenyl	*0.511*		*ug/l*	*0.500*		*102*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.502*		*ug/l*	*0.500*		*100*	*10-137*			
LCS Dup (W4J0201-BSD1)				Analyzed: 10/09/14 22:42						
4,4´-DDD	0.579	0.050	ug/l	0.500		116	59-143	1	25	
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126	0.1	25	
4,4´-DDT	0.597	0.050	ug/l	0.500		119	43-165	0.7	25	
Aldrin	0.576	0.050	ug/l	0.500		115	54-116	1	25	
alpha-BHC	0.613	0.050	ug/l	0.500		123	70-121	2	25	Q-08
beta-BHC	0.613	0.050	ug/l	0.500		123	71-126	0.9	25	
delta-BHC	0.664	0.050	ug/l	0.500		133	72-129	3	25	Q-08
Dieldrin	0.591	0.050	ug/l	0.500		118	70-130	0.7	25	
Endosulfan I	0.470	0.050	ug/l	0.500		94	48-113	0.3	25	
Endosulfan II	0.495	0.050	ug/l	0.500		99	58-118	0.4	25	
Endosulfan sulfate	0.605	0.050	ug/l	0.500		121	68-142	0.1	25	
Endrin	0.654	0.050	ug/l	0.500		131	53-150	2	25	
Endrin aldehyde	0.582	0.050	ug/l	0.500		116	56-147	3	25	
gamma-BHC (Lindane)	0.620	0.050	ug/l	0.500		124	71-123	2	25	Q-08
Heptachlor	0.625	0.050	ug/l	0.500		125	58-138	2	25	
Heptachlor epoxide	0.569	0.050	ug/l	0.500		114	71-127	0.1	25	
Methoxychlor	0.618	0.050	ug/l	0.500		124	49-158	0.7	25	
Surr: Decachlorobiphenyl	*0.501*		*ug/l*	*0.500*		*100*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.512*		*ug/l*	*0.500*		*102*	*10-137*			

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Chlorinated Herbicides - Quality Control

Batch W4J0254 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0254-BLK1)				Analyzed: 10/09/14 17:44						
2,4,5-T	ND	0.25	ug/l							
2,4,5-TP (Silvex)	ND	0.25	ug/l							
2,4-D	ND	0.50	ug/l							
2,4-DB	ND	2.5	ug/l							
3,5-Dichlorobenzoic acid	ND	1.2	ug/l							
4-Nitrophenol	ND	1.2	ug/l							
Acifluorfen	ND	0.50	ug/l							
Bentazon	ND	2.5	ug/l							
Dalapon	ND	0.50	ug/l							
DCPA	ND	0.25	ug/l							
Dicamba	ND	0.75	ug/l							
Dichloroprop	ND	1.0	ug/l							
Dinoseb	ND	0.50	ug/l							
MCPA	ND	100	ug/l							
MCPP	ND	100	ug/l							
Pentachlorophenol	ND	0.25	ug/l							
Picloram	ND	0.75	ug/l							
Surr: 2,4-DCAA	*15.1*		*ug/l*	*20.0*		*75*	*56-156*			
LCS (W4J0254-BS1)				Analyzed: 10/09/14 18:17						
2,4,5-T	1.79	0.25	ug/l	2.50		71	39-151			
2,4,5-TP (Silvex)	1.73	0.25	ug/l	2.50		69	46-142			
2,4-D	4.34	0.50	ug/l	5.00		87	56-164			
2,4-DB	6.27	2.5	ug/l	10.0		63	27-161			
3,5-Dichlorobenzoic acid	3.99	1.2	ug/l	5.00		80	54-154			
4-Nitrophenol	6.65	1.2	ug/l	10.0		66	3-105			
Acifluorfen	2.04	0.50	ug/l	2.50		82	39-134			
Bentazon	6.09	2.5	ug/l	10.0		61	44-139			
Dalapon	2.90	0.50	ug/l	5.00		58	40-139			
DCPA	1.42	0.25	ug/l	2.50		57	34-135			
Dicamba	3.47	0.75	ug/l	5.00		69	46-140			
Dichloroprop	3.71	1.0	ug/l	5.00		74	43-158			
Dinoseb	1.70	0.50	ug/l	2.50		68	42-146			
MCPA	370	100	ug/l	500		74	28-144			
MCPP	294	100	ug/l	500		59	31-153			
Pentachlorophenol	1.69	0.25	ug/l	2.50		67	37-136			
Picloram	1.84	0.75	ug/l	2.50		74	35-138			
Surr: 2,4-DCAA	*15.9*		*ug/l*	*20.0*		*79*	*56-156*			
LCS Dup (W4J0254-BSD1)				Analyzed: 10/09/14 18:49						
2,4,5-T	1.50	0.25	ug/l	2.50		60	39-151	17	25	

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Chlorinated Herbicides - Quality Control

Batch W4J0254 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0254-BSD1)				Analyzed: 10/09/14 18:49						
2,4,5-TP (Silvex)	1.46	0.25	ug/l	2.50		58	46-142	17	25	
2,4-D	3.72	0.50	ug/l	5.00		74	56-164	15	25	
2,4-DB	5.55	2.5	ug/l	10.0		55	27-161	12	25	
3,5-Dichlorobenzoic acid	3.32	1.2	ug/l	5.00		66	54-154	18	25	
4-Nitrophenol	6.48	1.2	ug/l	10.0		65	3-105	2	25	
Acifluorfen	1.68	0.50	ug/l	2.50		67	39-134	20	25	
Bentazon	5.27	2.5	ug/l	10.0		53	44-139	15	25	
Dalapon	2.40	0.50	ug/l	5.00		48	40-139	19	25	
DCPA	1.22	0.25	ug/l	2.50		49	34-135	15	25	
Dicamba	2.96	0.75	ug/l	5.00		59	46-140	16	25	
Dichloroprop	3.14	1.0	ug/l	5.00		63	43-158	17	25	
Dinoseb	1.34	0.50	ug/l	2.50		53	42-146	24	25	
MCPA	304	100	ug/l	500		61	28-144	20	25	
MCPP	251	100	ug/l	500		50	31-153	16	25	
Pentachlorophenol	1.40	0.25	ug/l	2.50		56	37-136	19	25	
Picloram	1.63	0.75	ug/l	2.50		65	35-138	12	25	
Surr: 2,4-DCAA	*13.4*		*ug/l*	*20.0*		*67*	*56-156*			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0202 - EPA 353.2

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0202-BLK1)				Analyzed: 10/03/14 17:27						
Nitrate as NO3	ND	0.50	mg/l							
LCS (W4J0202-BS1)				Analyzed: 10/03/14 17:29						
Nitrate as NO3	4.31	0.50	mg/l	4.43		97	90-110			
Matrix Spike (W4J0202-MS1)	**Source: 4J02042-02**			Analyzed: 10/03/14 17:37						
Nitrate as NO3	28.3	0.50	mg/l	8.86	20.3	91	90-110			
Matrix Spike (W4J0202-MS2)	**Source: 4J02042-05**			Analyzed: 10/03/14 17:44						
Nitrate as NO3	20.4	0.50	mg/l	8.86	12.0	94	90-110			
Matrix Spike Dup (W4J0202-MSD1)	**Source: 4J02042-02**			Analyzed: 10/03/14 17:39						
Nitrate as NO3	28.8	0.50	mg/l	8.86	20.3	97	90-110	2	20	
Matrix Spike Dup (W4J0202-MSD2)	**Source: 4J02042-05**			Analyzed: 10/03/14 17:46						
Nitrate as NO3	20.5	0.50	mg/l	8.86	12.0	95	90-110	0.5	20	

Batch W4J0215 - SM 4500H+-B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0215-BS1)				Analyzed: 10/03/14 19:00						
pH	7.40	0.10	Units	7.41		100	98.8-101			

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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0215 - SM 4500H+-B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Duplicate (W4J0215-DUP1)		**Source: 4J03003-01**		Analyzed: 10/03/14 19:00						
pH	7.53	0.10	Units		7.51			0.3	3.1	

Batch W4J0279 - EPA 9034

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0279-BLK1)				Analyzed: 10/06/14 12:10						
Sulfide, Total	ND	0.10	mg/l							
LCS (W4J0279-BS1)				Analyzed: 10/06/14 12:10						
Sulfide, Total	0.100	0.10	mg/l	0.0999		100	95-104			
Duplicate (W4J0279-DUP1)		**Source: 4J03011-03**		Analyzed: 10/06/14 12:10						
Sulfide, Total	ND	0.10	mg/l		ND					

Batch W4J0363 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0363-BLK1)				Analyzed: 10/07/14 19:30						
Total Dissolved Solids	ND	10	mg/l							
LCS (W4J0363-BS1)				Analyzed: 10/07/14 19:30						
Total Dissolved Solids	814	10	mg/l	824		99	96-102			
Duplicate (W4J0363-DUP1)		**Source: 4J01071-04**		Analyzed: 10/07/14 19:30						
Total Dissolved Solids	612	10	mg/l		601			2	10	
Duplicate (W4J0363-DUP2)		**Source: 4J03011-01**		Analyzed: 10/07/14 19:30						
Total Dissolved Solids	4440	10	mg/l		4360			2	10	

Batch W4J0374 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0374-BLK1)				Analyzed: 10/08/14 17:22						
Total Dissolved Solids	ND	10	mg/l							
LCS (W4J0374-BS1)				Analyzed: 10/08/14 17:22						
Total Dissolved Solids	822	10	mg/l	824		100	96-102			
Duplicate (W4J0374-DUP1)		**Source: 4J06009-01**		Analyzed: 10/08/14 17:22						
Total Dissolved Solids	551	10	mg/l		557			1	10	
Duplicate (W4J0374-DUP2)		**Source: 4J02084-01**		Analyzed: 10/08/14 17:22						
Total Dissolved Solids	1110	10	mg/l		1090			2	10	

Batch W4J0489 - ASTM D7511

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0489-BLK1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	ND	2.0	ug/l							
LCS (W4J0489-BS1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	46.7	2.0	ug/l	50.0		93	84-116			
Matrix Spike (W4J0489-MS1)		**Source: 4J02013-01**		Analyzed: 10/10/14 17:06						

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Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0489 - ASTM D7511

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0489-MS1)		**Source: 4J02013-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	42.6	2.0	ug/l	50.0	ND	85	64-136			
Matrix Spike (W4J0489-MS2)		**Source: 4J03011-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	46.4	2.0	ug/l	50.0	ND	93	64-136			
Matrix Spike Dup (W4J0489-MSD1)		**Source: 4J02013-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	42.1	2.0	ug/l	50.0	ND	84	64-136	1	47	
Matrix Spike Dup (W4J0489-MSD2)		**Source: 4J03011-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	47.5	2.0	ug/l	50.0	ND	95	64-136	2	47	

Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0268 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0268-BLK1)				Analyzed: 10/07/14 11:20						
Antimony, Total	ND	0.040	mg/l							
Arsenic, Total	ND	0.010	mg/l							
Barium, Total	ND	0.010	mg/l							
Beryllium, Total	ND	0.010	mg/l							
Cadmium, Total	ND	0.010	mg/l							
Chromium, Total	ND	0.010	mg/l							
Cobalt, Total	ND	0.010	mg/l							
Copper, Total	ND	0.020	mg/l							
Lead, Total	ND	0.010	mg/l							
Molybdenum, Total	ND	0.010	mg/l							
Nickel, Total	ND	0.010	mg/l							
Selenium, Total	ND	0.030	mg/l							
Silver, Total	ND	0.0050	mg/l							
Thallium, Total	ND	0.050	mg/l							
Tin, Total	ND	0.020	mg/l							
Vanadium, Total	ND	0.010	mg/l							
Zinc, Total	ND	0.050	mg/l							
LCS (W4J0268-BS1)				Analyzed: 10/07/14 11:23						
Antimony, Total	0.971	0.040	mg/l	1.00		97	80-120			
Arsenic, Total	1.00	0.010	mg/l	1.00		100	80-125			
Barium, Total	0.984	0.010	mg/l	1.00		98	80-125			
Beryllium, Total	0.935	0.010	mg/l	1.00		93	80-120			
Cadmium, Total	0.981	0.010	mg/l	1.00		98	80-120			
Chromium, Total	0.968	0.010	mg/l	1.00		97	80-120			
Cobalt, Total	0.944	0.010	mg/l	1.00		94	80-120			
Copper, Total	0.932	0.020	mg/l	1.00		93	80-120			

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0268 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0268-BS1)				Analyzed: 10/07/14 11:23						
Lead, Total	1.00	0.010	mg/l	1.00		100	80-120			
Molybdenum, Total	0.986	0.010	mg/l	1.00		99	80-120			
Nickel, Total	0.977	0.010	mg/l	1.00		98	80-120			
Selenium, Total	0.977	0.030	mg/l	1.00		98	80-120			
Silver, Total	0.971	0.0050	mg/l	1.00		97	80-125			
Thallium, Total	0.975	0.050	mg/l	1.00		97	80-120			
Tin, Total	0.942	0.020	mg/l	1.00		94	80-120			
Vanadium, Total	1.00	0.010	mg/l	1.00		100	80-120			
Zinc, Total	0.917	0.050	mg/l	1.00		92	80-120			
Matrix Spike (W4J0268-MS1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:11						
Antimony, Total	1.00	0.040	mg/l	1.00	ND	100	75-125			
Arsenic, Total	1.07	0.010	mg/l	1.00	ND	107	75-125			
Barium, Total	0.942	0.010	mg/l	1.00	0.0227	92	75-125			
Beryllium, Total	0.963	0.010	mg/l	1.00	ND	96	75-125			
Cadmium, Total	0.938	0.010	mg/l	1.00	ND	94	75-125			
Chromium, Total	0.942	0.010	mg/l	1.00	0.00190	94	75-125			
Cobalt, Total	0.873	0.010	mg/l	1.00	ND	87	75-125			
Copper, Total	0.918	0.020	mg/l	1.00	ND	92	75-125			
Lead, Total	0.923	0.010	mg/l	1.00	ND	92	75-125			
Molybdenum, Total	1.04	0.010	mg/l	1.00	0.0217	102	75-125			
Nickel, Total	0.945	0.010	mg/l	1.00	0.00347	94	75-125			
Selenium, Total	0.987	0.030	mg/l	1.00	ND	99	75-125			
Silver, Total	0.951	0.0050	mg/l	1.00	ND	95	75-125			
Thallium, Total	0.857	0.050	mg/l	1.00	ND	86	75-125			
Tin, Total	0.910	0.020	mg/l	1.00	ND	91	75-125			
Vanadium, Total	1.03	0.010	mg/l	1.00	0.00231	103	75-125			
Zinc, Total	0.922	0.050	mg/l	1.00	0.0265	90	75-125			
Matrix Spike Dup (W4J0268-MSD1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:14						
Antimony, Total	1.01	0.040	mg/l	1.00	ND	101	75-125	1	20	
Arsenic, Total	1.08	0.010	mg/l	1.00	ND	108	75-125	0.6	20	
Barium, Total	0.947	0.010	mg/l	1.00	0.0227	92	75-125	0.5	20	
Beryllium, Total	0.963	0.010	mg/l	1.00	ND	96	75-125	0.006	20	
Cadmium, Total	0.943	0.010	mg/l	1.00	ND	94	75-125	0.6	20	
Chromium, Total	0.943	0.010	mg/l	1.00	0.00190	94	75-125	0.06	20	
Cobalt, Total	0.877	0.010	mg/l	1.00	ND	88	75-125	0.4	20	
Copper, Total	0.920	0.020	mg/l	1.00	ND	92	75-125	0.2	20	
Lead, Total	0.937	0.010	mg/l	1.00	ND	94	75-125	2	20	
Molybdenum, Total	1.06	0.010	mg/l	1.00	0.0217	103	75-125	1	20	
Nickel, Total	0.945	0.010	mg/l	1.00	0.00347	94	75-125	0.04	20	

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0268 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0268-MSD1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:14						
Selenium, Total	0.992	0.030	mg/l	1.00	ND	99	75-125	0.6	20	
Silver, Total	0.955	0.0050	mg/l	1.00	ND	95	75-125	0.4	20	
Thallium, Total	0.868	0.050	mg/l	1.00	ND	87	75-125	1	20	
Tin, Total	0.919	0.020	mg/l	1.00	ND	92	75-125	1	20	
Vanadium, Total	1.03	0.010	mg/l	1.00	0.00231	103	75-125	0.1	20	
Zinc, Total	0.930	0.050	mg/l	1.00	0.0265	90	75-125	0.9	20	

Batch W4J0355 - EPA 7470A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0355-BLK1)				Analyzed: 10/08/14 17:11						
Mercury, Total	ND	0.10	ug/l							
LCS (W4J0355-BS1)				Analyzed: 10/08/14 17:11						
Mercury, Total	0.988	0.10	ug/l	1.00		99	80-120			
Matrix Spike (W4J0355-MS1)		**Source: 4J03011-01**		Analyzed: 10/08/14 17:11						
Mercury, Total	1.01	0.10	ug/l	1.00	0.0140	100	60-129			
Matrix Spike Dup (W4J0355-MSD1)		**Source: 4J03011-01**		Analyzed: 10/08/14 17:11						
Mercury, Total	0.997	0.10	ug/l	1.00	0.0140	98	60-129	1	20	

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Batch W4J0203 - EPA 8082

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0203-BLK1)				Analyzed: 10/09/14 21:41						
Aroclor 1016	ND	1.0	ug/l							
Aroclor 1221	ND	1.0	ug/l							
Aroclor 1232	ND	1.0	ug/l							
Aroclor 1242	ND	1.0	ug/l							
Aroclor 1248	ND	1.0	ug/l							
Aroclor 1254	ND	1.0	ug/l							
Aroclor 1260	ND	1.0	ug/l							
Surr: Decachlorobiphenyl	*0.431*		*ug/l*	*0.500*		*86*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.428*		*ug/l*	*0.500*		*86*	*18-139*			
LCS (W4J0203-BS1)				Analyzed: 10/09/14 23:13						
Aroclor 1016	4.78	1.0	ug/l	5.00		96	46-151			
Aroclor 1260	4.73	1.0	ug/l	5.00		95	46-160			
Surr: Decachlorobiphenyl	*0.459*		*ug/l*	*0.500*		*92*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.436*		*ug/l*	*0.500*		*87*	*18-139*			
LCS Dup (W4J0203-BSD1)				Analyzed: 10/09/14 23:44						
Aroclor 1016	5.07	1.0	ug/l	5.00		101	46-151	6	25	

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Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Batch W4J0203 - EPA 8082

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0203-BSD1)				Analyzed: 10/09/14 23:44						
Aroclor 1260	4.96	1.0	ug/l	5.00		99	46-160	5	25	
Surr: Decachlorobiphenyl	*0.469*		*ug/l*	*0.500*		*94*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.458*		*ug/l*	*0.500*		*92*	*18-139*			

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0222-BLK1)				Analyzed: 10/10/14 17:04						
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							
1,2-Dichlorobenzene	ND	1.0	ug/l							
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l							
1,3,5-Trinitrobenzene	ND	10	ug/l							
1,3-Dichlorobenzene	ND	1.0	ug/l							
1,3-Dinitrobenzene	ND	1.0	ug/l							
1,4-Dichlorobenzene	ND	1.0	ug/l							
1,4-Naphthoquinone	ND	10	ug/l							
1,4-Phenylenediamine	ND	10	ug/l							
1-Methylnaphthalene	ND	1.0	ug/l							
1-Naphthylamine	ND	10	ug/l							
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l							
2,4,5-Trichlorophenol	ND	1.0	ug/l							
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,4-Dichlorophenol	ND	1.0	ug/l							
2,4-Dimethylphenol	ND	1.0	ug/l							
2,4-Dinitrophenol	ND	10	ug/l							
2,4-Dinitrotoluene	ND	1.0	ug/l							
2,6-Dichlorophenol	ND	10	ug/l							
2,6-Dinitrotoluene	ND	1.0	ug/l							
2-Acetylaminofluorene	ND	10	ug/l							
2-Chloronaphthalene	ND	1.0	ug/l							
2-Chlorophenol	ND	1.0	ug/l							
2-Methylnaphthalene	ND	1.0	ug/l							
2-Methylphenol	ND	1.0	ug/l							
2-Naphthylamine	ND	10	ug/l							
2-Nitroaniline	ND	1.0	ug/l							
2-Nitrophenol	ND	1.0	ug/l							
2-Picoline	ND	10	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0222-BLK1)				Analyzed: 10/10/14 17:04						
3 & 4-Methylphenol	ND	1.0	ug/l							
3,3'- Dimethylbenzidine	ND	10	ug/l							
3,3'-Dichlorobenzidine	ND	5.0	ug/l							
3-Methylcholanthrene	ND	10	ug/l							
3-Nitroaniline	ND	1.0	ug/l							
4,4´-DDD	ND	5.0	ug/l							
4,4´-DDE	ND	5.0	ug/l							
4,4´-DDT	ND	5.0	ug/l							
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l							
4-Aminobiphenyl	ND	10	ug/l							
4-Bromophenyl phenyl ether	ND	1.0	ug/l							
4-Chloro-3-methylphenol	ND	1.0	ug/l							
4-Chloroaniline	ND	1.0	ug/l							
4-Chlorophenyl phenyl ether	ND	1.0	ug/l							
4-Nitroaniline	ND	1.0	ug/l							
4-Nitrophenol	ND	5.0	ug/l							
4-Nitroquinoline-n-oxide	ND	50	ug/l							
5-Nitro-o-toluidine	ND	10	ug/l							
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l							
a,a-Dimethylphenethylamine	ND	10	ug/l							
Acenaphthene	ND	1.0	ug/l							
Acenaphthylene	ND	1.0	ug/l							
Acetophenone	ND	10	ug/l							
Aldrin	ND	5.0	ug/l							
alpha-BHC	ND	5.0	ug/l							
Aniline	ND	1.0	ug/l							
Anthracene	ND	1.0	ug/l							
Aramite	ND	10	ug/l							
Benzidine	ND	10	ug/l							
Benzo (a) anthracene	ND	1.0	ug/l							
Benzo (a) pyrene	ND	1.0	ug/l							
Benzo (b) fluoranthene	ND	1.0	ug/l							
Benzo (g,h,i) perylene	ND	2.0	ug/l							
Benzo (k) fluoranthene	ND	1.0	ug/l							
Benzoic acid	ND	100	ug/l							
Benzyl alcohol	ND	1.0	ug/l							
beta-BHC	ND	5.0	ug/l							
Bis(2-chloroethoxy)methane	ND	1.0	ug/l							
Bis(2-chloroethyl)ether	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0222-BLK1)				Analyzed: 10/10/14 17:04						
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l							
Butyl benzyl phthalate	ND	1.0	ug/l							
Chlorobenzilate	ND	10	ug/l							
Chrysene	ND	1.0	ug/l							
delta-BHC	ND	5.0	ug/l							
Diallate (cis or trans)	ND	10	ug/l							
Dibenzo (a,h) anthracene	ND	2.0	ug/l							
Dibenzofuran	ND	1.0	ug/l							
Dieldrin	ND	5.0	ug/l							
Diethyl phthalate	ND	1.0	ug/l							
Dimethoate	ND	10	ug/l							
Dimethyl phthalate	ND	1.0	ug/l							
Dimethylaminoazobenzene	ND	10	ug/l							
Di-n-butyl phthalate	ND	1.0	ug/l							
Di-n-octyl phthalate	ND	1.0	ug/l							
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l							
Disulfoton	ND	10	ug/l							
Endosulfan I	ND	10	ug/l							
Endosulfan II	ND	10	ug/l							
Endosulfan sulfate	ND	5.0	ug/l							
Endrin	ND	5.0	ug/l							
Endrin aldehyde	ND	5.0	ug/l							
Ethyl methanesulfonate	ND	10	ug/l							
Famphur	ND	10	ug/l							
Fluoranthene	ND	1.0	ug/l							
Fluorene	ND	1.0	ug/l							
gamma-BHC (Lindane)	ND	5.0	ug/l							
Heptachlor	ND	5.0	ug/l							
Heptachlor epoxide	ND	5.0	ug/l							
Hexachlorobenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Hexachlorocyclopentadiene	ND	5.0	ug/l							
Hexachloroethane	ND	1.0	ug/l							
Hexachloropropene	ND	10	ug/l							
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l							
Isodrin	ND	10	ug/l							
Isophorone	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0222-BLK1)				Analyzed: 10/10/14 17:04						
Isosafrole	ND	10	ug/l							
Kepone	ND	50	ug/l							
Methapyrilene	ND	50	ug/l							
Methoxychlor	ND	5.0	ug/l							
Methyl methanesulfonate	ND	10	ug/l							
Methyl parathion	ND	10	ug/l							
Naphthalene	ND	1.0	ug/l							
Nitrobenzene	ND	1.0	ug/l							
N-Nitrosodiethylamine	ND	10	ug/l							
N-Nitrosodimethylamine	ND	1.0	ug/l							
N-Nitrosodi-n-butylamine	ND	10	ug/l							
N-Nitrosodi-n-propylamine	ND	1.0	ug/l							
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l							
N-Nitrosomethylethylamine	ND	10	ug/l							
N-Nitrosomorpholine	ND	10	ug/l							
N-Nitrosopiperidine	ND	10	ug/l							
N-Nitrosopyrrolidine	ND	10	ug/l							
o,o,o-Triethyl phosphorothioate	ND	10	ug/l							
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND	10	ug/l							
o-Toluidine	ND	10	ug/l							
Parathion	ND	10	ug/l							
Pentachlorobenzene	ND	10	ug/l							
Pentachloronitrobenzene (PCNB)	ND	10	ug/l							
Pentachlorophenol	ND	1.0	ug/l							
Phenacetin	ND	10	ug/l							
Phenanthrene	ND	1.0	ug/l							
Phenol	ND	1.0	ug/l							
Phorate	ND	10	ug/l							
Pronamide	ND	10	ug/l							
Pyrene	ND	1.0	ug/l							
Pyridine	ND	5.0	ug/l							
Safrole	ND	10	ug/l							
Surr: 2,4,6-Tribromophenol	*47.3*		*ug/l*	*50.0*		*95*	*33-96*			
Surr: 2-Fluorobiphenyl	*21.0*		*ug/l*	*25.0*		*84*	*28-100*			
Surr: 2-Fluorophenol	*25.8*		*ug/l*	*50.0*		*52*	*5-76*			
Surr: Nitrobenzene-d5	*20.2*		*ug/l*	*25.0*		*81*	*34-104*			
Surr: Phenol-d5	*15.7*		*ug/l*	*50.0*		*31*	*0.1-57*			
Surr: Terphenyl-d14	*21.1*		*ug/l*	*25.0*		*84*	*39-104*			
Blank (W4J0222-BLK2)				Analyzed: 11/05/14 21:02						

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Hexachlorophene	ND	50	ug/l							
LCS (W4J0222-BS1)				Analyzed: 10/10/14 17:33						
1,2,4-Trichlorobenzene	17.7	1.0	ug/l	25.0		71	27-99			
1,2-Dichlorobenzene	17.1	1.0	ug/l	25.0		68	22-102			
1,3-Dichlorobenzene	15.5	1.0	ug/l	25.0		62	22-100			
1,4-Dichlorobenzene	17.6	1.0	ug/l	25.0		70	24-101			
2,4,6-Trichlorophenol	20.6	1.0	ug/l	25.0		83	39-105			
2,4-Dichlorophenol	20.1	1.0	ug/l	25.0		80	39-102			
2,4-Dimethylphenol	16.4	1.0	ug/l	25.0		65	27-102			
2,4-Dinitrophenol	22.6	10	ug/l	25.0		90	11-142			
2,4-Dinitrotoluene	22.2	1.0	ug/l	25.0		89	44-105			
2,6-Dinitrotoluene	20.5	1.0	ug/l	25.0		82	44-106			
2-Chloronaphthalene	21.4	1.0	ug/l	25.0		85	36-100			
2-Chlorophenol	15.7	1.0	ug/l	25.0		63	34-96			
2-Nitrophenol	18.8	1.0	ug/l	25.0		75	38-103			
3,3'-Dichlorobenzidine	22.0	5.0	ug/l	25.0		88	0.1-308			
4,6-Dinitro-2-methylphenol	24.5	5.0	ug/l	25.0		98	42-111			
4-Bromophenyl phenyl ether	19.4	1.0	ug/l	25.0		77	38-92			
4-Chloro-3-methylphenol	28.5	1.0	ug/l	25.0		114	39-103			Q-08
4-Chlorophenyl phenyl ether	22.1	1.0	ug/l	25.0		88	40-102			
4-Nitrophenol	11.5	5.0	ug/l	25.0		46	4-50			
Acenaphthene	22.8	1.0	ug/l	25.0		91	41-110			
Acenaphthylene	23.3	1.0	ug/l	25.0		93	39-110			
Anthracene	23.6	1.0	ug/l	25.0		94	45-114			
Benzo (a) anthracene	25.4	1.0	ug/l	25.0		102	44-109			
Benzo (a) pyrene	23.2	1.0	ug/l	25.0		93	26-122			
Benzo (b) fluoranthene	22.7	1.0	ug/l	25.0		91	37-121			
Benzo (g,h,i) perylene	25.7	2.0	ug/l	25.0		103	13-135			
Benzo (k) fluoranthene	27.0	1.0	ug/l	25.0		108	36-119			
Bis(2-chloroethoxy)methane	20.8	1.0	ug/l	25.0		83	42-105			
Bis(2-chloroethyl)ether	17.6	1.0	ug/l	25.0		70	38-100			
Bis(2-chloroisopropyl)ether	20.4	1.0	ug/l	25.0		82	29-130			
Bis(2-ethylhexyl)phthalate	27.7	5.0	ug/l	25.0		111	41-118			
Butyl benzyl phthalate	26.6	1.0	ug/l	25.0		106	49-109			
Chrysene	26.4	1.0	ug/l	25.0		105	48-116			
Dibenzo (a,h) anthracene	25.1	2.0	ug/l	25.0		100	45-110			
Diethyl phthalate	22.8	1.0	ug/l	25.0		91	44-113			
Dimethyl phthalate	23.2	1.0	ug/l	25.0		93	26-123			
Di-n-butyl phthalate	24.2	1.0	ug/l	25.0		97	45-108			
Di-n-octyl phthalate	23.8	1.0	ug/l	25.0		95	41-100			

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7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0222-BS1)				Analyzed: 10/10/14 17:33						
Fluoranthene	26.2	1.0	ug/l	25.0		105	44-114			
Fluorene	23.0	1.0	ug/l	25.0		92	41-109			
Hexachlorobenzene	23.1	1.0	ug/l	25.0		92	44-106			
Hexachlorobutadiene	20.0	1.0	ug/l	25.0		80	26-107			
Hexachlorocyclopentadiene	16.7	5.0	ug/l	25.0		67	6-100			
Hexachloroethane	17.5	1.0	ug/l	25.0		70	20-91			
Indeno (1,2,3-cd) pyrene	22.4	2.0	ug/l	25.0		90	15-131			
Isophorone	19.8	1.0	ug/l	25.0		79	41-94			
Naphthalene	20.2	1.0	ug/l	25.0		81	31-107			
Nitrobenzene	19.8	1.0	ug/l	25.0		79	41-100			
N-Nitrosodimethylamine	10.8	1.0	ug/l	25.0		43	14-63			
N-Nitrosodi-n-propylamine	21.0	1.0	ug/l	25.0		84	38-105			
Pentachlorophenol	24.0	1.0	ug/l	25.0		96	36-105			
Phenanthrene	24.3	1.0	ug/l	25.0		97	46-115			
Phenol	6.85	1.0	ug/l	25.0		27	7-44			
Pyrene	26.9	1.0	ug/l	25.0		108	38-123			
Surr: 2,4,6-Tribromophenol	*44.0*		*ug/l*	*50.0*		*88*	*33-96*			
Surr: 2-Fluorobiphenyl	*21.4*		*ug/l*	*25.0*		*86*	*28-100*			
Surr: 2-Fluorophenol	*21.4*		*ug/l*	*50.0*		*43*	*5-76*			
Surr: Nitrobenzene-d5	*18.4*		*ug/l*	*25.0*		*74*	*34-104*			
Surr: Phenol-d5	*13.9*		*ug/l*	*50.0*		*28*	*0.1-57*			
Surr: Terphenyl-d14	*24.2*		*ug/l*	*25.0*		*97*	*39-104*			
LCS Dup (W4J0222-BSD1)				Analyzed: 10/10/14 18:01						
1,2,4-Trichlorobenzene	16.2	1.0	ug/l	25.0		65	27-99	9	30	
1,2-Dichlorobenzene	16.2	1.0	ug/l	25.0		65	22-102	5	30	
1,3-Dichlorobenzene	14.6	1.0	ug/l	25.0		59	22-100	6	30	
1,4-Dichlorobenzene	16.9	1.0	ug/l	25.0		68	24-101	4	30	
2,4,6-Trichlorophenol	19.0	1.0	ug/l	25.0		76	39-105	8	30	
2,4-Dichlorophenol	17.8	1.0	ug/l	25.0		71	39-102	12	30	
2,4-Dimethylphenol	12.6	1.0	ug/l	25.0		50	27-102	26	30	
2,4-Dinitrophenol	20.5	10	ug/l	25.0		82	11-142	10	30	
2,4-Dinitrotoluene	21.8	1.0	ug/l	25.0		87	44-105	2	30	
2,6-Dinitrotoluene	19.7	1.0	ug/l	25.0		79	44-106	4	30	
2-Chloronaphthalene	19.0	1.0	ug/l	25.0		76	36-100	12	30	
2-Chlorophenol	14.9	1.0	ug/l	25.0		60	34-96	5	30	
2-Nitrophenol	17.0	1.0	ug/l	25.0		68	38-103	10	30	
3,3'-Dichlorobenzidine	21.8	5.0	ug/l	25.0		87	0.1-308	1	30	
4,6-Dinitro-2-methylphenol	23.6	5.0	ug/l	25.0		94	42-111	4	30	
4-Bromophenyl phenyl ether	18.5	1.0	ug/l	25.0		74	38-92	5	30	
4-Chloro-3-methylphenol	24.2	1.0	ug/l	25.0		97	39-103	16	30	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0222-BSD1)				Analyzed: 10/10/14 18:01						
4-Chlorophenyl phenyl ether	20.5	1.0	ug/l	25.0		82	40-102	7	30	
4-Nitrophenol	9.76	5.0	ug/l	25.0		39	4-50	16	30	
Acenaphthene	21.2	1.0	ug/l	25.0		85	41-110	7	30	
Acenaphthylene	20.7	1.0	ug/l	25.0		83	39-110	12	30	
Anthracene	23.6	1.0	ug/l	25.0		94	45-114	0.1	30	
Benzo (a) anthracene	23.7	1.0	ug/l	25.0		95	44-109	7	30	
Benzo (a) pyrene	29.5	1.0	ug/l	25.0		118	26-122	24	30	
Benzo (b) fluoranthene	27.9	1.0	ug/l	25.0		112	37-121	21	30	
Benzo (g,h,i) perylene	29.9	2.0	ug/l	25.0		120	13-135	15	30	
Benzo (k) fluoranthene	28.5	1.0	ug/l	25.0		114	36-119	5	30	
Bis(2-chloroethoxy)methane	18.6	1.0	ug/l	25.0		74	42-105	11	30	
Bis(2-chloroethyl)ether	16.5	1.0	ug/l	25.0		66	38-100	6	30	
Bis(2-chloroisopropyl)ether	18.4	1.0	ug/l	25.0		74	29-130	10	30	
Bis(2-ethylhexyl)phthalate	26.6	5.0	ug/l	25.0		106	41-118	4	30	
Butyl benzyl phthalate	24.8	1.0	ug/l	25.0		99	49-109	7	30	
Chrysene	26.9	1.0	ug/l	25.0		108	48-116	2	30	
Dibenzo (a,h) anthracene	28.1	2.0	ug/l	25.0		113	45-110	12	30	Q-08
Diethyl phthalate	22.4	1.0	ug/l	25.0		90	44-113	2	30	
Dimethyl phthalate	21.0	1.0	ug/l	25.0		84	26-123	10	30	
Di-n-butyl phthalate	23.2	1.0	ug/l	25.0		93	45-108	4	30	
Di-n-octyl phthalate	28.5	1.0	ug/l	25.0		114	41-100	18	30	Q-08
Fluoranthene	24.0	1.0	ug/l	25.0		96	44-114	9	30	
Fluorene	21.8	1.0	ug/l	25.0		87	41-109	5	30	
Hexachlorobenzene	22.4	1.0	ug/l	25.0		89	44-106	3	30	
Hexachlorobutadiene	18.1	1.0	ug/l	25.0		72	26-107	10	30	
Hexachlorocyclopentadiene	14.0	5.0	ug/l	25.0		56	6-100	17	30	
Hexachloroethane	15.8	1.0	ug/l	25.0		63	20-91	10	30	
Indeno (1,2,3-cd) pyrene	25.7	2.0	ug/l	25.0		103	15-131	14	30	
Isophorone	17.2	1.0	ug/l	25.0		69	41-94	14	30	
Naphthalene	19.0	1.0	ug/l	25.0		76	31-107	6	30	
Nitrobenzene	17.8	1.0	ug/l	25.0		71	41-100	10	30	
N-Nitrosodimethylamine	10.4	1.0	ug/l	25.0		42	14-63	4	30	
N-Nitrosodi-n-propylamine	18.4	1.0	ug/l	25.0		73	38-105	14	30	
Pentachlorophenol	22.2	1.0	ug/l	25.0		89	36-105	8	30	
Phenanthrene	24.2	1.0	ug/l	25.0		97	46-115	0.3	30	
Phenol	6.72	1.0	ug/l	25.0		27	7-44	2	30	
Pyrene	24.3	1.0	ug/l	25.0		97	38-123	10	30	
Surr: 2,4,6-Tribromophenol	*41.1*		*ug/l*	*50.0*		*82*	*33-96*			
Surr: 2-Fluorobiphenyl	*18.9*		*ug/l*	*25.0*		*75*	*28-100*			

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0222 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0222-BSD1)				Analyzed: 10/10/14 18:01						
Surr: 2-Fluorophenol	*21.0*		*ug/l*	*50.0*		*42*	*5-76*			
Surr: Nitrobenzene-d5	*16.9*		*ug/l*	*25.0*		*67*	*34-104*			
Surr: Phenol-d5	*13.6*		*ug/l*	*50.0*		*27*	*0.1-57*			
Surr: Terphenyl-d14	*22.1*		*ug/l*	*25.0*		*88*	*39-104*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0451-BLK1)				Analyzed: 10/09/14 14:09						
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,1-Trichloroethane	ND	1.0	ug/l							
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,2-Trichloroethane	ND	1.0	ug/l							
1,1-Dichloroethane	ND	1.0	ug/l							
1,1-Dichloroethene	ND	1.0	ug/l							
1,1-Dichloropropene	ND	1.0	ug/l							
1,2,3-Trichloropropane	ND	1.0	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							
1,2,4-Trimethylbenzene	ND	1.0	ug/l							
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l							
1,2-Dibromoethane (EDB)	ND	1.0	ug/l							
1,2-Dichloroethane	ND	1.0	ug/l							
1,2-Dichloropropane	ND	1.0	ug/l							
1,3-Dichloropropane	ND	1.0	ug/l							
2,2-Dichloropropane	ND	1.0	ug/l							
2-Butanone	ND	5.0	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	ug/l							
2-Hexanone	ND	5.0	ug/l							
4-Methyl-2-pentanone	ND	5.0	ug/l							
Acetone	ND	5.0	ug/l							
Acetonitrile	ND	5.0	ug/l							
Acrolein	ND	5.0	ug/l							
Acrylonitrile	ND	5.0	ug/l							
Allyl chloride	ND	1.0	ug/l							
Benzene	ND	1.0	ug/l							
Bromochloromethane	ND	1.0	ug/l							
Bromodichloromethane	ND	1.0	ug/l							
Bromoform	ND	1.0	ug/l							

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0451-BLK1)				Analyzed: 10/09/14 14:09						
Bromomethane	ND	1.0	ug/l							
Carbon Disulfide	ND	1.0	ug/l							
Carbon tetrachloride	ND	1.0	ug/l							
Chlorobenzene	ND	1.0	ug/l							
Chloroethane	ND	1.0	ug/l							
Chloroform	ND	1.0	ug/l							
Chloromethane	ND	1.0	ug/l							
Chloroprene	ND	1.0	ug/l							
cis-1,2-Dichloroethene	ND	1.0	ug/l							
cis-1,3-Dichloropropene	ND	1.0	ug/l							
Dibromochloromethane	ND	1.0	ug/l							
Dibromomethane	ND	1.0	ug/l							
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l							
Ethyl methacrylate	ND	1.0	ug/l							
Ethylbenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Iodomethane	ND	1.0	ug/l							
Isobutanol	ND	5.0	ug/l							
m,p-Xylene	ND	1.0	ug/l							
m-Dichlorobenzene	ND	1.0	ug/l							
Methacrylonitrile	ND	5.0	ug/l							
Methyl methacrylate	ND	1.0	ug/l							
Methylene chloride	ND	1.0	ug/l							
Naphthalene	ND	1.0	ug/l							
o-Dichlorobenzene	ND	1.0	ug/l							
o-Xylene	ND	1.0	ug/l							
p-Dichlorobenzene	ND	1.0	ug/l							
Propionitrile	ND	5.0	ug/l							
sec-Butylbenzene	ND	1.0	ug/l							
Styrene	ND	1.0	ug/l							
Tetrachloroethene	ND	1.0	ug/l							
Toluene	ND	1.0	ug/l							
trans-1,2-Dichloroethene	ND	1.0	ug/l							
trans-1,3-Dichloropropene	ND	1.0	ug/l							
trans-1,4-Dichloro-2-butene	ND	1.0	ug/l							
Trichloroethene	ND	1.0	ug/l							
Trichlorofluoromethane	ND	1.0	ug/l							
Vinyl acetate	ND	1.0	ug/l							
Vinyl chloride	ND	1.0	ug/l							

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0451-BLK1)				Analyzed: 10/09/14 14:09						
Surr: 1,2-Dichloroethane-d4	*52.8*		*ug/l*	*50.0*		*106*	*86-126*			
Surr: 4-Bromofluorobenzene	*47.6*		*ug/l*	*50.0*		*95*	*80-112*			
Surr: Dibromofluoromethane	*52.7*		*ug/l*	*50.0*		*105*	*89-120*			
Surr: Toluene-d8	*50.5*		*ug/l*	*50.0*		*101*	*91-111*			
LCS (W4J0451-BS1)				Analyzed: 10/09/14 11:38						
1,1,1,2-Tetrachloroethane	56.1	1.0	ug/l	50.0		112	83-118			
1,1,1-Trichloroethane	58.8	1.0	ug/l	50.0		118	82-123			
1,1,2,2-Tetrachloroethane	51.6	1.0	ug/l	50.0		103	72-116			
1,1,2-Trichloroethane	53.1	1.0	ug/l	50.0		106	84-118			
1,1-Dichloroethane	56.7	1.0	ug/l	50.0		113	83-114			
1,1-Dichloroethene	58.2	1.0	ug/l	50.0		116	76-130			
1,1-Dichloropropene	54.8	1.0	ug/l	50.0		110	82-128			
1,2,3-Trichloropropane	51.7	1.0	ug/l	50.0		103	72-117			
1,2,4-Trichlorobenzene	49.3	1.0	ug/l	50.0		99	70-131			
1,2,4-Trimethylbenzene	51.7	1.0	ug/l	50.0		103	83-119			
1,2-Dibromo-3-chloropropane	54.5	1.0	ug/l	50.0		109	67-126			
1,2-Dibromoethane (EDB)	55.2	1.0	ug/l	50.0		110	85-123			
1,2-Dichloroethane	57.9	1.0	ug/l	50.0		116	79-117			
1,2-Dichloropropane	55.4	1.0	ug/l	50.0		111	79-124			
1,3-Dichloropropane	54.2	1.0	ug/l	50.0		108	79-129			
2,2-Dichloropropane	68.8	1.0	ug/l	50.0		138	73-131			Q-08
2-Butanone	59.3	5.0	ug/l	50.0		119	66-134			
2-Chloroethyl vinyl ether	58.1	5.0	ug/l	50.0		116	55-141			
2-Hexanone	54.3	5.0	ug/l	50.0		109	66-142			
4-Methyl-2-pentanone	56.5	5.0	ug/l	50.0		113	68-139			
Acetone	52.2	5.0	ug/l	50.0		104	58-147			
Acetonitrile	248	5.0	ug/l				60-140			
Acrolein	67.3	5.0	ug/l	50.0		135	40-158			
Acrylonitrile	58.5	5.0	ug/l	50.0		117	67-131			
Allyl chloride	52.3	1.0	ug/l				74-129			
Benzene	53.8	1.0	ug/l	50.0		108	80-117			
Bromochloromethane	60.1	1.0	ug/l	50.0		120	79-117			Q-08
Bromodichloromethane	61.2	1.0	ug/l	50.0		122	83-132			
Bromoform	57.0	1.0	ug/l	50.0		114	72-129			
Bromomethane	56.2	1.0	ug/l	50.0		112	52-144			
Carbon Disulfide	56.0	1.0	ug/l	50.0		112	76-124			
Carbon tetrachloride	58.6	1.0	ug/l	50.0		117	77-134			
Chlorobenzene	49.4	1.0	ug/l	50.0		99	82-114			
Chloroethane	53.4	1.0	ug/l	50.0		107	68-127			
Chloroform	57.6	1.0	ug/l	50.0		115	83-118			

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0451-BS1)				Analyzed: 10/09/14 11:38						
Chloromethane	59.4	1.0	ug/l	50.0		119	59-120			
Chloroprene	44.7	1.0	ug/l				66-135			
cis-1,2-Dichloroethene	59.8	1.0	ug/l	50.0		120	80-126			
cis-1,3-Dichloropropene	59.4	1.0	ug/l	50.0		119	84-130			
Dibromochloromethane	59.6	1.0	ug/l	50.0		119	83-132			
Dibromomethane	56.0	1.0	ug/l	50.0		112	80-122			
Dichlorodifluoromethane (Freon 12)	57.4	1.0	ug/l	50.0		115	65-119			
Ethyl methacrylate	50.7	1.0	ug/l				67-135			
Ethylbenzene	51.2	1.0	ug/l	50.0		102	76-131			
Hexachlorobutadiene	50.7	1.0	ug/l	50.0		101	71-124			
Iodomethane	49.0	1.0	ug/l				74-134			
Isobutanol	274	5.0	ug/l				66-133			
m,p-Xylene	51.1	1.0	ug/l	50.0		102	80-126			
m-Dichlorobenzene	50.0	1.0	ug/l	50.0		100	79-119			
Methacrylonitrile	266	5.0	ug/l				69-131			
Methyl methacrylate	49.5	1.0	ug/l				72-133			
Methylene chloride	58.1	1.0	ug/l	50.0		116	78-115			Q-08
Naphthalene	50.7	1.0	ug/l	50.0		101	64-145			
o-Dichlorobenzene	49.6	1.0	ug/l	50.0		99	80-117			
o-Xylene	51.7	1.0	ug/l	50.0		103	84-121			
p-Dichlorobenzene	50.0	1.0	ug/l	50.0		100	80-117			
Propionitrile	265	5.0	ug/l				64-133			
sec-Butylbenzene	51.3	1.0	ug/l	50.0		103	83-118			
Styrene	50.9	1.0	ug/l	50.0		102	87-126			
Tetrachloroethene	51.6	1.0	ug/l	50.0		103	79-126			
Toluene	53.4	1.0	ug/l	50.0		107	82-122			
trans-1,2-Dichloroethene	57.9	1.0	ug/l	50.0		116	83-121			
trans-1,3-Dichloropropene	63.4	1.0	ug/l	50.0		127	82-137			
trans-1,4-Dichloro-2-butene	39.5	1.0	ug/l				73-136			
Trichloroethene	54.7	1.0	ug/l	50.0		109	81-121			
Trichlorofluoromethane	61.6	1.0	ug/l	50.0		123	71-131			
Vinyl acetate	56.5	1.0	ug/l				71-127			
Vinyl chloride	55.8	1.0	ug/l	50.0		112	66-124			
Surr: 1,2-Dichloroethane-d4	*55.6*		*ug/l*	*50.0*		*111*	*86-126*			
Surr: 4-Bromofluorobenzene	*47.9*		*ug/l*	*50.0*		*96*	*80-112*			
Surr: Dibromofluoromethane	*51.7*		*ug/l*	*50.0*		*103*	*89-120*			
Surr: Toluene-d8	*50.2*		*ug/l*	*50.0*		*100*	*91-111*			
LCS Dup (W4J0451-BSD1)				Analyzed: 10/09/14 12:08						
1,1,1,2-Tetrachloroethane	51.7	1.0	ug/l	50.0		103	83-118	8	25	
1,1,1-Trichloroethane	51.8	1.0	ug/l	50.0		104	82-123	13	25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0451-BSD1)				Analyzed: 10/09/14 12:08						
1,1,2,2-Tetrachloroethane	45.6	1.0	ug/l	50.0		91	72-116	12	25	
1,1,2-Trichloroethane	47.4	1.0	ug/l	50.0		95	84-118	11	25	
1,1-Dichloroethane	47.9	1.0	ug/l	50.0		96	83-114	17	25	
1,1-Dichloroethene	48.9	1.0	ug/l	50.0		98	76-130	17	25	
1,1-Dichloropropene	47.3	1.0	ug/l	50.0		95	82-128	15	25	
1,2,3-Trichloropropane	44.9	1.0	ug/l	50.0		90	72-117	14	25	
1,2,4-Trichlorobenzene	44.6	1.0	ug/l	50.0		89	70-131	10	25	
1,2,4-Trimethylbenzene	45.8	1.0	ug/l	50.0		92	83-119	12	25	
1,2-Dibromo-3-chloropropane	47.8	1.0	ug/l	50.0		96	67-126	13	25	
1,2-Dibromoethane (EDB)	49.2	1.0	ug/l	50.0		98	85-123	12	25	
1,2-Dichloroethane	49.5	1.0	ug/l	50.0		99	79-117	16	25	
1,2-Dichloropropane	47.9	1.0	ug/l	50.0		96	79-124	14	25	
1,3-Dichloropropane	48.0	1.0	ug/l	50.0		96	79-129	12	25	
2,2-Dichloropropane	60.4	1.0	ug/l	50.0		121	73-131	13	25	
2-Butanone	51.2	5.0	ug/l	50.0		102	66-134	15	25	
2-Chloroethyl vinyl ether	50.7	5.0	ug/l	50.0		101	55-141	14	25	
2-Hexanone	46.0	5.0	ug/l	50.0		92	66-142	17	25	
4-Methyl-2-pentanone	47.8	5.0	ug/l	50.0		96	68-139	17	25	
Acetone	45.6	5.0	ug/l	50.0		91	58-147	14	25	
Acetonitrile	262	5.0	ug/l				60-140	6	25	
Acrolein	56.9	5.0	ug/l	50.0		114	40-158	17	25	
Acrylonitrile	48.2	5.0	ug/l	50.0		96	67-131	19	25	
Allyl chloride	54.5	1.0	ug/l				74-129	4	25	
Benzene	46.3	1.0	ug/l	50.0		93	80-117	15	25	
Bromochloromethane	51.6	1.0	ug/l	50.0		103	79-117	15	25	
Bromodichloromethane	54.3	1.0	ug/l	50.0		109	83-132	12	25	
Bromoform	53.3	1.0	ug/l	50.0		107	72-129	7	25	
Bromomethane	50.0	1.0	ug/l	50.0		100	52-144	12	25	
Carbon Disulfide	47.7	1.0	ug/l	50.0		95	76-124	16	25	
Carbon tetrachloride	53.2	1.0	ug/l	50.0		106	77-134	10	25	
Chlorobenzene	44.8	1.0	ug/l	50.0		90	82-114	10	25	
Chloroethane	45.6	1.0	ug/l	50.0		91	68-127	16	25	
Chloroform	49.4	1.0	ug/l	50.0		99	83-118	15	25	
Chloromethane	51.4	1.0	ug/l	50.0		103	59-120	14	25	
Chloroprene	47.0	1.0	ug/l				66-135	5	25	
cis-1,2-Dichloroethene	50.7	1.0	ug/l	50.0		101	80-126	16	25	
cis-1,3-Dichloropropene	51.2	1.0	ug/l	50.0		102	84-130	15	25	
Dibromochloromethane	54.0	1.0	ug/l	50.0		108	83-132	10	25	
Dibromomethane	48.3	1.0	ug/l	50.0		97	80-122	15	25	

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0451-BSD1)				Analyzed: 10/09/14 12:08						
Dichlorodifluoromethane (Freon 12)	49.5	1.0	ug/l	50.0		99	65-119	15	25	
Ethyl methacrylate	52.8	1.0	ug/l				67-135	4	25	
Ethylbenzene	45.8	1.0	ug/l	50.0		92	76-131	11	25	
Hexachlorobutadiene	46.1	1.0	ug/l	50.0		92	71-124	10	25	
Iodomethane	51.3	1.0	ug/l				74-134	5	25	
Isobutanol	282	5.0	ug/l				66-133	3	25	
m,p-Xylene	45.9	1.0	ug/l	50.0		92	80-126	11	25	
m-Dichlorobenzene	45.1	1.0	ug/l	50.0		90	79-119	10	25	
Methacrylonitrile	297	5.0	ug/l				69-131	11	25	
Methyl methacrylate	50.0	1.0	ug/l				72-133	1	25	
Methylene chloride	48.7	1.0	ug/l	50.0		97	78-115	18	25	
Naphthalene	45.8	1.0	ug/l	50.0		92	64-145	10	25	
o-Dichlorobenzene	44.8	1.0	ug/l	50.0		90	80-117	10	25	
o-Xylene	46.8	1.0	ug/l	50.0		94	84-121	10	25	
p-Dichlorobenzene	45.1	1.0	ug/l	50.0		90	80-117	10	25	
Propionitrile	285	5.0	ug/l				64-133	7	25	
sec-Butylbenzene	45.4	1.0	ug/l	50.0		91	83-118	12	25	
Styrene	46.3	1.0	ug/l	50.0		93	87-126	9	25	
Tetrachloroethene	47.1	1.0	ug/l	50.0		94	79-126	9	25	
Toluene	47.1	1.0	ug/l	50.0		94	82-122	12	25	
trans-1,2-Dichloroethene	48.4	1.0	ug/l	50.0		97	83-121	18	25	
trans-1,3-Dichloropropene	55.2	1.0	ug/l	50.0		110	82-137	14	25	
trans-1,4-Dichloro-2-butene	41.8	1.0	ug/l				73-136	6	25	
Trichloroethene	47.7	1.0	ug/l	50.0		95	81-121	14	25	
Trichlorofluoromethane	54.0	1.0	ug/l	50.0		108	71-131	13	25	
Vinyl acetate	55.5	1.0	ug/l				71-127	2	25	
Vinyl chloride	48.0	1.0	ug/l	50.0		96	66-124	15	25	
Surr: 1,2-Dichloroethane-d4	*52.8*		*ug/l*	*50.0*		*106*	*86-126*			
Surr: 4-Bromofluorobenzene	*48.9*		*ug/l*	*50.0*		*98*	*80-112*			
Surr: Dibromofluoromethane	*51.8*		*ug/l*	*50.0*		*104*	*89-120*			
Surr: Toluene-d8	*50.9*		*ug/l*	*50.0*		*102*	*91-111*			
Matrix Spike (W4J0451-MS1)	**Source: 4J02084-01**			Analyzed: 10/10/14 08:38						
1,1,1,2-Tetrachloroethane	44.0	1.0	ug/l	50.0	ND	88	80-119			
1,1,1-Trichloroethane	54.9	1.0	ug/l	50.0	ND	110	77-132			
1,1,2,2-Tetrachloroethane	42.7	1.0	ug/l	50.0	ND	85	59-119			
1,1,2-Trichloroethane	53.0	1.0	ug/l	50.0	ND	106	77-124			
1,1-Dichloroethane	56.4	1.0	ug/l	50.0	ND	113	83-118			
1,1-Dichloroethene	68.0	1.0	ug/l	50.0	ND	136	64-140			
1,1-Dichloropropene	51.6	1.0	ug/l	50.0	ND	103	78-134			
1,2,3-Trichloropropane	42.8	1.0	ug/l	50.0	ND	86	54-133			

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0451-MS1)	**Source: 4J02084-01**			Analyzed: 10/10/14 08:38						
1,2,4-Trichlorobenzene	36.0	1.0	ug/l	50.0	ND	72	57-127			
1,2,4-Trimethylbenzene	39.9	1.0	ug/l	50.0	ND	80	76-120			
1,2-Dibromo-3-chloropropane	49.3	1.0	ug/l	50.0	ND	99	52-131			
1,2-Dibromoethane (EDB)	56.2	1.0	ug/l	50.0	ND	112	78-124			
1,2-Dichloroethane	68.3	1.0	ug/l	50.0	ND	137	70-125			MS-05
1,2-Dichloropropane	50.3	1.0	ug/l	50.0	ND	101	77-121			
1,3-Dichloropropane	55.2	1.0	ug/l	50.0	ND	110	79-122			
2,2-Dichloropropane	71.4	1.0	ug/l	50.0	ND	143	59-139			Q-08
2-Butanone	48.0	5.0	ug/l	50.0	ND	96	52-134			
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	50.5	5.0	ug/l	50.0	ND	101	54-144			
4-Methyl-2-pentanone	58.4	5.0	ug/l	50.0	ND	117	59-144			
Acetone	63.9	5.0	ug/l	50.0	ND	128	29-151			
Acetonitrile	295	5.0	ug/l		ND		55-144			
Acrolein	77.6	5.0	ug/l	50.0	ND	155	0.1-178			
Acrylonitrile	58.8	5.0	ug/l	50.0	ND	118	62-129			
Allyl chloride	58.7	1.0	ug/l		ND		62-135			
Benzene	47.7	1.0	ug/l	50.0	ND	95	74-114			
Bromochloromethane	61.8	1.0	ug/l	50.0	ND	124	74-121			Q-08
Bromodichloromethane	54.6	1.0	ug/l	50.0	ND	109	79-132			
Bromoform	50.8	1.0	ug/l	50.0	ND	102	78-133			
Bromomethane	59.9	1.0	ug/l	50.0	ND	120	41-155			
Carbon Disulfide	60.4	1.0	ug/l	50.0	ND	121	72-125			
Carbon tetrachloride	52.8	1.0	ug/l	50.0	ND	106	73-145			
Chlorobenzene	36.2	1.0	ug/l	50.0	ND	72	78-115			MS-05
Chloroethane	56.0	1.0	ug/l	50.0	ND	112	69-134			
Chloroform	58.5	1.0	ug/l	50.0	ND	117	78-123			
Chloromethane	51.0	1.0	ug/l	50.0	ND	102	65-123			
Chloroprene	52.1	1.0	ug/l		ND		56-139			
cis-1,2-Dichloroethene	61.4	1.0	ug/l	50.0	ND	123	80-123			
cis-1,3-Dichloropropene	54.9	1.0	ug/l	50.0	ND	110	74-127			
Dibromochloromethane	62.4	1.0	ug/l	50.0	ND	125	79-132			
Dibromomethane	59.3	1.0	ug/l	50.0	ND	119	74-124			
Dichlorodifluoromethane (Freon 12)	67.0	1.0	ug/l	50.0	ND	134	72-124			MS-05
Ethyl methacrylate	47.5	1.0	ug/l		ND		60-134			
Ethylbenzene	39.2	1.0	ug/l	50.0	ND	78	75-123			
Hexachlorobutadiene	34.5	1.0	ug/l	50.0	ND	69	68-119			
Iodomethane	43.1	1.0	ug/l		ND		58-147			
Isobutanol	312	5.0	ug/l		ND		51-147			

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Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0451-MS1)	**Source: 4J02084-01**			Analyzed: 10/10/14 08:38						
m,p-Xylene	40.0	1.0	ug/l	50.0	ND	80	76-124			
m-Dichlorobenzene	36.9	1.0	ug/l	50.0	ND	74	74-113			
Methacrylonitrile	302	5.0	ug/l		ND		65-134			
Methyl methacrylate	50.8	1.0	ug/l		ND		61-135			
Methylene chloride	66.1	1.0	ug/l	50.0	ND	132	75-118			Q-08
Naphthalene	38.6	1.0	ug/l	50.0	ND	77	48-143			
o-Dichlorobenzene	38.1	1.0	ug/l	50.0	ND	76	73-115			
o-Xylene	40.6	1.0	ug/l	50.0	ND	81	76-123			
p-Dichlorobenzene	37.2	1.0	ug/l	50.0	ND	74	74-117			
Propionitrile	308	5.0	ug/l		ND		62-133			
sec-Butylbenzene	39.4	1.0	ug/l	50.0	ND	79	75-125			
Styrene	38.3	1.0	ug/l	50.0	ND	77	73-124			
Tetrachloroethene	45.8	1.0	ug/l	50.0	ND	92	80-129			
Toluene	48.6	1.0	ug/l	50.0	ND	97	79-123			
trans-1,2-Dichloroethene	57.1	1.0	ug/l	50.0	ND	114	80-123			
trans-1,3-Dichloropropene	61.8	1.0	ug/l	50.0	ND	124	76-130			
trans-1,4-Dichloro-2-butene	33.5	1.0	ug/l		ND		64-129			
Trichloroethene	49.8	1.0	ug/l	50.0	ND	100	79-126			
Trichlorofluoromethane	78.5	1.0	ug/l	50.0	ND	157	73-139			MS-05
Vinyl acetate	32.6	1.0	ug/l		ND		28-134			
Vinyl chloride	59.3	1.0	ug/l	50.0	ND	119	73-131			
Surr: 1,2-Dichloroethane-d4	*76.1*		*ug/l*	*50.0*		*152*	*86-126*			*S-11*
Surr: 4-Bromofluorobenzene	*45.8*		*ug/l*	*50.0*		*92*	*80-112*			
Surr: Dibromofluoromethane	*60.4*		*ug/l*	*50.0*		*121*	*89-120*			*S-11*
Surr: Toluene-d8	*51.3*		*ug/l*	*50.0*		*103*	*91-111*			
Matrix Spike Dup (W4J0451-MSD1)	**Source: 4J02084-01**			Analyzed: 10/10/14 09:37						
1,1,1,2-Tetrachloroethane	41.8	1.0	ug/l	50.0	ND	84	80-119	5	25	
1,1,1-Trichloroethane	52.2	1.0	ug/l	50.0	ND	104	77-132	5	25	
1,1,2,2-Tetrachloroethane	38.0	1.0	ug/l	50.0	ND	76	59-119	12	25	
1,1,2-Trichloroethane	47.0	1.0	ug/l	50.0	ND	94	77-124	12	25	
1,1-Dichloroethane	53.9	1.0	ug/l	50.0	ND	108	83-118	4	25	
1,1-Dichloroethene	63.0	1.0	ug/l	50.0	ND	126	64-140	8	25	
1,1-Dichloropropene	50.8	1.0	ug/l	50.0	ND	102	78-134	2	25	
1,2,3-Trichloropropane	37.6	1.0	ug/l	50.0	ND	75	54-133	13	25	
1,2,4-Trichlorobenzene	31.9	1.0	ug/l	50.0	ND	64	57-127	12	25	
1,2,4-Trimethylbenzene	40.0	1.0	ug/l	50.0	ND	80	76-120	0.3	25	
1,2-Dibromo-3-chloropropane	41.3	1.0	ug/l	50.0	ND	83	52-131	18	25	
1,2-Dibromoethane (EDB)	48.8	1.0	ug/l	50.0	ND	98	78-124	14	25	
1,2-Dichloroethane	61.2	1.0	ug/l	50.0	ND	122	70-125	11	25	
1,2-Dichloropropane	49.5	1.0	ug/l	50.0	ND	99	77-121	2	25	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0451-MSD1)	**Source: 4J02084-01**			Analyzed: 10/10/14 09:37						
1,3-Dichloropropane	49.7	1.0	ug/l	50.0	ND	99	79-122	10	25	
2,2-Dichloropropane	66.8	1.0	ug/l	50.0	ND	134	59-139	7	25	
2-Butanone	44.4	5.0	ug/l	50.0	ND	89	52-134	8	25	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	44.2	5.0	ug/l	50.0	ND	88	54-144	13	25	
4-Methyl-2-pentanone	51.6	5.0	ug/l	50.0	ND	103	59-144	12	25	
Acetone	52.7	5.0	ug/l	50.0	ND	105	29-151	19	25	
Acetonitrile	285	5.0	ug/l		ND		55-144	3	25	
Acrolein	64.1	5.0	ug/l	50.0	ND	128	0.1-178	19	25	
Acrylonitrile	50.6	5.0	ug/l	50.0	ND	101	62-129	15	25	
Allyl chloride	56.0	1.0	ug/l		ND		62-135	5	25	
Benzene	47.5	1.0	ug/l	50.0	ND	95	74-114	0.4	25	
Bromochloromethane	59.5	1.0	ug/l	50.0	ND	119	74-121	4	25	
Bromodichloromethane	56.2	1.0	ug/l	50.0	ND	112	79-132	3	25	
Bromoform	43.6	1.0	ug/l	50.0	ND	87	78-133	15	25	
Bromomethane	61.7	1.0	ug/l	50.0	ND	123	41-155	3	25	
Carbon Disulfide	56.9	1.0	ug/l	50.0	ND	114	72-125	6	25	
Carbon tetrachloride	59.3	1.0	ug/l	50.0	ND	119	73-145	12	25	
Chlorobenzene	34.7	1.0	ug/l	50.0	ND	69	78-115	4	25	MS-05
Chloroethane	54.2	1.0	ug/l	50.0	ND	108	69-134	3	25	
Chloroform	56.3	1.0	ug/l	50.0	ND	113	78-123	4	25	
Chloromethane	53.9	1.0	ug/l	50.0	ND	108	65-123	5	25	
Chloroprene	50.1	1.0	ug/l		ND		56-139	4	25	
cis-1,2-Dichloroethene	58.0	1.0	ug/l	50.0	ND	116	80-123	6	25	
cis-1,3-Dichloropropene	53.2	1.0	ug/l	50.0	ND	106	74-127	3	25	
Dibromochloromethane	57.6	1.0	ug/l	50.0	ND	115	79-132	8	25	
Dibromomethane	53.0	1.0	ug/l	50.0	ND	106	74-124	11	25	
Dichlorodifluoromethane (Freon 12)	62.8	1.0	ug/l	50.0	ND	126	72-124	7	25	MS-05
Ethyl methacrylate	45.7	1.0	ug/l		ND		60-134	4	25	
Ethylbenzene	37.4	1.0	ug/l	50.0	ND	75	75-123	5	25	
Hexachlorobutadiene	33.3	1.0	ug/l	50.0	ND	67	68-119	4	25	MS-05
Iodomethane	43.0	1.0	ug/l		ND		58-147	0.2	25	
Isobutanol	306	5.0	ug/l		ND		51-147	2	25	
m,p-Xylene	38.2	1.0	ug/l	50.0	ND	76	76-124	5	25	
m-Dichlorobenzene	36.3	1.0	ug/l	50.0	ND	73	74-113	2	25	MS-05
Methacrylonitrile	289	5.0	ug/l		ND		65-134	5	25	
Methyl methacrylate	49.3	1.0	ug/l		ND		61-135	3	25	
Methylene chloride	61.7	1.0	ug/l	50.0	ND	123	75-118	7	25	Q-08
Naphthalene	31.9	1.0	ug/l	50.0	ND	64	48-143	19	25	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0451 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0451-MSD1)	**Source: 4J02084-01**			Analyzed: 10/10/14 09:37						
o-Dichlorobenzene	36.0	1.0	ug/l	50.0	ND	72	73-115	6	25	MS-05
o-Xylene	38.9	1.0	ug/l	50.0	ND	78	76-123	4	25	
p-Dichlorobenzene	36.6	1.0	ug/l	50.0	ND	73	74-117	2	25	MS-05
Propionitrile	280	5.0	ug/l		ND		62-133	9	25	
sec-Butylbenzene	38.6	1.0	ug/l	50.0	ND	77	75-125	2	25	
Styrene	35.6	1.0	ug/l	50.0	ND	71	73-124	7	25	MS-05
Tetrachloroethene	43.8	1.0	ug/l	50.0	ND	88	80-129	4	25	
Toluene	47.5	1.0	ug/l	50.0	ND	95	79-123	2	25	
trans-1,2-Dichloroethene	55.9	1.0	ug/l	50.0	ND	112	80-123	2	25	
trans-1,3-Dichloropropene	58.2	1.0	ug/l	50.0	ND	116	76-130	6	25	
trans-1,4-Dichloro-2-butene	32.2	1.0	ug/l		ND		64-129	4	25	
Trichloroethene	49.2	1.0	ug/l	50.0	ND	98	79-126	1	25	
Trichlorofluoromethane	71.9	1.0	ug/l	50.0	ND	144	73-139	9	25	MS-05
Vinyl acetate	32.3	1.0	ug/l		ND		28-134	0.9	25	
Vinyl chloride	58.0	1.0	ug/l	50.0	ND	116	73-131	2	25	
Surr: 1,2-Dichloroethane-d4	*66.6*		*ug/l*	*50.0*		*133*	*86-126*			*S-11*
Surr: 4-Bromofluorobenzene	*43.1*		*ug/l*	*50.0*		*86*	*80-112*			
Surr: Dibromofluoromethane	*58.2*		*ug/l*	*50.0*		*116*	*89-120*			
Surr: Toluene-d8	*52.1*		*ug/l*	*50.0*		*104*	*91-111*			

EPA 1613B m - Quality Control

Batch 3783579 - EPA 1613B m

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (3783579-BLK)				Analyzed: 10/15/14 00:00						
2,3,7,8-Tetra CDD	ND	3.8	pg/L			NR	-			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*168*		*pg/L*	*200*		*84*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*168*		*pg/L*	*200*		*84*	*24-164*			*S_MAXX*
LCS (3783579-LCS)				Analyzed: 10/15/14 00:00						
2,3,7,8-Tetra CDD	184	3.8	pg/L	200		92	67-158			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*190*		*pg/L*	*200*		*95*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*190*		*pg/L*	*200*		*95*	*24-164*			*S_MAXX*

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/03/14 10:00
Date Reported: 11/10/14 13:36

Notes and Definitions

S-11	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
S-04	The surrogate recovery for this sample is outside of established control limits due to possible sample matrix effect.
S_MAXX	Analysis subcontracted to Maxxam Analytics, INC. NELAC # 02106A
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
O-04	This analysis was performed outside the EPA recommended holding time.
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
*	The recommended holding time for this analysis is only 15 minutes. The sample was analyzed as soon as it was possible but it was received and analyzed past holding time.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reportable
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Sub	Subcontracted analysis, original report available upon request
MDL	Method Detection Limit
MDA	Minimum Detectable Activity
MRL	Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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CHAIN OF CUSTODY RECORD

4J03011

STANDARD

Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CLIENT NAME: **CalEnergy Operating Corporation**

PROJECT: DVC 5 Year

ADDRESS: **7030 Gentry Road, Calipatria, CA 92233**

PHONE: **760-348-4241**
FAX:
EMAIL: antonio.campos@calenergy.com

PROJECT MANAGER **Stella Minaev**

SAMPLER: Katherine West

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS: Under Ice

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	Cyanide, Total - ASTM D7511	Dioxin 2378TCDD - EPA 1613B	EPA 8081A/8082 -Pesticides & PCB	EPA 8151A - Chlorinated Herbicides	EPA 8260B - VOC	EPA 8270C - Semivolatile Organics	EPA 300.0 - Fluoride	EPA 7470 - Mercury	EPA 6010 Metals, CAM	EPA 300.0 Nitrate-NO3
	10/02/14	8:30 AM	GW	DVC Monitoring Well GW309	17	X	X	X	X	X	X	X	X	X	X
	10/02/14	9:32 AM	GW	DVC Monitoring Well GW307	17	X	X	X	X	X	X	X	X	X	X
	10/02/14	10:30 AM	GW	DVC Monitoring Well GW308	17	X	X	X	X	X	X	X	X	X	x

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	12:10 10-2-14	UPS
UPS	10-3-14 1000	

SAMPLE CONDITION:

Actual Temperature: 1.5

Received On Ice: Y / N
Preserved: Y / N
Evidence Seals Present: Y / N
Container Attacked: Y / N
Preserved at Lab: Y / N

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

Please send invoices to payables@calenergy.com **P.O# 210007**

CHAIN OF CUSTODY RECORD

STANDARD

Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CLIENT NAME: **CalEnergy Operating Corporation**

PROJECT: DVC 5 Year Source Test

ADDRESS: **7030 Gentry Road, Calipatria, CA 92233**

PHONE: **760-348-4241**
FAX:
EMAIL: antonio.campos@calenergy.com

PROJECT MANAGER **Stella Minaev**

SAMPLER: Katherine West/Antonio Campos

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS: Under Ice

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	SM 4500H B - pH	EPA 9030B/9034 - Sulfide, Total	EPA 6010B - Tin	SM2540C - Total Dissolved Solids						
	10/02/14	8:30 AM	GW	DVC Monitoring Well GW309	SEE PAGE 1 OF 2	X	X	X	X						
	10/02/14	9:32 AM	GW	DVC Monitoring Well GW307	SEE PAGE 1 OF 2	X	X	X	X						
	10/02/14	10:30 AM	GW	DVC Monitoring Well GW308	SEE PAGE 1 OF 2	X	X	X	X						

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	10-2-14 12:10	UPS
UPS	10/3/14 1000	

SAMPLE CONDITION:

Actual Temperature:	1.5°C
Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION
Please send invoices to payables@calenergy.com P.O# 210007

Success Through Science®

Your Project #: 4J03011
Your C.O.C. #: na

Attention:Kim G Tu

Weck Laboratories Inc
14859 East Clark Ave
Industry, CA
USA 91745

Report Date: 2014/10/17
Report #: R3191950
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4I6645
Received: 2014/10/07, 13:58

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
2,3,7,8-TCDD in Water (1613B)	3	2014/10/08	2014/10/15	BRL SOP-00410	EPA 1613B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Ivana Vukovic
21 Oct 2014 10:33:35 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ivana Vukovic, Env Project Manager
Email: IVukovic@maxxam.ca
Phone# (905) 817-5700

==========

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Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XX0930							
Sampling Date		2014/10/02 08:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J03011-01	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.4 U	1.4	3.6	N/A	1.00	1.40	N/A	3783579
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.40	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	95	N/A	N/A	N/A	N/A	N/A	N/A	3783579
C13-2378 TetraCDD *	%	92	N/A	N/A	N/A	N/A	N/A	N/A	3783579

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

Maxxam ID		XX0931							
Sampling Date		2014/10/02 09:32							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J03011-02	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.6 U	1.6	3.6	N/A	1.00	1.60	N/A	3783579
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.60	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	61	N/A	N/A	N/A	N/A	N/A	N/A	3783579
C13-2378 TetraCDD *	%	64	N/A	N/A	N/A	N/A	N/A	N/A	3783579

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XX0932							
Sampling Date		2014/10/02 10:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J03011-03	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.2 U	1.2	3.6	N/A	1.00	1.20	N/A	3783579
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.20	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	3783579
C13-2378 TetraCDD *	%	92	N/A	N/A	N/A	N/A	N/A	N/A	3783579

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

TEST SUMMARY

Maxxam ID: XX0930
Sample ID: 4J03011-01
Matrix: Water

Collected: 2014/10/02
Shipped:
Received: 2014/10/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783579	2014/10/08	2014/10/15	Vica Cioranic

Maxxam ID: XX0931
Sample ID: 4J03011-02
Matrix: Water

Collected: 2014/10/02
Shipped:
Received: 2014/10/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783579	2014/10/08	2014/10/15	Vica Cioranic

Maxxam ID: XX0932
Sample ID: 4J03011-03
Matrix: Water

Collected: 2014/10/02
Shipped:
Received: 2014/10/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783579	2014/10/08	2014/10/15	Vica Cioranic

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.1°C

Results relate only to the items tested.

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Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	Units	QC Limits
3783579	VCI	Spiked Blank	2,3,7,8-Tetra CDD	2014/10/15		92	%	67 - 158
			37CL4 2378 Tetra CDD	2014/10/15		95	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		95	%	24 - 164
3783579	VCI	Method Blank	2,3,7,8-Tetra CDD	2014/10/15	1.4 U, EDL=1.4		pg/L	
			37CL4 2378 Tetra CDD	2014/10/15		84	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		84	%	24 - 164

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Maxxam Job #: B4I6645
Report Date: 2014/10/17

Weck Laboratories Inc
Client Project #: 4J03011

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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7-Oct-14 13:58
Ivana Vukovic
B4I6645
FW ENV-599

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SUBCONTRACT ORDER

Subcontract Laboratory:
Maxxam Analytics, Inc. - Burlington
7070 Mississauga Road Suite #240
Mississauga-Ontario, CANADA L5N 7G2
Phone :(800) 668-0639
Fax: (905) 817-5775

Turn Around Time: Normal
Project Manager: Kim G Tu
Sampler Employed by: _____

Sample ID: 4J03011-01 **Sample ID:** DVC Monitoring Well GW309 **Matrix:** Water **Date Sampled:** 10/02/14 **Time Sampled:**08:30
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10/02/15 08:30	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J03011-02 **Sample ID:** DVC Monitoring Well GW307 **Matrix:** Water **Date Sampled:** 10/02/14 **Time Sampled:**09:32
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10/02/15 09:32	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J03011-03 **Sample ID:** DVC Monitoring Well GW308 **Matrix:** Water **Date Sampled:** 10/02/14 **Time Sampled:**10:30
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10/02/15 10:30	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Remarks / Special Comments:

Sample Condition:
Temperature: _____
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By	Date / Time:	Received By	Date / Time:
[signature]	10/6/14 13:30	Fedex	
Relinquished by	Date / Time:	Received By	Date / Time:
		FANG WANG	2014/10/07 13:58

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3.7 / 3.9 / 4.8

CERTIFICATE OF ANALYSIS

Client:	CalEnergy Corporation 7030 Gentry Rd. Calipatria CA, 92233	**Report Date:**	11/07/14 13:33
		Received Date:	10/02/14 10:20
		Turn Around:	Normal
Attention:	Antonio Campos	**Client Project:**	DVC 5 Year
Phone:	760-348-4241		
Fax:	(760) 348-4222	**PO Number:**	210007
Work Order(s):	4J02013		

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Antonio Campos :

Enclosed are the results of analyses for samples received 10/02/14 10:20 with the Chain of Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Case Narrative:

Reviewed by:

Kim G Tu
Project Manager

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
DVC Monitoring Well GW01	Katherine West		4J02013-01	Water	10/01/14 09:15
DVC Monitoring Well GW12	Katherine West		4J02013-02	Water	10/01/14 08:15
DVC Monitoring Well GW305	Katherine West		4J02013-03	Water	10/01/14 10:13

ANALYSES

Anions by IC, EPA Method 9056
Chlorinated Herbicides
Chlorinated Pesticides and/or PCBs
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods
EPA 1613B m
Metals (Aqueous) by EPA 6000/7000 Series Methods
Polychlorinated Biphenyls by EPA Method 8082
Semivolatile Organic Compounds by GC/MS
Subcontracted Analyses
Volatile Organic Compounds by EPA Method 8260B

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 DVC Monitoring Well GW01

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**0.56**	0.50	mg/l	5	10/03/14 02:59	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/09/14 19:22	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/09/14 19:22	
2,4-D	ND		0.50	ug/l	1	10/09/14 19:22	
2,4-DB	ND		2.5	ug/l	1	10/09/14 19:22	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/09/14 19:22	
4-Nitrophenol	ND		1.2	ug/l	1	10/09/14 19:22	
Acifluorfen	ND		0.50	ug/l	1	10/09/14 19:22	
Bentazon	ND		2.5	ug/l	1	10/09/14 19:22	
Dalapon	ND		0.50	ug/l	1	10/09/14 19:22	
DCPA	ND		0.25	ug/l	1	10/09/14 19:22	
Dicamba	ND		0.75	ug/l	1	10/09/14 19:22	
Dichloroprop	ND		1.0	ug/l	1	10/09/14 19:22	
Dinoseb	ND		0.50	ug/l	1	10/09/14 19:22	
MCPA	ND		100	ug/l	1	10/09/14 19:22	
MCPP	ND		100	ug/l	1	10/09/14 19:22	
Pentachlorophenol	ND		0.25	ug/l	1	10/09/14 19:22	
Picloram	ND		0.75	ug/l	1	10/09/14 19:22	
Surr: 2,4-DCAA	*81 %*	Conc:*15.4*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 02:17	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 02:17	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 02:17	
Aldrin	ND	0.050	ug/l	1	10/10/14 02:17	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 02:17	
beta-BHC	ND	0.050	ug/l	1	10/10/14 02:17	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 02:17	
delta-BHC	ND	0.050	ug/l	1	10/10/14 02:17	
Dieldrin	ND	0.050	ug/l	1	10/10/14 02:17	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 02:17	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 02:17	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 02:17	
Endrin	ND	0.050	ug/l	1	10/10/14 02:17	

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 DVC Monitoring Well GW01

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 02:17	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 02:17	
Heptachlor	ND		0.050	ug/l	1	10/10/14 02:17	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 02:17	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 02:17	
Toxaphene	ND		2.0	ug/l	1	10/10/14 02:17	
Surr: Decachlorobiphenyl	*92 %*	Conc:*0.437*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*95 %*	Conc:*0.453*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0489 Prepared: 10/09/14 14:28 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 Batch: W4J0136 Prepared: 10/02/14 14:31 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**0.66**	0.50	mg/l	1	10/02/14 16:29	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0363 Prepared: 10/07/14 17:29 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**8300**	10	mg/l	1	10/07/14 19:30	

Method: SM 4500H+-B Batch: W4J0159 Prepared: 10/02/14 18:46 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.04**	0.10	Units	1	10/02/14 20:20	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.3	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*59 %*	Conc:*118*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*59 %*	Conc:*118*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 DVC Monitoring Well GW01

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:14	
Arsenic, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Barium, Total	**0.033**	0.010	mg/l	1	10/03/14 15:14	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:14	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Molybdenum, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:14	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:14	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:14	
Vanadium, Total	ND	0.010	mg/l	1	10/03/14 15:14	
Zinc, Total	ND	0.050	mg/l	1	10/03/14 15:14	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:47	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 02:17	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 02:17	
Surr: Decachlorobiphenyl	*83 %*	Conc:*0.394*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*85 %*	Conc:*0.404*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

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CalEnergy Corporation
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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 **DVC Monitoring Well GW01**

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 20:41	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 20:41	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 20:41	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 20:41	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 20:41	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 20:41	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 20:41	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 20:41	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 20:41	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 20:41	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 20:41	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 20:41	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 20:41	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 20:41	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 20:41	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 20:41	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:41	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 20:41	
2-Picoline	ND	10	ug/l	1	11/03/14 14:41	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 20:41	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 20:41	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 20:41	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 20:41	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:41	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 20:41	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 20:41	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 20:41	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 20:41	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 20:41	

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Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 **DVC Monitoring Well GW01**

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 20:41	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 20:41	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 20:41	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 20:41	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:41	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 20:41	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 20:41	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 20:41	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 20:41	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 20:41	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 20:41	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 20:41	
Acetophenone	ND	10	ug/l	1	10/07/14 20:41	
Aldrin	ND	5.0	ug/l	1	10/07/14 20:41	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 20:41	
Aniline	ND	1.0	ug/l	1	10/07/14 20:41	
Anthracene	ND	1.0	ug/l	1	10/07/14 20:41	
Aramite	ND	10	ug/l	1	11/03/14 14:41	
Benzidine	ND	10	ug/l	1	10/07/14 20:41	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 20:41	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 20:41	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 20:41	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 20:41	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 20:41	
Benzoic acid	ND	100	ug/l	1	10/07/14 20:41	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 20:41	
beta-BHC	ND	5.0	ug/l	1	10/07/14 20:41	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 20:41	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 20:41	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 20:41	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 20:41	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 20:41	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 20:41	
Chrysene	ND	1.0	ug/l	1	10/07/14 20:41	
delta-BHC	ND	5.0	ug/l	1	10/07/14 20:41	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 20:41	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 20:41	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 20:41	
Dieldrin	ND	5.0	ug/l	1	10/07/14 20:41	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 20:41	

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CalEnergy Corporation
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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 **DVC Monitoring Well GW01**

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethoate	ND	10	ug/l	1	10/07/14 20:41	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 20:41	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 20:41	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 20:41	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 20:41	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 20:41	
Disulfoton	ND	10	ug/l	1	10/07/14 20:41	
Endosulfan I	ND	10	ug/l	1	10/07/14 20:41	
Endosulfan II	ND	10	ug/l	1	10/07/14 20:41	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 20:41	
Endrin	ND	5.0	ug/l	1	10/07/14 20:41	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 20:41	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 20:41	
Famphur	ND	10	ug/l	1	10/07/14 20:41	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 20:41	
Fluorene	ND	1.0	ug/l	1	10/07/14 20:41	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 20:41	
Heptachlor	ND	5.0	ug/l	1	10/07/14 20:41	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 20:41	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 20:41	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 20:41	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 20:41	
Hexachlorophene	ND	50	ug/l	1	11/03/14 14:41	
Hexachloropropene	ND	10	ug/l	1	10/07/14 20:41	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 20:41	
Isodrin	ND	10	ug/l	1	10/07/14 20:41	
Isophorone	ND	1.0	ug/l	1	10/07/14 20:41	
Isosafrole	ND	10	ug/l	1	10/07/14 20:41	
Kepone	ND	50	ug/l	1	10/07/14 20:41	
Methapyrilene	ND	50	ug/l	1	10/07/14 20:41	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 20:41	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 20:41	
Methyl parathion	ND	10	ug/l	1	10/07/14 20:41	
Naphthalene	ND	1.0	ug/l	1	10/07/14 20:41	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 20:41	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 20:41	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 20:41	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 20:41	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 20:41	

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-01 **DVC Monitoring Well GW01**

Sampled: 10/01/14 09:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosodiphenylamine/Diphenylamine	ND		1.0	ug/l	1	10/07/14 20:41	
N-Nitrosomethylethylamine	ND		10	ug/l	1	10/07/14 20:41	
N-Nitrosomorpholine	ND		10	ug/l	1	10/07/14 20:41	
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 20:41	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 20:41	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 20:41	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 20:41	
o-Toluidine	ND		10	ug/l	1	10/07/14 20:41	
Parathion	ND		10	ug/l	1	10/07/14 20:41	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 20:41	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 20:41	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 20:41	
Phenacetin	ND		10	ug/l	1	10/07/14 20:41	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 20:41	
Phenol	ND		1.0	ug/l	1	10/07/14 20:41	
Phorate	ND		10	ug/l	1	10/07/14 20:41	
Pronamide	ND		10	ug/l	1	10/07/14 20:41	
Pyrene	ND		1.0	ug/l	1	10/07/14 20:41	
Pyridine	ND		5.0	ug/l	1	10/07/14 20:41	
Safrole	ND		10	ug/l	1	10/07/14 20:41	
Surr: 2,4,6-Tribromophenol	*84 %*	Conc:*40.1*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*73 %*	Conc:*17.3*	*28-100*	%			
Surr: 2-Fluorophenol	*39 %*	Conc:*18.6*	*5-76*	%			
Surr: Nitrobenzene-d5	*70 %*	Conc:*16.7*	*34-104*	%			
Surr: Phenol-d5	*23 %*	Conc:*11.2*	*0.1-57*	%			
Surr: Terphenyl-d14	*96 %*	Conc:*22.8*	*39-104*	%			

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	ND	0.50	mg/l	5	10/03/14 02:59	M-05

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND	0.25	ug/l	1	10/09/14 19:55	
2,4,5-TP (Silvex)	ND	0.25	ug/l	1	10/09/14 19:55	
2,4-D	ND	0.50	ug/l	1	10/09/14 19:55	
2,4-DB	ND	2.5	ug/l	1	10/09/14 19:55	
3,5-Dichlorobenzoic acid	ND	1.2	ug/l	1	10/09/14 19:55	
4-Nitrophenol	ND	1.2	ug/l	1	10/09/14 19:55	
Acifluorfen	ND	0.50	ug/l	1	10/09/14 19:55	
Bentazon	ND	2.5	ug/l	1	10/09/14 19:55	
Dalapon	ND	0.50	ug/l	1	10/09/14 19:55	
DCPA	ND	0.25	ug/l	1	10/09/14 19:55	
Dicamba	ND	0.75	ug/l	1	10/09/14 19:55	
Dichloroprop	ND	1.0	ug/l	1	10/09/14 19:55	
Dinoseb	ND	0.50	ug/l	1	10/09/14 19:55	
MCPA	ND	100	ug/l	1	10/09/14 19:55	
MCPP	ND	100	ug/l	1	10/09/14 19:55	
Pentachlorophenol	ND	0.25	ug/l	1	10/09/14 19:55	
Picloram	ND	0.75	ug/l	1	10/09/14 19:55	
Surr: 2,4-DCAA	*94 %*	Conc:*18.8*	*56-156*	%		

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 02:48	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 02:48	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 02:48	
Aldrin	ND	0.050	ug/l	1	10/10/14 02:48	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 02:48	
beta-BHC	ND	0.050	ug/l	1	10/10/14 02:48	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 02:48	
delta-BHC	ND	0.050	ug/l	1	10/10/14 02:48	
Dieldrin	ND	0.050	ug/l	1	10/10/14 02:48	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 02:48	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 02:48	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 02:48	
Endrin	ND	0.050	ug/l	1	10/10/14 02:48	

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 02:48	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 02:48	
Heptachlor	ND		0.050	ug/l	1	10/10/14 02:48	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 02:48	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 02:48	
Toxaphene	ND		2.0	ug/l	1	10/10/14 02:48	
Surr: Decachlorobiphenyl	*85 %*	Conc:*0.405*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*97 %*	Conc:*0.461*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0489 Prepared: 10/09/14 14:28 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 Batch: W4J0136 Prepared: 10/02/14 14:31 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	**1.0**	0.50	mg/l	1	10/02/14 16:31	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0363 Prepared: 10/07/14 17:29 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**9300**	10	mg/l	1	10/07/14 19:30	

Method: SM 4500H+-B Batch: W4J0159 Prepared: 10/02/14 18:46 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.10**	0.10	Units	1	10/02/14 20:20	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.3	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*58 %*	Conc:*116*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*59 %*	Conc:*118*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:17	
Arsenic, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Barium, Total	**0.024**	0.010	mg/l	1	10/03/14 15:17	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:17	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Molybdenum, Total	**0.012**	0.010	mg/l	1	10/03/14 15:17	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:17	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:17	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:17	
Vanadium, Total	ND	0.010	mg/l	1	10/03/14 15:17	
Zinc, Total	ND	0.050	mg/l	1	10/03/14 15:17	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:54	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 02:48	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 02:48	
Surr: Decachlorobiphenyl	*77 %*	Conc:*0.366*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*85 %*	Conc:*0.404*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 21:11	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 21:11	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 21:11	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 21:11	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 21:11	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 21:11	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 21:11	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 21:11	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 21:11	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 21:11	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 21:11	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 21:11	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 21:11	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 21:11	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 21:11	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 21:11	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:11	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 21:11	
2-Picoline	ND	10	ug/l	1	11/03/14 15:11	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 21:11	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 21:11	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 21:11	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 21:11	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:11	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 21:11	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 21:11	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 21:11	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 21:11	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 21:11	

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CalEnergy Corporation
7030 Gentry Rd.
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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 21:11	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 21:11	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 21:11	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 21:11	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:11	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 21:11	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 21:11	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 21:11	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 21:11	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 21:11	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 21:11	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 21:11	
Acetophenone	ND	10	ug/l	1	10/07/14 21:11	
Aldrin	ND	5.0	ug/l	1	10/07/14 21:11	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 21:11	
Aniline	ND	1.0	ug/l	1	10/07/14 21:11	
Anthracene	ND	1.0	ug/l	1	10/07/14 21:11	
Aramite	ND	10	ug/l	1	11/03/14 15:11	
Benzidine	ND	10	ug/l	1	10/07/14 21:11	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 21:11	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 21:11	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 21:11	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 21:11	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 21:11	
Benzoic acid	ND	100	ug/l	1	10/07/14 21:11	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 21:11	
beta-BHC	ND	5.0	ug/l	1	10/07/14 21:11	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 21:11	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 21:11	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 21:11	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 21:11	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 21:11	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 21:11	
Chrysene	ND	1.0	ug/l	1	10/07/14 21:11	
delta-BHC	ND	5.0	ug/l	1	10/07/14 21:11	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 21:11	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 21:11	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 21:11	
Dieldrin	ND	5.0	ug/l	1	10/07/14 21:11	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 21:11	

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Date Received: 10/02/14 10:20
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4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethoate	ND	10	ug/l	1	10/07/14 21:11	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 21:11	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 21:11	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 21:11	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 21:11	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 21:11	
Disulfoton	ND	10	ug/l	1	10/07/14 21:11	
Endosulfan I	ND	10	ug/l	1	10/07/14 21:11	
Endosulfan II	ND	10	ug/l	1	10/07/14 21:11	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 21:11	
Endrin	ND	5.0	ug/l	1	10/07/14 21:11	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 21:11	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 21:11	
Famphur	ND	10	ug/l	1	10/07/14 21:11	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 21:11	
Fluorene	ND	1.0	ug/l	1	10/07/14 21:11	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 21:11	
Heptachlor	ND	5.0	ug/l	1	10/07/14 21:11	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 21:11	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 21:11	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 21:11	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 21:11	
Hexachlorophene	ND	50	ug/l	1	11/03/14 15:11	
Hexachloropropene	ND	10	ug/l	1	10/07/14 21:11	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 21:11	
Isodrin	ND	10	ug/l	1	10/07/14 21:11	
Isophorone	ND	1.0	ug/l	1	10/07/14 21:11	
Isosafrole	ND	10	ug/l	1	10/07/14 21:11	
Kepone	ND	50	ug/l	1	10/07/14 21:11	
Methapyrilene	ND	50	ug/l	1	10/07/14 21:11	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 21:11	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 21:11	
Methyl parathion	ND	10	ug/l	1	10/07/14 21:11	
Naphthalene	ND	1.0	ug/l	1	10/07/14 21:11	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 21:11	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 21:11	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 21:11	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 21:11	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 21:11	

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4J02013-02 DVC Monitoring Well GW12

Sampled: 10/01/14 08:15 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosodiphenylamine/Diphenylamine	ND		1.0	ug/l	1	10/07/14 21:11	
N-Nitrosomethylethylamine	ND		10	ug/l	1	10/07/14 21:11	
N-Nitrosomorpholine	ND		10	ug/l	1	10/07/14 21:11	
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 21:11	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 21:11	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 21:11	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 21:11	
o-Toluidine	ND		10	ug/l	1	10/07/14 21:11	
Parathion	ND		10	ug/l	1	10/07/14 21:11	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 21:11	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 21:11	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 21:11	
Phenacetin	ND		10	ug/l	1	10/07/14 21:11	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 21:11	
Phenol	ND		1.0	ug/l	1	10/07/14 21:11	
Phorate	ND		10	ug/l	1	10/07/14 21:11	
Pronamide	ND		10	ug/l	1	10/07/14 21:11	
Pyrene	ND		1.0	ug/l	1	10/07/14 21:11	
Pyridine	ND		5.0	ug/l	1	10/07/14 21:11	
Safrole	ND		10	ug/l	1	10/07/14 21:11	
Surr: 2,4,6-Tribromophenol	*72 %*	Conc:*34.5*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*65 %*	Conc:*15.5*	*28-100*	%			
Surr: 2-Fluorophenol	*36 %*	Conc:*17.3*	*5-76*	%			
Surr: Nitrobenzene-d5	*62 %*	Conc:*14.6*	*34-104*	%			
Surr: Phenol-d5	*22 %*	Conc:*10.6*	*0.1-57*	%			
Surr: Terphenyl-d14	*92 %*	Conc:*21.9*	*39-104*	%			

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	**0.90**	0.50	mg/l	5	10/03/14 02:59	

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0254 Prepared: 10/06/14 08:18 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/09/14 20:27	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/09/14 20:27	
2,4-D	ND		0.50	ug/l	1	10/09/14 20:27	
2,4-DB	ND		2.5	ug/l	1	10/09/14 20:27	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/09/14 20:27	
4-Nitrophenol	ND		1.2	ug/l	1	10/09/14 20:27	
Acifluorfen	ND		0.50	ug/l	1	10/09/14 20:27	
Bentazon	ND		2.5	ug/l	1	10/09/14 20:27	
Dalapon	ND		0.50	ug/l	1	10/09/14 20:27	
DCPA	ND		0.25	ug/l	1	10/09/14 20:27	
Dicamba	ND		0.75	ug/l	1	10/09/14 20:27	
Dichloroprop	ND		1.0	ug/l	1	10/09/14 20:27	
Dinoseb	ND		0.50	ug/l	1	10/09/14 20:27	
MCPA	ND		100	ug/l	1	10/09/14 20:27	
MCPP	ND		100	ug/l	1	10/09/14 20:27	
Pentachlorophenol	ND		0.25	ug/l	1	10/09/14 20:27	
Picloram	ND		0.75	ug/l	1	10/09/14 20:27	
Surr: 2,4-DCAA	*87 %*	Conc:*16.6*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 03:19	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 03:19	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 03:19	
Aldrin	ND	0.050	ug/l	1	10/10/14 03:19	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 03:19	
beta-BHC	ND	0.050	ug/l	1	10/10/14 03:19	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 03:19	
delta-BHC	ND	0.050	ug/l	1	10/10/14 03:19	
Dieldrin	ND	0.050	ug/l	1	10/10/14 03:19	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 03:19	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 03:19	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 03:19	
Endrin	ND	0.050	ug/l	1	10/10/14 03:19	

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 03:19	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 03:19	
Heptachlor	ND		0.050	ug/l	1	10/10/14 03:19	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 03:19	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 03:19	
Toxaphene	ND		2.0	ug/l	1	10/10/14 03:19	
Surr: Decachlorobiphenyl	*57 %*	Conc:*0.269*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*91 %*	Conc:*0.435*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0489 Prepared: 10/09/14 14:28 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/10/14 17:06	

Method: EPA 353.2 Batch: W4J0136 Prepared: 10/02/14 14:31 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Nitrate as NO3	ND	0.50	mg/l	1	10/02/14 16:34	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0363 Prepared: 10/07/14 17:29 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**4100**	10	mg/l	1	10/07/14 19:30	

Method: SM 4500H+-B Batch: W4J0159 Prepared: 10/02/14 18:46 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.62**	0.10	Units	1	10/02/14 20:20	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.2	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*63 %*	Conc:*126*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*64 %*	Conc:*128*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-03 DVC Monitoring Well GW305

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:20	
Arsenic, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Barium, Total	**0.020**	0.010	mg/l	1	10/03/14 15:20	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:20	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Molybdenum, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:20	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:20	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:20	
Vanadium, Total	ND	0.010	mg/l	1	10/03/14 15:20	
Zinc, Total	**0.14**	0.050	mg/l	1	10/03/14 15:20	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:57	

Method: EPA 7470A Batch: W4J0355 Prepared: 10/07/14 15:12 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/08/14 17:11	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 03:19	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 03:19	
Surr: Decachlorobiphenyl	*52 %*	Conc:*0.246*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*81 %*	Conc:*0.386*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 21:40	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 21:40	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 21:40	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 21:40	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 21:40	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 21:40	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 21:40	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 21:40	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 21:40	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 21:40	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 21:40	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 21:40	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 21:40	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 21:40	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 21:40	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 21:40	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:40	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 21:40	
2-Picoline	ND	10	ug/l	1	11/03/14 15:41	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 21:40	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 21:40	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 21:40	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 21:40	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:40	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 21:40	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 21:40	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 21:40	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 21:40	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 21:40	

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7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 21:40	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 21:40	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 21:40	
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 21:40	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 21:40	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 21:40	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 21:40	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 21:40	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 21:40	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 21:40	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 21:40	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 21:40	
Acetophenone	ND	10	ug/l	1	10/07/14 21:40	
Aldrin	ND	5.0	ug/l	1	10/07/14 21:40	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 21:40	
Aniline	ND	1.0	ug/l	1	10/07/14 21:40	
Anthracene	ND	1.0	ug/l	1	10/07/14 21:40	
Aramite	ND	10	ug/l	1	11/03/14 15:41	
Benzidine	ND	10	ug/l	1	10/07/14 21:40	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 21:40	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 21:40	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 21:40	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 21:40	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 21:40	
Benzoic acid	ND	100	ug/l	1	10/07/14 21:40	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 21:40	
beta-BHC	ND	5.0	ug/l	1	10/07/14 21:40	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 21:40	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 21:40	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 21:40	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 21:40	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 21:40	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 21:40	
Chrysene	ND	1.0	ug/l	1	10/07/14 21:40	
delta-BHC	ND	5.0	ug/l	1	10/07/14 21:40	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 21:40	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 21:40	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 21:40	
Dieldrin	ND	5.0	ug/l	1	10/07/14 21:40	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 21:40	

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Date Received: 10/02/14 10:20
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4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Dimethoate	ND	10	ug/l	1	10/07/14 21:40	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 21:40	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 21:40	
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 21:40	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 21:40	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 21:40	
Disulfoton	ND	10	ug/l	1	10/07/14 21:40	
Endosulfan I	ND	10	ug/l	1	10/07/14 21:40	
Endosulfan II	ND	10	ug/l	1	10/07/14 21:40	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 21:40	
Endrin	ND	5.0	ug/l	1	10/07/14 21:40	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 21:40	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 21:40	
Famphur	ND	10	ug/l	1	10/07/14 21:40	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 21:40	
Fluorene	ND	1.0	ug/l	1	10/07/14 21:40	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 21:40	
Heptachlor	ND	5.0	ug/l	1	10/07/14 21:40	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 21:40	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 21:40	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 21:40	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 21:40	
Hexachlorophene	ND	50	ug/l	1	11/03/14 15:41	
Hexachloropropene	ND	10	ug/l	1	10/07/14 21:40	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 21:40	
Isodrin	ND	10	ug/l	1	10/07/14 21:40	
Isophorone	ND	1.0	ug/l	1	10/07/14 21:40	
Isosafrole	ND	10	ug/l	1	10/07/14 21:40	
Kepone	ND	50	ug/l	1	10/07/14 21:40	
Methapyrilene	ND	50	ug/l	1	10/07/14 21:40	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 21:40	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 21:40	
Methyl parathion	ND	10	ug/l	1	10/07/14 21:40	
Naphthalene	ND	1.0	ug/l	1	10/07/14 21:40	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 21:40	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 21:40	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 21:40	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 21:40	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 21:40	

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Date Reported: 11/07/14 13:33

4J02013-03 **DVC Monitoring Well GW305**

Sampled: 10/01/14 10:13 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosodiphenylamine/Diphenylamine	ND		1.0	ug/l	1	10/07/14 21:40	
N-Nitrosomethylethylamine	ND		10	ug/l	1	10/07/14 21:40	
N-Nitrosomorpholine	ND		10	ug/l	1	10/07/14 21:40	
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 21:40	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 21:40	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 21:40	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 21:40	
o-Toluidine	ND		10	ug/l	1	10/07/14 21:40	
Parathion	ND		10	ug/l	1	10/07/14 21:40	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 21:40	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 21:40	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 21:40	
Phenacetin	ND		10	ug/l	1	10/07/14 21:40	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 21:40	
Phenol	ND		1.0	ug/l	1	10/07/14 21:40	
Phorate	ND		10	ug/l	1	10/07/14 21:40	
Pronamide	ND		10	ug/l	1	10/07/14 21:40	
Pyrene	ND		1.0	ug/l	1	10/07/14 21:40	
Pyridine	ND		5.0	ug/l	1	10/07/14 21:40	
Safrole	ND		10	ug/l	1	10/07/14 21:40	
Surr: 2,4,6-Tribromophenol	*70 %*	Conc:*33.4*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*75 %*	Conc:*17.8*	*28-100*	%			
Surr: 2-Fluorophenol	*30 %*	Conc:*14.5*	*5-76*	%			
Surr: Nitrobenzene-d5	*72 %*	Conc:*17.1*	*34-104*	%			
Surr: Phenol-d5	*18 %*	Conc:*8.74*	*0.1-57*	%			
Surr: Terphenyl-d14	*92 %*	Conc:*22.0*	*39-104*	%			

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QUALITY CONTROL SECTION

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Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

Anions by IC, EPA Method 9056 - Quality Control

Batch W4J0113 - EPA 300.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0113-BLK1)				Analyzed: 10/03/14 02:59						
Fluoride, Total	ND	0.10	mg/l							
LCS (W4J0113-BS1)				Analyzed: 10/03/14 02:59						
Fluoride, Total	2.12	0.10	mg/l	2.00		106	90-110			
Matrix Spike (W4J0113-MS1)		**Source: 4J01070-01**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.7	2.5	mg/l	50.0	0.610	104	86-107			
Matrix Spike (W4J0113-MS2)		**Source: 4J01070-02**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.6	2.5	mg/l	50.0	0.560	104	86-107			
Matrix Spike Dup (W4J0113-MSD1)		**Source: 4J01070-01**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.8	2.5	mg/l	50.0	0.610	104	86-107	0.3	20	
Matrix Spike Dup (W4J0113-MSD2)		**Source: 4J01070-02**		Analyzed: 10/03/14 02:59						
Fluoride, Total	53.2	2.5	mg/l	50.0	0.560	105	86-107	0.9	20	

Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0201-BLK1)				Analyzed: 10/09/14 21:41						
4,4´-DDD	ND	0.050	ug/l							
4,4´-DDE	ND	0.050	ug/l							
4,4´-DDT	ND	0.050	ug/l							
Aldrin	ND	0.050	ug/l							
alpha-BHC	ND	0.050	ug/l							
beta-BHC	ND	0.050	ug/l							
Chlordane (tech)	ND	0.50	ug/l							
delta-BHC	ND	0.050	ug/l							
Dieldrin	ND	0.050	ug/l							
Endosulfan I	ND	0.050	ug/l							
Endosulfan II	ND	0.050	ug/l							
Endosulfan sulfate	ND	0.050	ug/l							
Endrin	ND	0.050	ug/l							
Endrin aldehyde	ND	0.050	ug/l							
gamma-BHC (Lindane)	ND	0.050	ug/l							
Heptachlor	ND	0.050	ug/l							
Heptachlor epoxide	ND	0.050	ug/l							
Methoxychlor	ND	0.050	ug/l							
Toxaphene	ND	2.0	ug/l							
Surr: Decachlorobiphenyl	*0.479*		*ug/l*	*0.500*		*96*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.478*		*ug/l*	*0.500*		*96*	*10-137*			
LCS (W4J0201-BS1)				Analyzed: 10/09/14 22:11						

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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0201-BS1)				Analyzed: 10/09/14 22:11						
4,4´-DDD	0.586	0.050	ug/l	0.500		117	59-143			
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126			
4,4´-DDT	0.593	0.050	ug/l	0.500		119	43-165			
Aldrin	0.568	0.050	ug/l	0.500		114	54-116			
alpha-BHC	0.604	0.050	ug/l	0.500		121	70-121			
beta-BHC	0.607	0.050	ug/l	0.500		121	71-126			
delta-BHC	0.645	0.050	ug/l	0.500		129	72-129			
Dieldrin	0.587	0.050	ug/l	0.500		117	70-130			
Endosulfan I	0.468	0.050	ug/l	0.500		94	48-113			
Endosulfan II	0.497	0.050	ug/l	0.500		99	58-118			
Endosulfan sulfate	0.606	0.050	ug/l	0.500		121	68-142			
Endrin	0.640	0.050	ug/l	0.500		128	53-150			
Endrin aldehyde	0.566	0.050	ug/l	0.500		113	56-147			
gamma-BHC (Lindane)	0.608	0.050	ug/l	0.500		122	71-123			
Heptachlor	0.610	0.050	ug/l	0.500		122	58-138			
Heptachlor epoxide	0.568	0.050	ug/l	0.500		114	71-127			
Methoxychlor	0.613	0.050	ug/l	0.500		123	49-158			
Surr: Decachlorobiphenyl	*0.511*		*ug/l*	*0.500*		*102*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.502*		*ug/l*	*0.500*		*100*	*10-137*			
LCS Dup (W4J0201-BSD1)				Analyzed: 10/09/14 22:42						
4,4´-DDD	0.579	0.050	ug/l	0.500		116	59-143	1	25	
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126	0.1	25	
4,4´-DDT	0.597	0.050	ug/l	0.500		119	43-165	0.7	25	
Aldrin	0.576	0.050	ug/l	0.500		115	54-116	1	25	
alpha-BHC	0.613	0.050	ug/l	0.500		123	70-121	2	25	Q-08
beta-BHC	0.613	0.050	ug/l	0.500		123	71-126	0.9	25	
delta-BHC	0.664	0.050	ug/l	0.500		133	72-129	3	25	Q-08
Dieldrin	0.591	0.050	ug/l	0.500		118	70-130	0.7	25	
Endosulfan I	0.470	0.050	ug/l	0.500		94	48-113	0.3	25	
Endosulfan II	0.495	0.050	ug/l	0.500		99	58-118	0.4	25	
Endosulfan sulfate	0.605	0.050	ug/l	0.500		121	68-142	0.1	25	
Endrin	0.654	0.050	ug/l	0.500		131	53-150	2	25	
Endrin aldehyde	0.582	0.050	ug/l	0.500		116	56-147	3	25	
gamma-BHC (Lindane)	0.620	0.050	ug/l	0.500		124	71-123	2	25	Q-08
Heptachlor	0.625	0.050	ug/l	0.500		125	58-138	2	25	
Heptachlor epoxide	0.569	0.050	ug/l	0.500		114	71-127	0.1	25	
Methoxychlor	0.618	0.050	ug/l	0.500		124	49-158	0.7	25	
Surr: Decachlorobiphenyl	*0.501*		*ug/l*	*0.500*		*100*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.512*		*ug/l*	*0.500*		*102*	*10-137*			

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Date Received: 10/02/14 10:20
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Chlorinated Herbicides - Quality Control

Batch W4J0254 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0254-BLK1)				Analyzed: 10/09/14 17:44						
2,4,5-T	ND	0.25	ug/l							
2,4,5-TP (Silvex)	ND	0.25	ug/l							
2,4-D	ND	0.50	ug/l							
2,4-DB	ND	2.5	ug/l							
3,5-Dichlorobenzoic acid	ND	1.2	ug/l							
4-Nitrophenol	ND	1.2	ug/l							
Acifluorfen	ND	0.50	ug/l							
Bentazon	ND	2.5	ug/l							
Dalapon	ND	0.50	ug/l							
DCPA	ND	0.25	ug/l							
Dicamba	ND	0.75	ug/l							
Dichloroprop	ND	1.0	ug/l							
Dinoseb	ND	0.50	ug/l							
MCPA	ND	100	ug/l							
MCPP	ND	100	ug/l							
Pentachlorophenol	ND	0.25	ug/l							
Picloram	ND	0.75	ug/l							
Surr: 2,4-DCAA	*15.1*		*ug/l*	*20.0*		*75*	*56-156*			
LCS (W4J0254-BS1)				Analyzed: 10/09/14 18:17						
2,4,5-T	1.79	0.25	ug/l	2.50		71	39-151			
2,4,5-TP (Silvex)	1.73	0.25	ug/l	2.50		69	46-142			
2,4-D	4.34	0.50	ug/l	5.00		87	56-164			
2,4-DB	6.27	2.5	ug/l	10.0		63	27-161			
3,5-Dichlorobenzoic acid	3.99	1.2	ug/l	5.00		80	54-154			
4-Nitrophenol	6.65	1.2	ug/l	10.0		66	3-105			
Acifluorfen	2.04	0.50	ug/l	2.50		82	39-134			
Bentazon	6.09	2.5	ug/l	10.0		61	44-139			
Dalapon	2.90	0.50	ug/l	5.00		58	40-139			
DCPA	1.42	0.25	ug/l	2.50		57	34-135			
Dicamba	3.47	0.75	ug/l	5.00		69	46-140			
Dichloroprop	3.71	1.0	ug/l	5.00		74	43-158			
Dinoseb	1.70	0.50	ug/l	2.50		68	42-146			
MCPA	370	100	ug/l	500		74	28-144			
MCPP	294	100	ug/l	500		59	31-153			
Pentachlorophenol	1.69	0.25	ug/l	2.50		67	37-136			
Picloram	1.84	0.75	ug/l	2.50		74	35-138			
Surr: 2,4-DCAA	*15.9*		*ug/l*	*20.0*		*79*	*56-156*			
LCS Dup (W4J0254-BSD1)				Analyzed: 10/09/14 18:49						
2,4,5-T	1.50	0.25	ug/l	2.50		60	39-151	17	25	

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Chlorinated Herbicides - Quality Control

Batch W4J0254 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0254-BSD1)				Analyzed: 10/09/14 18:49						
2,4,5-TP (Silvex)	1.46	0.25	ug/l	2.50		58	46-142	17	25	
2,4-D	3.72	0.50	ug/l	5.00		74	56-164	15	25	
2,4-DB	5.55	2.5	ug/l	10.0		55	27-161	12	25	
3,5-Dichlorobenzoic acid	3.32	1.2	ug/l	5.00		66	54-154	18	25	
4-Nitrophenol	6.48	1.2	ug/l	10.0		65	3-105	2	25	
Acifluorfen	1.68	0.50	ug/l	2.50		67	39-134	20	25	
Bentazon	5.27	2.5	ug/l	10.0		53	44-139	15	25	
Dalapon	2.40	0.50	ug/l	5.00		48	40-139	19	25	
DCPA	1.22	0.25	ug/l	2.50		49	34-135	15	25	
Dicamba	2.96	0.75	ug/l	5.00		59	46-140	16	25	
Dichloroprop	3.14	1.0	ug/l	5.00		63	43-158	17	25	
Dinoseb	1.34	0.50	ug/l	2.50		53	42-146	24	25	
MCPA	304	100	ug/l	500		61	28-144	20	25	
MCPP	251	100	ug/l	500		50	31-153	16	25	
Pentachlorophenol	1.40	0.25	ug/l	2.50		56	37-136	19	25	
Picloram	1.63	0.75	ug/l	2.50		65	35-138	12	25	
Surr: 2,4-DCAA	*13.4*		*ug/l*	*20.0*		*67*	*56-156*			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0134 - EPA 9034

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0134-BLK1)				Analyzed: 10/02/14 13:49						
Sulfide, Total	ND	0.10	mg/l							
LCS (W4J0134-BS1)				Analyzed: 10/02/14 13:49						
Sulfide, Total	0.100	0.10	mg/l	0.100		100	95-104			
Duplicate (W4J0134-DUP1)		**Source: 4J02013-03**		Analyzed: 10/02/14 13:49						
Sulfide, Total	ND	0.10	mg/l		ND					

Batch W4J0136 - EPA 353.2

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0136-BLK1)				Analyzed: 10/02/14 16:08						
Nitrate as NO3	ND	0.50	mg/l							
LCS (W4J0136-BS1)				Analyzed: 10/02/14 16:10						
Nitrate as NO3	4.68	0.50	mg/l	4.43		106	90-110			
Matrix Spike (W4J0136-MS1)		**Source: 4J02031-02**		Analyzed: 10/02/14 16:14						
Nitrate as NO3	9.57	0.50	mg/l	8.86	1.55	91	90-110			
Matrix Spike Dup (W4J0136-MSD1)		**Source: 4J02031-02**		Analyzed: 10/02/14 16:16						
Nitrate as NO3	9.97	0.50	mg/l	8.86	1.55	95	90-110	4	20	

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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0159 - SM 4500H+-B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0159-BS1)				Analyzed: 10/02/14 20:20						
pH	7.40	0.10	Units	7.41		100	98.8-101			
Duplicate (W4J0159-DUP1)		**Source: 4J02013-02**		Analyzed: 10/02/14 20:20						
pH	7.12	0.10	Units		7.10			0.3	3.1	

Batch W4J0363 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0363-BLK1)				Analyzed: 10/07/14 19:30						
Total Dissolved Solids	ND	10	mg/l							
LCS (W4J0363-BS1)				Analyzed: 10/07/14 19:30						
Total Dissolved Solids	814	10	mg/l	824		99	96-102			
Duplicate (W4J0363-DUP1)		**Source: 4J01071-04**		Analyzed: 10/07/14 19:30						
Total Dissolved Solids	612	10	mg/l		601			2	10	
Duplicate (W4J0363-DUP2)		**Source: 4J03011-01**		Analyzed: 10/07/14 19:30						
Total Dissolved Solids	4440	10	mg/l		4360			2	10	

Batch W4J0489 - ASTM D7511

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0489-BLK1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	ND	2.0	ug/l							
LCS (W4J0489-BS1)				Analyzed: 10/10/14 17:06						
Cyanide, Total	46.7	2.0	ug/l	50.0		93	84-116			
Matrix Spike (W4J0489-MS1)		**Source: 4J02013-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	42.6	2.0	ug/l	50.0	ND	85	64-136			
Matrix Spike (W4J0489-MS2)		**Source: 4J03011-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	46.4	2.0	ug/l	50.0	ND	93	64-136			
Matrix Spike Dup (W4J0489-MSD1)		**Source: 4J02013-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	42.1	2.0	ug/l	50.0	ND	84	64-136	1	47	
Matrix Spike Dup (W4J0489-MSD2)		**Source: 4J03011-01**		Analyzed: 10/10/14 17:06						
Cyanide, Total	47.5	2.0	ug/l	50.0	ND	95	64-136	2	47	

Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0151-BLK1)				Analyzed: 10/03/14 14:38						
Antimony, Total	ND	0.040	mg/l							
Arsenic, Total	ND	0.010	mg/l							
Barium, Total	ND	0.010	mg/l							
Beryllium, Total	ND	0.010	mg/l							

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0151-BLK1)				Analyzed: 10/03/14 14:38						
Cadmium, Total	ND	0.010	mg/l							
Chromium, Total	ND	0.010	mg/l							
Cobalt, Total	ND	0.010	mg/l							
Copper, Total	ND	0.020	mg/l							
Lead, Total	ND	0.010	mg/l							
Molybdenum, Total	ND	0.010	mg/l							
Nickel, Total	ND	0.010	mg/l							
Selenium, Total	ND	0.030	mg/l							
Silver, Total	ND	0.0050	mg/l							
Thallium, Total	ND	0.050	mg/l							
Vanadium, Total	ND	0.010	mg/l							
Zinc, Total	ND	0.050	mg/l							
LCS (W4J0151-BS1)				Analyzed: 10/03/14 14:40						
Antimony, Total	0.971	0.040	mg/l	1.00		97	80-120			
Arsenic, Total	1.01	0.010	mg/l	1.00		101	80-125			
Barium, Total	0.968	0.010	mg/l	1.00		97	80-125			
Beryllium, Total	0.942	0.010	mg/l	1.00		94	80-120			
Cadmium, Total	0.957	0.010	mg/l	1.00		96	80-120			
Chromium, Total	0.957	0.010	mg/l	1.00		96	80-120			
Cobalt, Total	0.922	0.010	mg/l	1.00		92	80-120			
Copper, Total	0.891	0.020	mg/l	1.00		89	80-120			
Lead, Total	0.951	0.010	mg/l	1.00		95	80-120			
Molybdenum, Total	0.937	0.010	mg/l	1.00		94	80-120			
Nickel, Total	0.957	0.010	mg/l	1.00		96	80-120			
Selenium, Total	0.969	0.030	mg/l	1.00		97	80-120			
Silver, Total	0.956	0.0050	mg/l	1.00		96	80-125			
Thallium, Total	0.948	0.050	mg/l	1.00		95	80-120			
Vanadium, Total	0.984	0.010	mg/l	1.00		98	80-120			
Zinc, Total	0.894	0.050	mg/l	1.00		89	80-120			
Matrix Spike (W4J0151-MS1)	**Source: 4J01076-02**			Analyzed: 10/03/14 15:23						
Antimony, Total	1.03	0.040	mg/l	1.00	ND	103	75-125			
Arsenic, Total	1.10	0.010	mg/l	1.00	0.00587	109	75-125			
Barium, Total	0.932	0.010	mg/l	1.00	0.0291	90	75-125			
Beryllium, Total	0.911	0.010	mg/l	1.00	ND	91	75-125			
Cadmium, Total	0.846	0.010	mg/l	1.00	).000843	85	75-125			
Chromium, Total	0.896	0.010	mg/l	1.00	ND	90	75-125			
Cobalt, Total	0.830	0.010	mg/l	1.00	).000956	83	75-125			
Copper, Total	0.871	0.020	mg/l	1.00	ND	87	75-125			
Lead, Total	0.870	0.010	mg/l	1.00	ND	87	75-125			

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0151-MS1)		**Source: 4J01076-02**		Analyzed: 10/03/14 15:23						
Molybdenum, Total	0.984	0.010	mg/l	1.00	0.00720	98	75-125			
Nickel, Total	0.863	0.010	mg/l	1.00	0.00519	86	75-125			
Selenium, Total	0.970	0.030	mg/l	1.00	ND	97	75-125			
Silver, Total	0.965	0.0050	mg/l	1.00	ND	97	75-125			
Thallium, Total	0.869	0.050	mg/l	1.00	ND	87	75-125			
Vanadium, Total	0.996	0.010	mg/l	1.00	ND	100	75-125			
Zinc, Total	0.904	0.050	mg/l	1.00	0.0126	89	75-125			
Matrix Spike Dup (W4J0151-MSD1)		**Source: 4J01076-02**		Analyzed: 10/03/14 15:25						
Antimony, Total	1.09	0.040	mg/l	1.00	ND	109	75-125	6	20	
Arsenic, Total	1.18	0.010	mg/l	1.00	0.00587	117	75-125	7	20	
Barium, Total	0.958	0.010	mg/l	1.00	0.0291	93	75-125	3	20	
Beryllium, Total	0.937	0.010	mg/l	1.00	ND	94	75-125	3	20	
Cadmium, Total	0.878	0.010	mg/l	1.00	).000843	88	75-125	4	20	
Chromium, Total	0.916	0.010	mg/l	1.00	ND	92	75-125	2	20	
Cobalt, Total	0.855	0.010	mg/l	1.00	).000956	85	75-125	3	20	
Copper, Total	0.882	0.020	mg/l	1.00	ND	88	75-125	1	20	
Lead, Total	0.918	0.010	mg/l	1.00	ND	92	75-125	5	20	
Molybdenum, Total	1.03	0.010	mg/l	1.00	0.00720	102	75-125	4	20	
Nickel, Total	0.862	0.010	mg/l	1.00	0.00519	86	75-125	0.09	20	
Selenium, Total	1.04	0.030	mg/l	1.00	ND	104	75-125	7	20	
Silver, Total	0.984	0.0050	mg/l	1.00	ND	98	75-125	2	20	
Thallium, Total	0.908	0.050	mg/l	1.00	ND	91	75-125	4	20	
Vanadium, Total	1.01	0.010	mg/l	1.00	ND	101	75-125	2	20	
Zinc, Total	0.932	0.050	mg/l	1.00	0.0126	92	75-125	3	20	

Batch W4J0268 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0268-BLK1)				Analyzed: 10/07/14 11:20						
Tin, Total	ND	0.020	mg/l							
LCS (W4J0268-BS1)				Analyzed: 10/07/14 11:23						
Tin, Total	0.942	0.020	mg/l	1.00		94	80-120			
Matrix Spike (W4J0268-MS1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:11						
Tin, Total	0.910	0.020	mg/l	1.00	ND	91	75-125			
Matrix Spike Dup (W4J0268-MSD1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:14						
Tin, Total	0.919	0.020	mg/l	1.00	ND	92	75-125	1	20	

Batch W4J0355 - EPA 7470A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0355-BLK1)				Analyzed: 10/08/14 17:11						
Mercury, Total	ND	0.10	ug/l							

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0355 - EPA 7470A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0355-BLK1)				Analyzed: 10/08/14 17:11						
LCS (W4J0355-BS1)				Analyzed: 10/08/14 17:11						
Mercury, Total	0.988	0.10	ug/l	1.00		99	80-120			
Matrix Spike (W4J0355-MS1)	**Source: 4J03011-01**			Analyzed: 10/08/14 17:11						
Mercury, Total	1.01	0.10	ug/l	1.00	0.0140	100	60-129			
Matrix Spike Dup (W4J0355-MSD1)	**Source: 4J03011-01**			Analyzed: 10/08/14 17:11						
Mercury, Total	0.997	0.10	ug/l	1.00	0.0140	98	60-129	1	20	

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Batch W4J0203 - EPA 8082

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0203-BLK1)				Analyzed: 10/09/14 21:41						
Aroclor 1016	ND	1.0	ug/l							
Aroclor 1221	ND	1.0	ug/l							
Aroclor 1232	ND	1.0	ug/l							
Aroclor 1242	ND	1.0	ug/l							
Aroclor 1248	ND	1.0	ug/l							
Aroclor 1254	ND	1.0	ug/l							
Aroclor 1260	ND	1.0	ug/l							
Surr: Decachlorobiphenyl	*0.431*		*ug/l*	*0.500*		*86*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.428*		*ug/l*	*0.500*		*86*	*18-139*			
LCS (W4J0203-BS1)				Analyzed: 10/09/14 23:13						
Aroclor 1016	4.78	1.0	ug/l	5.00		96	46-151			
Aroclor 1260	4.73	1.0	ug/l	5.00		95	46-160			
Surr: Decachlorobiphenyl	*0.459*		*ug/l*	*0.500*		*92*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.436*		*ug/l*	*0.500*		*87*	*18-139*			
LCS Dup (W4J0203-BSD1)				Analyzed: 10/09/14 23:44						
Aroclor 1016	5.07	1.0	ug/l	5.00		101	46-151	6	25	
Aroclor 1260	4.96	1.0	ug/l	5.00		99	46-160	5	25	
Surr: Decachlorobiphenyl	*0.469*		*ug/l*	*0.500*		*94*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.458*		*ug/l*	*0.500*		*92*	*18-139*			

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
1,2-Dichlorobenzene	ND	1.0	ug/l							
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l							
1,3,5-Trinitrobenzene	ND	10	ug/l							
1,3-Dichlorobenzene	ND	1.0	ug/l							
1,3-Dinitrobenzene	ND	1.0	ug/l							
1,4-Dichlorobenzene	ND	1.0	ug/l							
1,4-Naphthoquinone	ND	10	ug/l							
1,4-Phenylenediamine	ND	10	ug/l							
1-Methylnaphthalene	ND	1.0	ug/l							
1-Naphthylamine	ND	10	ug/l							
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l							
2,4,5-Trichlorophenol	ND	1.0	ug/l							
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,4-Dichlorophenol	ND	1.0	ug/l							
2,4-Dimethylphenol	ND	1.0	ug/l							
2,4-Dinitrophenol	ND	10	ug/l							
2,4-Dinitrotoluene	ND	1.0	ug/l							
2,6-Dichlorophenol	ND	10	ug/l							
2,6-Dinitrotoluene	ND	1.0	ug/l							
2-Acetylaminofluorene	ND	10	ug/l							
2-Chloronaphthalene	ND	1.0	ug/l							
2-Chlorophenol	ND	1.0	ug/l							
2-Methylnaphthalene	ND	1.0	ug/l							
2-Methylphenol	ND	1.0	ug/l							
2-Naphthylamine	ND	10	ug/l							
2-Nitroaniline	ND	1.0	ug/l							
2-Nitrophenol	ND	1.0	ug/l							
2-Picoline	ND	10	ug/l							
3 & 4-Methylphenol	ND	1.0	ug/l							
3,3'- Dimethylbenzidine	ND	10	ug/l							
3,3'-Dichlorobenzidine	ND	5.0	ug/l							
3-Methylcholanthrene	ND	10	ug/l							
3-Nitroaniline	ND	1.0	ug/l							
4,4´-DDD	ND	5.0	ug/l							
4,4´-DDE	ND	5.0	ug/l							
4,4´-DDT	ND	5.0	ug/l							
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l							
4-Aminobiphenyl	ND	10	ug/l							
4-Bromophenyl phenyl ether	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
4-Chloro-3-methylphenol	ND	1.0	ug/l							
4-Chloroaniline	ND	1.0	ug/l							
4-Chlorophenyl phenyl ether	ND	1.0	ug/l							
4-Nitroaniline	ND	1.0	ug/l							
4-Nitrophenol	ND	5.0	ug/l							
4-Nitroquinoline-n-oxide	ND	50	ug/l							
5-Nitro-o-toluidine	ND	10	ug/l							
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l							
a,a-Dimethylphenethylamine	ND	10	ug/l							
Acenaphthene	ND	1.0	ug/l							
Acenaphthylene	ND	1.0	ug/l							
Acetophenone	ND	10	ug/l							
Aldrin	ND	5.0	ug/l							
alpha-BHC	ND	5.0	ug/l							
Aniline	ND	1.0	ug/l							
Anthracene	ND	1.0	ug/l							
Aramite	ND	10	ug/l							
Benzidine	ND	10	ug/l							
Benzo (a) anthracene	ND	1.0	ug/l							
Benzo (a) pyrene	ND	1.0	ug/l							
Benzo (b) fluoranthene	ND	1.0	ug/l							
Benzo (g,h,i) perylene	ND	2.0	ug/l							
Benzo (k) fluoranthene	ND	1.0	ug/l							
Benzoic acid	ND	100	ug/l							
Benzyl alcohol	ND	1.0	ug/l							
beta-BHC	ND	5.0	ug/l							
Bis(2-chloroethoxy)methane	ND	1.0	ug/l							
Bis(2-chloroethyl)ether	ND	1.0	ug/l							
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l							
Butyl benzyl phthalate	ND	1.0	ug/l							
Chlorobenzilate	ND	10	ug/l							
Chrysene	ND	1.0	ug/l							
delta-BHC	ND	5.0	ug/l							
Diallate (cis or trans)	ND	10	ug/l							
Dibenzo (a,h) anthracene	ND	2.0	ug/l							
Dibenzofuran	ND	1.0	ug/l							
Dieldrin	ND	5.0	ug/l							
Diethyl phthalate	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
Dimethoate	ND	10	ug/l							
Dimethyl phthalate	ND	1.0	ug/l							
Dimethylaminoazobenzene	ND	10	ug/l							
Di-n-butyl phthalate	ND	1.0	ug/l							
Di-n-octyl phthalate	ND	1.0	ug/l							
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l							
Disulfoton	ND	10	ug/l							
Endosulfan I	ND	10	ug/l							
Endosulfan II	ND	10	ug/l							
Endosulfan sulfate	ND	5.0	ug/l							
Endrin	ND	5.0	ug/l							
Endrin aldehyde	ND	5.0	ug/l							
Ethyl methanesulfonate	ND	10	ug/l							
Famphur	ND	10	ug/l							
Fluoranthene	ND	1.0	ug/l							
Fluorene	ND	1.0	ug/l							
gamma-BHC (Lindane)	ND	5.0	ug/l							
Heptachlor	ND	5.0	ug/l							
Heptachlor epoxide	ND	5.0	ug/l							
Hexachlorobenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Hexachlorocyclopentadiene	ND	5.0	ug/l							
Hexachloroethane	ND	1.0	ug/l							
Hexachloropropene	ND	10	ug/l							
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l							
Isodrin	ND	10	ug/l							
Isophorone	ND	1.0	ug/l							
Isosafrole	ND	10	ug/l							
Kepone	ND	50	ug/l							
Methapyrilene	ND	50	ug/l							
Methoxychlor	ND	5.0	ug/l							
Methyl methanesulfonate	ND	10	ug/l							
Methyl parathion	ND	10	ug/l							
Naphthalene	ND	1.0	ug/l							
Nitrobenzene	ND	1.0	ug/l							
N-Nitrosodiethylamine	ND	10	ug/l							
N-Nitrosodimethylamine	ND	1.0	ug/l							
N-Nitrosodi-n-butylamine	ND	10	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
N-Nitrosodi-n-propylamine	ND	1.0	ug/l							
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l							
N-Nitrosomethylethylamine	ND	10	ug/l							
N-Nitrosomorpholine	ND	10	ug/l							
N-Nitrosopiperidine	ND	10	ug/l							
N-Nitrosopyrrolidine	ND	10	ug/l							
o,o,o-Triethyl phosphorothioate	ND	10	ug/l							
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND	10	ug/l							
o-Toluidine	ND	10	ug/l							
Parathion	ND	10	ug/l							
Pentachlorobenzene	ND	10	ug/l							
Pentachloronitrobenzene (PCNB)	ND	10	ug/l							
Pentachlorophenol	ND	1.0	ug/l							
Phenacetin	ND	10	ug/l							
Phenanthrene	ND	1.0	ug/l							
Phenol	ND	1.0	ug/l							
Phorate	ND	10	ug/l							
Pronamide	ND	10	ug/l							
Pyrene	ND	1.0	ug/l							
Pyridine	ND	5.0	ug/l							
Safrole	ND	10	ug/l							
Surr: 2,4,6-Tribromophenol	*40.8*		*ug/l*	*50.0*		*82*	*33-96*			
Surr: 2-Fluorobiphenyl	*19.4*		*ug/l*	*25.0*		*77*	*28-100*			
Surr: 2-Fluorophenol	*23.7*		*ug/l*	*50.0*		*47*	*5-76*			
Surr: Nitrobenzene-d5	*19.9*		*ug/l*	*25.0*		*80*	*34-104*			
Surr: Phenol-d5	*14.8*		*ug/l*	*50.0*		*30*	*0.1-57*			
Surr: Terphenyl-d14	*21.4*		*ug/l*	*25.0*		*86*	*39-104*			
Blank (W4J0166-BLK2)				Analyzed: 11/03/14 12:39						
Hexachlorophene	ND	50	ug/l							
LCS (W4J0166-BS1)				Analyzed: 10/07/14 18:16						
1,2,4-Trichlorobenzene	17.8	1.0	ug/l	25.0		71	27-99			
1,2-Dichlorobenzene	18.2	1.0	ug/l	25.0		73	22-102			
1,3-Dichlorobenzene	15.9	1.0	ug/l	25.0		64	22-100			
1,4-Dichlorobenzene	17.1	1.0	ug/l	25.0		68	24-101			
2,4,6-Trichlorophenol	19.3	1.0	ug/l	25.0		77	39-105			
2,4-Dichlorophenol	20.3	1.0	ug/l	25.0		81	39-102			
2,4-Dimethylphenol	11.6	1.0	ug/l	25.0		46	27-102			
2,4-Dinitrophenol	20.2	10	ug/l	25.0		81	11-142			
2,4-Dinitrotoluene	23.4	1.0	ug/l	25.0		94	44-105			

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0166-BS1)				Analyzed: 10/07/14 18:16						
2,6-Dinitrotoluene	20.9	1.0	ug/l	25.0		84	44-106			
2-Chloronaphthalene	20.0	1.0	ug/l	25.0		80	36-100			
2-Chlorophenol	16.8	1.0	ug/l	25.0		67	34-96			
2-Nitrophenol	20.0	1.0	ug/l	25.0		80	38-103			
3,3'-Dichlorobenzidine	21.1	5.0	ug/l	25.0		84	0.1-308			
4,6-Dinitro-2-methylphenol	24.9	5.0	ug/l	25.0		100	42-111			
4-Bromophenyl phenyl ether	19.2	1.0	ug/l	25.0		77	38-92			
4-Chloro-3-methylphenol	24.9	1.0	ug/l	25.0		99	39-103			
4-Chlorophenyl phenyl ether	21.7	1.0	ug/l	25.0		87	40-102			
4-Nitrophenol	10.6	5.0	ug/l	25.0		42	4-50			
Acenaphthene	22.0	1.0	ug/l	25.0		88	41-110			
Acenaphthylene	21.5	1.0	ug/l	25.0		86	39-110			
Anthracene	23.1	1.0	ug/l	25.0		92	45-114			
Benzo (a) anthracene	24.1	1.0	ug/l	25.0		96	44-109			
Benzo (a) pyrene	29.0	1.0	ug/l	25.0		116	26-122			
Benzo (b) fluoranthene	28.1	1.0	ug/l	25.0		113	37-121			
Benzo (g,h,i) perylene	27.7	2.0	ug/l	25.0		111	13-135			
Benzo (k) fluoranthene	29.2	1.0	ug/l	25.0		117	36-119			
Bis(2-chloroethoxy)methane	19.7	1.0	ug/l	25.0		79	42-105			
Bis(2-chloroethyl)ether	17.6	1.0	ug/l	25.0		70	38-100			
Bis(2-chloroisopropyl)ether	19.4	1.0	ug/l	25.0		77	29-130			
Bis(2-ethylhexyl)phthalate	27.0	5.0	ug/l	25.0		108	41-118			
Butyl benzyl phthalate	24.9	1.0	ug/l	25.0		99	49-109			
Chrysene	26.5	1.0	ug/l	25.0		106	48-116			
Dibenzo (a,h) anthracene	26.8	2.0	ug/l	25.0		107	45-110			
Diethyl phthalate	23.2	1.0	ug/l	25.0		93	44-113			
Dimethyl phthalate	22.4	1.0	ug/l	25.0		89	26-123			
Di-n-butyl phthalate	23.6	1.0	ug/l	25.0		95	45-108			
Di-n-octyl phthalate	26.2	1.0	ug/l	25.0		105	41-100			Q-08
Fluoranthene	23.8	1.0	ug/l	25.0		95	44-114			
Fluorene	22.4	1.0	ug/l	25.0		89	41-109			
Hexachlorobenzene	23.8	1.0	ug/l	25.0		95	44-106			
Hexachlorobutadiene	19.9	1.0	ug/l	25.0		80	26-107			
Hexachlorocyclopentadiene	15.6	5.0	ug/l	25.0		63	6-100			
Hexachloroethane	17.7	1.0	ug/l	25.0		71	20-91			
Indeno (1,2,3-cd) pyrene	23.5	2.0	ug/l	25.0		94	15-131			
Isophorone	18.4	1.0	ug/l	25.0		73	41-94			
Naphthalene	20.3	1.0	ug/l	25.0		81	31-107			
Nitrobenzene	18.8	1.0	ug/l	25.0		75	41-100			

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0166-BS1)				Analyzed: 10/07/14 18:16						
N-Nitrosodimethylamine	12.2	1.0	ug/l	25.0		49	14-63			
N-Nitrosodi-n-propylamine	19.8	1.0	ug/l	25.0		79	38-105			
Pentachlorophenol	22.3	1.0	ug/l	25.0		89	36-105			
Phenanthrene	24.1	1.0	ug/l	25.0		96	46-115			
Phenol	7.15	1.0	ug/l	25.0		29	7-44			
Pyrene	24.0	1.0	ug/l	25.0		96	38-123			
Surr: 2,4,6-Tribromophenol	*43.3*		*ug/l*	*50.0*		*87*	*33-96*			
Surr: 2-Fluorobiphenyl	*19.7*		*ug/l*	*25.0*		*79*	*28-100*			
Surr: 2-Fluorophenol	*22.1*		*ug/l*	*50.0*		*44*	*5-76*			
Surr: Nitrobenzene-d5	*18.5*		*ug/l*	*25.0*		*74*	*34-104*			
Surr: Phenol-d5	*14.2*		*ug/l*	*50.0*		*28*	*0.1-57*			
Surr: Terphenyl-d14	*22.5*		*ug/l*	*25.0*		*90*	*39-104*			
LCS Dup (W4J0166-BSD1)				Analyzed: 10/07/14 18:45						
1,2,4-Trichlorobenzene	19.2	1.0	ug/l	25.0		77	27-99	8	30	
1,2-Dichlorobenzene	20.1	1.0	ug/l	25.0		80	22-102	10	30	
1,3-Dichlorobenzene	17.6	1.0	ug/l	25.0		70	22-100	10	30	
1,4-Dichlorobenzene	19.4	1.0	ug/l	25.0		78	24-101	12	30	
2,4,6-Trichlorophenol	21.1	1.0	ug/l	25.0		84	39-105	9	30	
2,4-Dichlorophenol	21.9	1.0	ug/l	25.0		87	39-102	7	30	
2,4-Dimethylphenol	12.7	1.0	ug/l	25.0		51	27-102	10	30	
2,4-Dinitrophenol	23.4	10	ug/l	25.0		94	11-142	14	30	
2,4-Dinitrotoluene	23.9	1.0	ug/l	25.0		95	44-105	2	30	
2,6-Dinitrotoluene	22.0	1.0	ug/l	25.0		88	44-106	5	30	
2-Chloronaphthalene	22.1	1.0	ug/l	25.0		88	36-100	10	30	
2-Chlorophenol	18.3	1.0	ug/l	25.0		73	34-96	8	30	
2-Nitrophenol	21.4	1.0	ug/l	25.0		86	38-103	7	30	
3,3'-Dichlorobenzidine	24.2	5.0	ug/l	25.0		97	0.1-308	14	30	
4,6-Dinitro-2-methylphenol	24.4	5.0	ug/l	25.0		98	42-111	2	30	
4-Bromophenyl phenyl ether	19.5	1.0	ug/l	25.0		78	38-92	2	30	
4-Chloro-3-methylphenol	26.1	1.0	ug/l	25.0		104	39-103	5	30	Q-08
4-Chlorophenyl phenyl ether	22.7	1.0	ug/l	25.0		91	40-102	5	30	
4-Nitrophenol	12.2	5.0	ug/l	25.0		49	4-50	14	30	
Acenaphthene	23.4	1.0	ug/l	25.0		94	41-110	6	30	
Acenaphthylene	24.0	1.0	ug/l	25.0		96	39-110	11	30	
Anthracene	23.2	1.0	ug/l	25.0		93	45-114	0.6	30	
Benzo (a) anthracene	25.5	1.0	ug/l	25.0		102	44-109	6	30	
Benzo (a) pyrene	27.2	1.0	ug/l	25.0		109	26-122	6	30	
Benzo (b) fluoranthene	26.6	1.0	ug/l	25.0		107	37-121	5	30	
Benzo (g,h,i) perylene	33.8	2.0	ug/l	25.0		135	13-135	20	30	
Benzo (k) fluoranthene	29.6	1.0	ug/l	25.0		118	36-119	1	30	

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0166-BSD1)				Analyzed: 10/07/14 18:45						
Bis(2-chloroethoxy)methane	21.8	1.0	ug/l	25.0		87	42-105	10	30	
Bis(2-chloroethyl)ether	19.7	1.0	ug/l	25.0		79	38-100	11	30	
Bis(2-chloroisopropyl)ether	21.8	1.0	ug/l	25.0		87	29-130	12	30	
Bis(2-ethylhexyl)phthalate	28.0	5.0	ug/l	25.0		112	41-118	4	30	
Butyl benzyl phthalate	26.6	1.0	ug/l	25.0		106	49-109	7	30	
Chrysene	26.8	1.0	ug/l	25.0		107	48-116	1	30	
Dibenzo (a,h) anthracene	29.4	2.0	ug/l	25.0		117	45-110	9	30	Q-08
Diethyl phthalate	23.7	1.0	ug/l	25.0		95	44-113	2	30	
Dimethyl phthalate	24.4	1.0	ug/l	25.0		98	26-123	9	30	
Di-n-butyl phthalate	23.9	1.0	ug/l	25.0		95	45-108	0.9	30	
Di-n-octyl phthalate	25.6	1.0	ug/l	25.0		102	41-100	2	30	Q-08
Fluoranthene	25.3	1.0	ug/l	25.0		101	44-114	6	30	
Fluorene	23.4	1.0	ug/l	25.0		94	41-109	5	30	
Hexachlorobenzene	23.5	1.0	ug/l	25.0		94	44-106	1	30	
Hexachlorobutadiene	22.2	1.0	ug/l	25.0		89	26-107	11	30	
Hexachlorocyclopentadiene	18.1	5.0	ug/l	25.0		73	6-100	15	30	
Hexachloroethane	19.1	1.0	ug/l	25.0		76	20-91	8	30	
Indeno (1,2,3-cd) pyrene	25.1	2.0	ug/l	25.0		100	15-131	7	30	
Isophorone	20.5	1.0	ug/l	25.0		82	41-94	11	30	
Naphthalene	22.4	1.0	ug/l	25.0		90	31-107	10	30	
Nitrobenzene	20.0	1.0	ug/l	25.0		80	41-100	6	30	
N-Nitrosodimethylamine	13.1	1.0	ug/l	25.0		52	14-63	7	30	
N-Nitrosodi-n-propylamine	21.8	1.0	ug/l	25.0		87	38-105	9	30	
Pentachlorophenol	22.5	1.0	ug/l	25.0		90	36-105	1	30	
Phenanthrene	24.2	1.0	ug/l	25.0		97	46-115	0.5	30	
Phenol	8.38	1.0	ug/l	25.0		34	7-44	16	30	
Pyrene	25.9	1.0	ug/l	25.0		104	38-123	8	30	
Surr: 2,4,6-Tribromophenol	*43.9*		*ug/l*	*50.0*		*88*	*33-96*			
Surr: 2-Fluorobiphenyl	*22.2*		*ug/l*	*25.0*		*89*	*28-100*			
Surr: 2-Fluorophenol	*25.6*		*ug/l*	*50.0*		*51*	*5-76*			
Surr: Nitrobenzene-d5	*20.1*		*ug/l*	*25.0*		*80*	*34-104*			
Surr: Phenol-d5	*16.6*		*ug/l*	*50.0*		*33*	*0.1-57*			
Surr: Terphenyl-d14	*23.5*		*ug/l*	*25.0*		*94*	*39-104*			

EPA 1613B m - Quality Control

Batch 3783563 - EPA 1613B m

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (3783563-BLK)				Analyzed: 10/14/14 00:00						

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

EPA 1613B m - Quality Control

Batch 3783563 - EPA 1613B m

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (3783563-BLK)				Analyzed: 10/14/14 00:00						
2,3,7,8-Tetra CDD	ND	4.2	pg/L			NR	-			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*132*		*pg/L*	*200*		*66*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*128*		*pg/L*	*200*		*64*	*24-164*			*S_MAXX*
LCS (3783563-LCS)				Analyzed: 10/14/14 00:00						
2,3,7,8-Tetra CDD	176	4.2	pg/L	200		88	67-158			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*100*		*pg/L*	*200*		*50*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*100*		*pg/L*	*200*		*50*	*24-164*			*S_MAXX*

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/02/14 10:20
Date Reported: 11/07/14 13:33

Notes and Definitions

S_MAXX	Analysis subcontracted to Maxxam Analytics, INC. NELAC 02106A
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
M-05	Due to the nature of matrix interferences, sample was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
*	The recommended holding time for this analysis is only 15 minutes. The sample was analyzed as soon as it was possible but it was received and analyzed past holding time.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reportable
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Sub	Subcontracted analysis, original report available upon request
MDL	Method Detection Limit
MDA	Minimum Detectable Activity
MRL	Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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CHAIN OF CUSTODY RECORD

Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

STANDARD 4J02013

CLIENT NAME:	PROJECT: DVC 5 Year
CalEnergy Operating Corporation	
ADDRESS:	PHONE: **760-348-4241**
	FAX:
7030 Gentry Road, Calipatria, CA 92233	EMAIL: antonio.campos@calenergy.com
PROJECT MANAGER **Stella Minaev**	SAMPLER: Katherine West

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS: Under Ice

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	ANALYSES REQUESTED: Cyanide, Total - ASTM D7511	Dioxin 2378TCDD - EPA 1613B	EPA 8081A/8082 -Pesticides & PCB	EPA 8151A - Chlorinated Herbicides	EPA 8260B - VOC	EPA 8270C - Semivolatile Organics	EPA 300.0 - Fluoride	EPA 7470 - Mercury	EPA 6010 Metals, CAM	EPA 300.0 Nitrate-NO3
	10/01/14	9:15 AM	GW	DVC Monitoring Well GW01	17	X	X	X	X	X	X	X	X	X	X
	10/01/14	8:15 AM	GW	DVC Monitoring Well GW12	17	X	X	X	X	X	X	X	X	X	X
	10/01/14	10:13 AM	GW	DVC Monitoring Well GW305	17	X	X	X	X	X	X	X	X	X	x

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	10-1-14 12:15	
K. West	10-1-14 12:15	UPS
UPS	10/2/14 1020	Jcmathmen

SAMPLE CONDITION:

Actual Temperature: 1.9°C

Received On Ice	Y	(N)
Preserved	(Y)	N
Evidence Seals Present	Y	(N)
Container Attacked	Y	(N)
Preserved at Lab	Y	(N)

SAMPLE TYPE CODE:

- AQ=Aqueous
- NA= Non Aqueous
- SL = Sludge
- DW = Drinking Water
- WW = Waste Water
- RW = Rain Water
- GW = Ground Water
- SO = Soil
- SW = Solid Waste
- OL = Oil
- OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS

Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

Please send invoices to payables@calenergy.com **P.O# 210007**

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14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CHAIN OF CUSTODY RECORD

STANDARD 4J02013

CLIENT NAME:	PROJECT: DVC 5 Year Source Test
CalEnergy Operating Corporation	
ADDRESS:	PHONE: **760-348-4241**
	FAX:
7030 Gentry Road, Calipatria, CA 92233	EMAIL: antonio.campos@calenergy.com
PROJECT MANAGER **Stella Minaev**	SAMPLER: Katherine West/Antonio Campos

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	SM 4500H B - pH	EPA 9030B/9034 - Sulfide, Total	EPA 6010B - Tin	SM2540C - Total Dissolved Solids						
	10/01/14	9:15 AM	GW	DVC Monitoring Well GW01	SEE PAGE 1 OF 2	X	X	X	X						
	10/01/14	8:15 AM	GW	DVC Monitoring Well GW12	SEE PAGE 1 OF 2	X	X	X	X						
	10/01/14	10:13 AM	GW	DVC Monitoring Well GW305	SEE PAGE 1 OF 2	X	X	X	X						

ANALYSES REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS Under Ice

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. Wood	10-1-14 12:15	UPS
UPS	10/2/14 1020	Jamesmen

SAMPLE CONDITION:

Actual Temperature: 1.9C

Received On Ice	(Y) N
Preserved	(Y) N
Evidence Seals Present	Y (N)
Container Attacked	Y (N)
Preserved at Lab	Y (N)

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

Please send invoices to payables@calenergy.com P.O# 210007

Certificate of Analysis

Report Date: 10/28/14 09:46
Received Date: 10/17/14 10:00
Turnaround Time: Normal

Project: DVC 5 Year Source Test

Phones: (760) 348-4439
Fax: (760) 348-4222

P.O. #: 210007

Attn: Stella Minaev

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria, CA 92233

Dear Stella Minaev :

Enclosed are the results of analyses for samples received 10/17/2014 with the Chain of Custody document. The samples were received in good condition, at 2.7 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab Sample ID: 4J17030-01 **Sample ID: DVC Monitoring Well GW12** **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled: 10/16/14 07:45**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
1,1,1,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1,1-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1,2,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1,2-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,1-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2,3-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2,3-Trichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2,4-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2,4-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2-Dibromo-3-chloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2-Dibromoethane (EDB)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,3,5-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,3-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
1,3-Dichloropropene, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
2,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
2-Butanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
2-Chloroethyl vinyl ether	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
2-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
2-Hexanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
4-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
4-Methyl-2-pentanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Acetone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Acrolein	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	

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Certificate of Analysis

Lab Sample ID: 4J17030-01 **Sample ID:** DVC Monitoring Well GW12 **Matrix:** Water

Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 07:45

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Acrylonitrile	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Benzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Bromobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Bromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Bromodichloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Bromoform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Bromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Carbon Disulfide	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Carbon tetrachloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Chlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Chloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Chloroform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Chloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
cis-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
cis-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Dibromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Dibromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Dichlorodifluoromethane (Freon 12)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Ethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Hexachlorobutadiene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Isopropylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
m,p-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
m-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Methyl tert-butyl ether (MTBE)	ND		3.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Methylene chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Naphthalene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
n-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
n-Propylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
o-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
o-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
p-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
p-Isopropyltoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
sec-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Styrene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
tert-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Tetrachloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Toluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Trichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Trichlorofluoromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Vinyl chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Xylenes, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 18:43	W4J0999	
Surrogate: 1,2-Dichloroethane-d4	*109 %*		*86-126*	%		Concentration: *54.6*				
Surrogate: 4-Bromofluorobenzene	*94 %*		*80-112*	%		Concentration: *46.8*				

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Certificate of Analysis

Lab Sample ID: 4J17030-01 **Sample ID:** DVC Monitoring Well GW12 **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 07:45

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Surrogate: Dibromofluoromethane	*103 %*		*89-120*	%		Concentration:*51.6*				
Surrogate: Toluene-d8	*101 %*		*91-111*	%		Concentration:*50.7*				

Lab Sample ID: 4J17030-02 **Sample ID:** DVC Monitoring Well GW01 **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 08:10

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
1,1,1,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1,1-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1,2,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1,2-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,1-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2,3-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2,3-Trichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2,4-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2,4-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2-Dibromo-3-chloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2-Dibromoethane (EDB)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,3,5-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,3-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
1,3-Dichloropropene, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
2,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
2-Butanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
2-Chloroethyl vinyl ether	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
2-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
2-Hexanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
4-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
4-Methyl-2-pentanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Acetone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Acrolein	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Acrylonitrile	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Benzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Bromobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Bromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Bromodichloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Bromoform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Bromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Carbon Disulfide	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Carbon tetrachloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Chlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Chloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Chloroform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	

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Lab Sample ID: 4J17030-02 **Sample ID:** DVC Monitoring Well GW01 **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 08:10

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Chloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
cis-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
cis-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Dibromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Dibromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Dichlorodifluoromethane (Freon 12)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Ethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Hexachlorobutadiene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Isopropylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
m,p-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
m-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Methyl tert-butyl ether (MTBE)	ND		3.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Methylene chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Naphthalene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
n-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
n-Propylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
o-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
o-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
p-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
p-Isopropyltoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
sec-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Styrene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
tert-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Tetrachloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Toluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Trichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Trichlorofluoromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Vinyl chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Xylenes, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:13	W4J0999	
Surrogate: 1,2-Dichloroethane-d4	*108 %*		*86-126*	%		Concentration: *54.0*				
Surrogate: 4-Bromofluorobenzene	*95 %*		*80-112*	%		Concentration: *47.4*				
Surrogate: Dibromofluoromethane	*104 %*		*89-120*	%		Concentration: *52.1*				
Surrogate: Toluene-d8	*102 %*		*91-111*	%		Concentration: *51.0*				

Lab Sample ID: 4J17030-03 **Sample ID:** DVC Monitoring Well GW305 **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 08:25

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
1,1,1,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,1,1-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,1,2,2-Tetrachloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,1,2-Trichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,1-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,1-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	

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Lab Sample ID: 4J17030-03 **Sample ID:** DVC Monitoring Well GW305 **Matrix:** Water
Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 08:25

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
1,1-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2,3-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2,3-Trichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2,4-Trichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2,4-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2-Dibromo-3-chloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2-Dibromoethane (EDB)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2-Dichloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,3,5-Trimethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,3-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
1,3-Dichloropropene, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
2,2-Dichloropropane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
2-Butanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
2-Chloroethyl vinyl ether	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
2-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
2-Hexanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
4-Chlorotoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
4-Methyl-2-pentanone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Acetone	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Acrolein	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Acrylonitrile	ND		5.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Benzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Bromobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Bromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Bromodichloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Bromoform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Bromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Carbon Disulfide	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Carbon tetrachloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Chlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Chloroethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Chloroform	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Chloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
cis-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
cis-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Dibromochloromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Dibromomethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Dichlorodifluoromethane (Freon 12)	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Ethylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Hexachlorobutadiene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Isopropylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
m,p-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
m-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Methyl tert-butyl ether (MTBE)	ND		3.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	

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Lab Sample ID: 4J17030-03 **Sample ID:** DVC Monitoring Well GW305 **Matrix:** Water

Sampled by: Katherine West / Antonio Capa **Sampled:** 10/16/14 08:25

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Methylene chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Naphthalene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
n-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
n-Propylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
o-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
o-Xylene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
p-Dichlorobenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
p-Isopropyltoluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
sec-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Styrene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
tert-Butylbenzene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Tetrachloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Toluene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Trichloroethene	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Trichlorofluoromethane	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Vinyl chloride	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Xylenes, Total	ND		1.0	ug/l	1	EPA 8260B	10/21/14	10/21/14 19:43	W4J0999	
Surrogate: 1,2-Dichloroethane-d4	*111 %*		*86-126*	%		Concentration: *55.6*				
Surrogate: 4-Bromofluorobenzene	*93 %*		*80-112*	%		Concentration: *46.5*				
Surrogate: Dibromofluoromethane	*107 %*		*89-120*	%		Concentration: *53.3*				
Surrogate: Toluene-d8	*102 %*		*91-111*	%		Concentration: *51.2*				

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Quality Control Section

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

Blank (W4J0999-BLK1) **Prepared: 10/21/14 Analyzed: 10/21/14 15:14**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane		*51.2*		ug/l	*50.0*	*102*	*89-120*		
Surrogate: 1,2-Dichloroethane-d4		*51.3*		ug/l	*50.0*	*103*	*86-126*		
Surrogate: Toluene-d8		*49.8*		ug/l	*50.0*	*100*	*91-111*		
Surrogate: 4-Bromofluorobenzene		*47.4*		ug/l	*50.0*	*95*	*80-112*		
Dichlorodifluoromethane (Freon 12)		ND		ug/l					
Chloromethane		ND		ug/l					
Vinyl chloride		ND		ug/l					
Bromomethane		ND		ug/l					
Chloroethane		ND		ug/l					
Acrolein		ND		ug/l					
Trichlorofluoromethane		ND		ug/l					
Acetone		ND		ug/l					
1,1-Dichloroethene		ND		ug/l					
Methylene chloride		ND		ug/l					
Acrylonitrile		ND		ug/l					
trans-1,2-Dichloroethene		ND		ug/l					
Methyl tert-butyl ether (MTBE)		ND		ug/l					
1,1-Dichloroethane		ND		ug/l					
2,2-Dichloropropane		ND		ug/l					
cis-1,2-Dichloroethene		ND		ug/l					
2-Butanone		ND		ug/l					
Bromochloromethane		ND		ug/l					
Chloroform		ND		ug/l					
1,1,1-Trichloroethane		ND		ug/l					
Carbon tetrachloride		ND		ug/l					
1,1-Dichloropropene		ND		ug/l					
Benzene		ND		ug/l					
1,2-Dichloroethane		ND		ug/l					
Trichloroethene		ND		ug/l					
1,2-Dichloropropane		ND		ug/l					
Dibromomethane		ND		ug/l					
Bromodichloromethane		ND		ug/l					
2-Chloroethyl vinyl ether		ND		ug/l					
cis-1,3-Dichloropropene		ND		ug/l					
4-Methyl-2-pentanone		ND		ug/l					
Toluene		ND		ug/l					
trans-1,3-Dichloropropene		ND		ug/l					
1,1,2-Trichloroethane		ND		ug/l					
Tetrachloroethene		ND		ug/l					
1,3-Dichloropropane		ND		ug/l					
2-Hexanone		ND		ug/l					

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

Blank (W4J0999-BLK1) **Prepared: 10/21/14 Analyzed: 10/21/14 15:14**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Dibromochloromethane		ND		ug/l					
1,2-Dibromoethane (EDB)		ND		ug/l					
Chlorobenzene		ND		ug/l					
1,1,1,2-Tetrachloroethane		ND		ug/l					
Ethylbenzene		ND		ug/l					
m,p-Xylene		ND		ug/l					
o-Xylene		ND		ug/l					
Styrene		ND		ug/l					
Bromoform		ND		ug/l					
Isopropylbenzene		ND		ug/l					
1,1,2,2-Tetrachloroethane		ND		ug/l					
Bromobenzene		ND		ug/l					
1,2,3-Trichloropropane		ND		ug/l					
n-Propylbenzene		ND		ug/l					
2-Chlorotoluene		ND		ug/l					
4-Chlorotoluene		ND		ug/l					
1,3,5-Trimethylbenzene		ND		ug/l					
tert-Butylbenzene		ND		ug/l					
1,2,4-Trimethylbenzene		ND		ug/l					
m-Dichlorobenzene		ND		ug/l					
sec-Butylbenzene		ND		ug/l					
p-Dichlorobenzene		ND		ug/l					
p-Isopropyltoluene		ND		ug/l					
o-Dichlorobenzene		ND		ug/l					
n-Butylbenzene		ND		ug/l					
1,2-Dibromo-3-chloropropane		ND		ug/l					
1,2,4-Trichlorobenzene		ND		ug/l					
Hexachlorobutadiene		ND		ug/l					
Naphthalene		ND		ug/l					
1,2,3-Trichlorobenzene		ND		ug/l					
1,3-Dichloropropene, Total		ND		ug/l					
Xylenes, Total		ND		ug/l					
Carbon Disulfide		ND		ug/l					

LCS (W4J0999-BS1) **Prepared: 10/21/14 Analyzed: 10/21/14 12:26**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane		*48.5*		ug/l	*50.0*	*97*	*89-120*		
Surrogate: 1,2-Dichloroethane-d4		*48.6*		ug/l	*50.0*	*97*	*86-126*		
Surrogate: Toluene-d8		*50.2*		ug/l	*50.0*	*100*	*91-111*		
Surrogate: 4-Bromofluorobenzene		*52.2*		ug/l	*50.0*	*104*	*80-112*		
Dichlorodifluoromethane (Freon 12)		48.6		ug/l	50.0	97	65-119		
Chloromethane		53.5		ug/l	50.0	107	59-120		
Vinyl chloride		49.7		ug/l	50.0	99	66-124		
Bromomethane		59.6		ug/l	50.0	119	52-144		

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

LCS (W4J0999-BS1) **Prepared: 10/21/14 Analyzed: 10/21/14 12:26**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Chloroethane		52.2		ug/l	50.0	104	68-127		
Acrolein		60.3		ug/l	50.0	121	40-158		
Trichlorofluoromethane		57.9		ug/l	50.0	116	71-131		
Acetone		58.4		ug/l	50.0	117	58-147		
1,1-Dichloroethene		57.2		ug/l	50.0	114	76-130		
Methylene chloride		56.9		ug/l	50.0	114	78-115		
Acrylonitrile		48.8		ug/l	50.0	98	67-131		
trans-1,2-Dichloroethene		55.7		ug/l	50.0	111	83-121		
Methyl tert-butyl ether (MTBE)		51.8		ug/l	50.0	104	79-131		
1,1-Dichloroethane		47.0		ug/l	50.0	94	83-114		
2,2-Dichloropropane		52.5		ug/l	50.0	105	73-131		
cis-1,2-Dichloroethene		52.5		ug/l	50.0	105	80-126		
2-Butanone		42.2		ug/l	50.0	84	66-134		
Bromochloromethane		55.8		ug/l	50.0	112	79-117		
Chloroform		49.4		ug/l	50.0	99	83-118		
1,1,1-Trichloroethane		52.6		ug/l	50.0	105	82-123		
Carbon tetrachloride		47.7		ug/l	50.0	95	77-134		
1,1-Dichloropropene		46.5		ug/l	50.0	93	82-128		
Benzene		45.5		ug/l	50.0	91	80-117		
1,2-Dichloroethane		54.5		ug/l	50.0	109	79-117		
Trichloroethene		47.0		ug/l	50.0	94	81-121		
1,2-Dichloropropane		46.0		ug/l	50.0	92	79-124		
Dibromomethane		56.3		ug/l	50.0	113	80-122		
Bromodichloromethane		54.1		ug/l	50.0	108	83-132		
2-Chloroethyl vinyl ether		32.9		ug/l	50.0	66	55-141		
cis-1,3-Dichloropropene		53.6		ug/l	50.0	107	84-130		
4-Methyl-2-pentanone		51.7		ug/l	50.0	103	68-139		
Toluene		47.5		ug/l	50.0	95	82-122		
trans-1,3-Dichloropropene		48.4		ug/l	50.0	97	82-137		
1,1,2-Trichloroethane		48.4		ug/l	50.0	97	84-118		
Tetrachloroethene		48.1		ug/l	50.0	96	79-126		
1,3-Dichloropropane		49.5		ug/l	50.0	99	79-129		
2-Hexanone		49.8		ug/l	50.0	100	66-142		
Dibromochloromethane		54.8		ug/l	50.0	110	83-132		
1,2-Dibromoethane (EDB)		49.8		ug/l	50.0	100	85-123		
Chlorobenzene		42.1		ug/l	50.0	84	82-114		
1,1,1,2-Tetrachloroethane		46.8		ug/l	50.0	94	83-118		
Ethylbenzene		43.8		ug/l	50.0	88	76-131		
m,p-Xylene		45.2		ug/l	50.0	90	80-126		
o-Xylene		47.2		ug/l	50.0	94	84-121		
Styrene		46.8		ug/l	50.0	94	87-126		
Bromoform		44.0		ug/l	50.0	88	72-129		
Isopropylbenzene		42.8		ug/l	50.0	86	81-119		
1,1,2,2-Tetrachloroethane		43.5		ug/l	50.0	87	72-116		

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

LCS (W4J0999-BS1) — **Prepared: 10/21/14 Analyzed: 10/21/14 12:26**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Bromobenzene		42.8		ug/l	50.0	86	80-112		
1,2,3-Trichloropropane		43.1		ug/l	50.0	86	72-117		
n-Propylbenzene		42.6		ug/l	50.0	85	78-123		
2-Chlorotoluene		42.8		ug/l	50.0	86	76-125		
4-Chlorotoluene		44.1		ug/l	50.0	88	74-125		
1,3,5-Trimethylbenzene		44.4		ug/l	50.0	89	81-119		
tert-Butylbenzene		43.6		ug/l	50.0	87	81-120		
1,2,4-Trimethylbenzene		44.8		ug/l	50.0	90	83-119		
sec-Butylbenzene		43.7		ug/l	50.0	87	83-118		
m-Dichlorobenzene		43.8		ug/l	50.0	88	79-119		
p-Dichlorobenzene		42.1		ug/l	50.0	84	80-117		
p-Isopropyltoluene		44.9		ug/l	50.0	90	82-126		
o-Dichlorobenzene		44.6		ug/l	50.0	89	80-117		
n-Butylbenzene		44.9		ug/l	50.0	90	79-121		
1,2-Dibromo-3-chloropropane		46.8		ug/l	50.0	94	67-126		
1,2,4-Trichlorobenzene		44.8		ug/l	50.0	90	70-131		
Hexachlorobutadiene		43.6		ug/l	50.0	87	71-124		
Naphthalene		49.4		ug/l	50.0	99	64-145		
1,2,3-Trichlorobenzene		46.8		ug/l	50.0	94	70-134		
Carbon Disulfide		54.7		ug/l	50.0	109	76-124		

LCS Dup (W4J0999-BSD1) — **Prepared: 10/21/14 Analyzed: 10/21/14 12:57**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane		*47.9*		ug/l	*50.0*	*96*	*89-120*		
Surrogate: 1,2-Dichloroethane-d4		*47.4*		ug/l	*50.0*	*95*	*86-126*		
Surrogate: Toluene-d8		*50.2*		ug/l	*50.0*	*100*	*91-111*		
Surrogate: 4-Bromofluorobenzene		*51.8*		ug/l	*50.0*	*104*	*80-112*		
Dichlorodifluoromethane (Freon 12)		46.2		ug/l	50.0	92	65-119	5	25
Chloromethane		54.4		ug/l	50.0	109	59-120	2	25
Vinyl chloride		50.0		ug/l	50.0	100	66-124	0.6	25
Bromomethane		58.8		ug/l	50.0	118	52-144	1	25
Chloroethane		51.1		ug/l	50.0	102	68-127	2	25
Acrolein		58.5		ug/l	50.0	117	40-158	3	25
Trichlorofluoromethane		53.8		ug/l	50.0	108	71-131	7	25
Acetone		56.9		ug/l	50.0	114	58-147	3	25
1,1-Dichloroethene		53.5		ug/l	50.0	107	76-130	7	25
Methylene chloride		55.6		ug/l	50.0	111	78-115	2	25
Acrylonitrile		47.9		ug/l	50.0	96	67-131	2	25
trans-1,2-Dichloroethene		52.4		ug/l	50.0	105	83-121	6	25
Methyl tert-butyl ether (MTBE)		46.1		ug/l	50.0	92	79-131	12	25
1,1-Dichloroethane		46.2		ug/l	50.0	92	83-114	2	25
2,2-Dichloropropane		49.2		ug/l	50.0	98	73-131	7	25
cis-1,2-Dichloroethene		50.0		ug/l	50.0	100	80-126	5	25
2-Butanone		42.9		ug/l	50.0	86	66-134	2	25

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

LCS Dup (W4J0999-BSD1) **Prepared: 10/21/14 Analyzed: 10/21/14 12:57**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Bromochloromethane		55.0		ug/l	50.0	110	79-117	1	25
Chloroform		48.1		ug/l	50.0	96	83-118	3	25
1,1,1-Trichloroethane		51.3		ug/l	50.0	103	82-123	2	25
Carbon tetrachloride		47.0		ug/l	50.0	94	77-134	1	25
1,1-Dichloropropene		44.2		ug/l	50.0	88	82-128	5	25
Benzene		44.4		ug/l	50.0	89	80-117	3	25
1,2-Dichloroethane		51.8		ug/l	50.0	104	79-117	5	25
Trichloroethene		45.4		ug/l	50.0	91	81-121	4	25
1,2-Dichloropropane		45.5		ug/l	50.0	91	79-124	1	25
Dibromomethane		54.6		ug/l	50.0	109	80-122	3	25
Bromodichloromethane		52.6		ug/l	50.0	105	83-132	3	25
2-Chloroethyl vinyl ether		33.6		ug/l	50.0	67	55-141	2	25
cis-1,3-Dichloropropene		53.6		ug/l	50.0	107	84-130	0.1	25
4-Methyl-2-pentanone		50.8		ug/l	50.0	102	68-139	2	25
Toluene		45.7		ug/l	50.0	91	82-122	4	25
trans-1,3-Dichloropropene		47.7		ug/l	50.0	95	82-137	2	25
1,1,2-Trichloroethane		47.7		ug/l	50.0	95	84-118	2	25
Tetrachloroethene		45.9		ug/l	50.0	92	79-126	5	25
1,3-Dichloropropane		48.0		ug/l	50.0	96	79-129	3	25
2-Hexanone		47.3		ug/l	50.0	95	66-142	5	25
Dibromochloromethane		53.9		ug/l	50.0	108	83-132	2	25
1,2-Dibromoethane (EDB)		49.0		ug/l	50.0	98	85-123	2	25
Chlorobenzene		41.1		ug/l	50.0	82	82-114	2	25
1,1,1,2-Tetrachloroethane		46.1		ug/l	50.0	92	83-118	2	25
Ethylbenzene		42.1		ug/l	50.0	84	76-131	4	25
m,p-Xylene		43.3		ug/l	50.0	87	80-126	4	25
o-Xylene		45.2		ug/l	50.0	90	84-121	4	25
Styrene		45.0		ug/l	50.0	90	87-126	4	25
Bromoform		43.2		ug/l	50.0	86	72-129	2	25
Isopropylbenzene		42.0		ug/l	50.0	84	81-119	2	25
1,1,2,2-Tetrachloroethane		42.6		ug/l	50.0	85	72-116	2	25
Bromobenzene		42.2		ug/l	50.0	84	80-112	2	25
1,2,3-Trichloropropane		43.1		ug/l	50.0	86	72-117	0.1	25
n-Propylbenzene		41.3		ug/l	50.0	83	78-123	3	25
2-Chlorotoluene		42.0		ug/l	50.0	84	76-125	2	25
4-Chlorotoluene		43.0		ug/l	50.0	86	74-125	2	25
1,3,5-Trimethylbenzene		43.3		ug/l	50.0	87	81-119	3	25
tert-Butylbenzene		42.9		ug/l	50.0	86	81-120	2	25
1,2,4-Trimethylbenzene		43.8		ug/l	50.0	88	83-119	2	25
m-Dichlorobenzene		42.6		ug/l	50.0	85	79-119	3	25
sec-Butylbenzene		42.5		ug/l	50.0	85	83-118	3	25
p-Isopropyltoluene		43.6		ug/l	50.0	87	82-126	3	25
p-Dichlorobenzene		41.7		ug/l	50.0	83	80-117	0.9	25
o-Dichlorobenzene		43.4		ug/l	50.0	87	80-117	3	25

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

LCS Dup (W4J0999-BSD1) — **Prepared: 10/21/14 Analyzed: 10/21/14 12:57**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
n-Butylbenzene		43.9		ug/l	50.0	88	79-121	2	25
1,2-Dibromo-3-chloropropane		47.3		ug/l	50.0	95	67-126	1	25
1,2,4-Trichlorobenzene		44.7		ug/l	50.0	89	70-131	0.2	25
Hexachlorobutadiene		43.8		ug/l	50.0	88	71-124	0.6	25
Naphthalene		49.6		ug/l	50.0	99	64-145	0.4	25
1,2,3-Trichlorobenzene		46.6		ug/l	50.0	93	70-134	0.3	25
Carbon Disulfide		51.3		ug/l	50.0	103	76-124	6	25

Matrix Spike (W4J0999-MS1) — **Source: 4J17030-01** — **Prepared: 10/21/14 Analyzed: 10/22/14 09:24**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane		*50.2*		ug/l	*50.0*	*100*	*89-120*		
Surrogate: 1,2-Dichloroethane-d4		*53.1*		ug/l	*50.0*	*106*	*86-126*		
Surrogate: Toluene-d8		*51.3*		ug/l	*50.0*	*103*	*91-111*		
Surrogate: 4-Bromofluorobenzene		*51.9*		ug/l	*50.0*	*104*	*80-112*		
Dichlorodifluoromethane (Freon 12)	ND	59.1		ug/l	50.0	118	72-124		
Chloromethane	ND	70.5	MS-05	ug/l	50.0	141	65-123		
Vinyl chloride	ND	63.3		ug/l	50.0	127	73-131		
Bromomethane	ND	85.2	MS-05	ug/l	50.0	170	41-155		
Chloroethane	ND	67.0		ug/l	50.0	134	69-134		
Acrolein	ND	61.0		ug/l	50.0	122	0.1-178		
Trichlorofluoromethane	ND	69.4		ug/l	50.0	139	73-139		
Acetone	ND	70.1		ug/l	50.0	140	29-151		
1,1-Dichloroethene	ND	67.9		ug/l	50.0	136	64-140		
Methylene chloride	ND	64.8	MS-05	ug/l	50.0	130	75-118		
Acrylonitrile	ND	54.0		ug/l	50.0	108	62-129		
trans-1,2-Dichloroethene	ND	63.9	MS-05	ug/l	50.0	128	80-123		
Methyl tert-butyl ether (MTBE)	ND	47.4		ug/l	50.0	95	73-130		
1,1-Dichloroethane	ND	15.3	MS-05	ug/l	50.0	31	83-118		
2,2-Dichloropropane	ND	65.8		ug/l	50.0	132	59-139		
cis-1,2-Dichloroethene	ND	57.2		ug/l	50.0	114	80-123		
2-Butanone	ND	47.1		ug/l	50.0	94	52-134		
Bromochloromethane	ND	60.6		ug/l	50.0	121	74-121		
Chloroform	ND	54.0		ug/l	50.0	108	78-123		
1,1,1-Trichloroethane	ND	60.4		ug/l	50.0	121	77-132		
Carbon tetrachloride	ND	55.2		ug/l	50.0	110	73-145		
1,1-Dichloropropene	ND	51.9		ug/l	50.0	104	78-134		
Benzene	ND	48.8		ug/l	50.0	98	74-114		
1,2-Dichloroethane	ND	57.7		ug/l	50.0	115	70-125		
Trichloroethene	ND	51.1		ug/l	50.0	102	79-126		
1,2-Dichloropropane	ND	48.9		ug/l	50.0	98	77-121		
Dibromomethane	ND	59.4		ug/l	50.0	119	74-124		
Bromodichloromethane	ND	57.0		ug/l	50.0	114	79-132		
2-Chloroethyl vinyl ether	ND	ND	MS-05	ug/l	50.0	NR	0.1-167		
cis-1,3-Dichloropropene	ND	57.0		ug/l	50.0	114	74-127		

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

Matrix Spike (W4J0999-MS1) **Source: 4J17030-01** **Prepared: 10/21/14** **Analyzed: 10/22/14 09:24**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
4-Methyl-2-pentanone	ND	62.6		ug/l	50.0	125	59-144		
Toluene	ND	51.2		ug/l	50.0	102	79-123		
trans-1,3-Dichloropropene	ND	51.0		ug/l	50.0	102	76-130		
1,1,2-Trichloroethane	ND	51.1		ug/l	50.0	102	77-124		
Tetrachloroethene	ND	51.8		ug/l	50.0	104	80-129		
1,3-Dichloropropane	ND	51.7		ug/l	50.0	103	79-122		
2-Hexanone	ND	59.4		ug/l	50.0	119	54-144		
Dibromochloromethane	ND	57.5		ug/l	50.0	115	79-132		
1,2-Dibromoethane (EDB)	ND	52.6		ug/l	50.0	105	78-124		
Chlorobenzene	ND	42.7		ug/l	50.0	85	78-115		
1,1,1,2-Tetrachloroethane	ND	47.5		ug/l	50.0	95	80-119		
Ethylbenzene	ND	45.0		ug/l	50.0	90	75-123		
m,p-Xylene	ND	46.2		ug/l	50.0	92	76-124		
o-Xylene	ND	47.5		ug/l	50.0	95	76-123		
Styrene	ND	46.7		ug/l	50.0	93	73-124		
Bromoform	ND	46.0		ug/l	50.0	92	78-133		
Isopropylbenzene	ND	45.8		ug/l	50.0	92	74-125		
1,1,2,2-Tetrachloroethane	ND	45.5		ug/l	50.0	91	59-119		
Bromobenzene	ND	44.2		ug/l	50.0	88	74-111		
1,2,3-Trichloropropane	ND	45.6		ug/l	50.0	91	54-133		
n-Propylbenzene	ND	45.0		ug/l	50.0	90	73-124		
2-Chlorotoluene	ND	44.0		ug/l	50.0	88	76-125		
4-Chlorotoluene	ND	45.5		ug/l	50.0	91	72-120		
1,3,5-Trimethylbenzene	ND	45.8		ug/l	50.0	92	77-120		
tert-Butylbenzene	ND	46.8		ug/l	50.0	94	76-124		
1,2,4-Trimethylbenzene	ND	46.4		ug/l	50.0	93	76-120		
sec-Butylbenzene	ND	47.4		ug/l	50.0	95	75-125		
m-Dichlorobenzene	ND	44.1		ug/l	50.0	88	74-113		
p-Dichlorobenzene	ND	43.1		ug/l	50.0	86	74-117		
p-Isopropyltoluene	ND	47.6		ug/l	50.0	95	76-124		
o-Dichlorobenzene	ND	45.0		ug/l	50.0	90	73-115		
n-Butylbenzene	ND	48.6		ug/l	50.0	97	70-124		
1,2-Dibromo-3-chloropropane	ND	53.9		ug/l	50.0	108	52-131		
1,2,4-Trichlorobenzene	ND	46.4		ug/l	50.0	93	57-127		
Hexachlorobutadiene	ND	49.2		ug/l	50.0	98	68-119		
Naphthalene	ND	49.8		ug/l	50.0	100	48-143		
1,2,3-Trichlorobenzene	ND	47.9		ug/l	50.0	96	55-135		
Carbon Disulfide	ND	63.6	MS-05	ug/l	50.0	127	72-125		

Matrix Spike Dup (W4J0999-MSD1) **Source: 4J17030-01** **Prepared: 10/21/14** **Analyzed: 10/22/14 09:53**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane		*49.2*		ug/l	*50.0*	*98*	*89-120*		
Surrogate: 1,2-Dichloroethane-d4		*49.5*		ug/l	*50.0*	*99*	*86-126*		
Surrogate: Toluene-d8		*51.0*		ug/l	*50.0*	*102*	*91-111*		

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

Matrix Spike Dup (W4J0999-MSD1) **Source: 4J17030-01** **Prepared: 10/21/14** **Analyzed: 10/22/14 09:53**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 4-Bromofluorobenzene		*52.6*		ug/l	*50.0*	*105*	*80-112*		
Dichlorodifluoromethane (Freon 12)	ND	55.8		ug/l	50.0	112	72-124	6	25
Chloromethane	ND	71.2	MS-05	ug/l	50.0	142	65-123	0.9	25
Vinyl chloride	ND	60.1		ug/l	50.0	120	73-131	5	25
Bromomethane	ND	79.4	MS-05	ug/l	50.0	159	41-155	7	25
Chloroethane	ND	62.8		ug/l	50.0	126	69-134	7	25
Acrolein	ND	49.7		ug/l	50.0	99	0.1-178	20	25
Trichlorofluoromethane	ND	64.5		ug/l	50.0	129	73-139	7	25
Acetone	ND	58.8		ug/l	50.0	118	29-151	18	25
1,1-Dichloroethene	ND	62.4		ug/l	50.0	125	64-140	8	25
Methylene chloride	ND	57.8		ug/l	50.0	116	75-118	11	25
Acrylonitrile	ND	47.8		ug/l	50.0	96	62-129	12	25
trans-1,2-Dichloroethene	ND	60.2		ug/l	50.0	120	80-123	6	25
Methyl tert-butyl ether (MTBE)	ND	47.8		ug/l	50.0	96	73-130	0.7	25
1,1-Dichloroethane	ND	49.7	MS-05	ug/l	50.0	99	83-118	106	25
2,2-Dichloropropane	ND	60.1		ug/l	50.0	120	59-139	9	25
cis-1,2-Dichloroethene	ND	54.2		ug/l	50.0	108	80-123	5	25
2-Butanone	ND	43.2		ug/l	50.0	86	52-134	9	25
Bromochloromethane	ND	58.5		ug/l	50.0	117	74-121	4	25
Chloroform	ND	51.9		ug/l	50.0	104	78-123	4	25
1,1,1-Trichloroethane	ND	56.8		ug/l	50.0	114	77-132	6	25
Carbon tetrachloride	ND	54.2		ug/l	50.0	108	73-145	2	25
1,1-Dichloropropene	ND	50.2		ug/l	50.0	100	78-134	3	25
Benzene	ND	47.7		ug/l	50.0	95	74-114	2	25
1,2-Dichloroethane	ND	53.6		ug/l	50.0	107	70-125	7	25
Trichloroethene	ND	49.5		ug/l	50.0	99	79-126	3	25
1,2-Dichloropropane	ND	47.4		ug/l	50.0	95	77-121	3	25
Dibromomethane	ND	55.2		ug/l	50.0	110	74-124	7	25
Bromodichloromethane	ND	54.2		ug/l	50.0	108	79-132	5	25
2-Chloroethyl vinyl ether	ND	ND	MS-05	ug/l	50.0	NR	0.1-167		
cis-1,3-Dichloropropene	ND	57.2		ug/l	50.0	114	74-127	0.4	25
4-Methyl-2-pentanone	ND	56.0		ug/l	50.0	112	59-144	11	25
Toluene	ND	49.5		ug/l	50.0	99	79-123	3	25
trans-1,3-Dichloropropene	ND	50.9		ug/l	50.0	102	76-130	0.2	25
1,1,2-Trichloroethane	ND	47.9		ug/l	50.0	96	77-124	6	25
Tetrachloroethene	ND	50.4		ug/l	50.0	101	80-129	3	25
1,3-Dichloropropane	ND	48.4		ug/l	50.0	97	79-122	7	25
2-Hexanone	ND	52.4		ug/l	50.0	105	54-144	13	25
Dibromochloromethane	ND	54.8		ug/l	50.0	110	79-132	5	25
1,2-Dibromoethane (EDB)	ND	50.2		ug/l	50.0	100	78-124	5	25
Chlorobenzene	ND	43.3		ug/l	50.0	87	78-115	1	25
1,1,1,2-Tetrachloroethane	ND	47.8		ug/l	50.0	96	80-119	0.5	25
Ethylbenzene	ND	45.4		ug/l	50.0	91	75-123	0.8	25
m,p-Xylene	ND	46.3		ug/l	50.0	93	76-124	0.3	25

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0999 - EPA 8260B

Matrix Spike Dup (W4J0999-MSD1) **Source: 4J17030-01** **Prepared: 10/21/14** **Analyzed: 10/22/14 09:53**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
o-Xylene	ND	47.5		ug/l	50.0	95	76-123	0.02	25
Styrene	ND	46.8		ug/l	50.0	94	73-124	0.2	25
Bromoform	ND	44.1		ug/l	50.0	88	78-133	4	25
Isopropylbenzene	ND	45.8		ug/l	50.0	92	74-125	0.02	25
1,1,2,2-Tetrachloroethane	ND	44.1		ug/l	50.0	88	59-119	3	25
Bromobenzene	ND	43.8		ug/l	50.0	88	74-111	1	25
1,2,3-Trichloropropane	ND	43.7		ug/l	50.0	87	54-133	4	25
n-Propylbenzene	ND	44.7		ug/l	50.0	89	73-124	0.6	25
2-Chlorotoluene	ND	44.0		ug/l	50.0	88	76-125	0.02	25
4-Chlorotoluene	ND	45.6		ug/l	50.0	91	72-120	0.1	25
1,3,5-Trimethylbenzene	ND	46.3		ug/l	50.0	93	77-120	1	25
tert-Butylbenzene	ND	46.5		ug/l	50.0	93	76-124	0.5	25
1,2,4-Trimethylbenzene	ND	46.4		ug/l	50.0	93	76-120	0.02	25
m-Dichlorobenzene	ND	44.8		ug/l	50.0	90	74-113	2	25
sec-Butylbenzene	ND	47.3		ug/l	50.0	95	75-125	0.1	25
p-Dichlorobenzene	ND	43.3		ug/l	50.0	87	74-117	0.5	25
p-Isopropyltoluene	ND	47.9		ug/l	50.0	96	76-124	0.7	25
o-Dichlorobenzene	ND	44.3		ug/l	50.0	89	73-115	2	25
n-Butylbenzene	ND	48.0		ug/l	50.0	96	70-124	1	25
1,2-Dibromo-3-chloropropane	ND	48.8		ug/l	50.0	98	52-131	10	25
1,2,4-Trichlorobenzene	ND	45.2		ug/l	50.0	90	57-127	3	25
Hexachlorobutadiene	ND	49.5		ug/l	50.0	99	68-119	0.6	25
Naphthalene	ND	47.2		ug/l	50.0	94	48-143	5	25
1,2,3-Trichlorobenzene	ND	45.9		ug/l	50.0	92	55-135	4	25
Carbon Disulfide	ND	58.5		ug/l	50.0	117	72-125	8	25

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Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature
Contact: Kim G Tu
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC # 04229CA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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STANDARD 4J17030

CLIENT NAME: **CalEnergy Operating Corporation**	PROJECT: DVC 5 Year Source Test
ADDRESS: **7030 Gentry Road, Calipatria, CA 92233**	PHONE: **760-348-4241** FAX: EMAIL: antonio.campos@calenergy.com
PROJECT MANAGER **Stella Minaev**	SAMPLER: Katherine West/Antonio Campos

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	EPA 8260B - VOC	COMMENTS
	10/16/14	7:45 AM	GW	DVC Monitoring Well GW12	3	X	resampled
	10/16/14	8:10 AM	GW	DVC Monitoring Well GW01	3	X	resampled
	10/16/14	8:25 AM	GW	DVC Monitoring Well GW305	3	X	resampled

COMMENTS: Under Ice

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	10/16/14 17:21	
	10/16/14 1200	10/17/14 10:00

SAMPLE CONDITION:
Actual Temperature: 27°C

Received On Ice	Y	N
Preserved	Y	N
Evidence Seals Present	Y	N
Container Attacked	Y	N
Preserved at Lab	Y	N

SAMPLE TYPE CODE:
AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION
Please send invoices to payables@calenergy.com **P.O# 210007**

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Success Through Science®

Your Project #: 4J02013
Your C.O.C. #: na

Attention:Kim G Tu

Weck Laboratories Inc
14859 East Clark Ave
Industry, CA
USA 91745

Report Date: 2014/10/16
Report #: R3190599
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4I4435
Received: 2014/10/03, 12:19

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
2,3,7,8-TCDD in Water (1613B)	3	2014/10/07	2014/10/14	BRL SOP-00410	EPA 1613B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Ivana Vukovic
17 Oct 2014 10:55:27 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ivana Vukovic, Env Project Manager
Email: IVukovic@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B4I4435
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J02013

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XV8834							
Sampling Date		2014/10/01 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J02013-01	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.5 U	1.5	4.3	N/A	1.00	1.50	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.50	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	59	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	59	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

Maxxam ID		XV8835							
Sampling Date		2014/10/01 08:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J02013-02	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.3 U	1.3	4.3	N/A	1.00	1.30	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.30	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	58	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	59	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B4I4435
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J02013

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XV8836							
Sampling Date		2014/10/01 10:13							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J02013-03	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.6 U	1.6	4.2	N/A	1.00	1.60	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.60	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	63	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	64	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B4I4435
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J02013

TEST SUMMARY

Maxxam ID: XV8834
Sample ID: 4J02013-01
Matrix: Water

Collected: 2014/10/01
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

Maxxam ID: XV8835
Sample ID: 4J02013-02
Matrix: Water

Collected: 2014/10/01
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

Maxxam ID: XV8836
Sample ID: 4J02013-03
Matrix: Water

Collected: 2014/10/01
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4I4435
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J02013

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.2°C

Results relate only to the items tested.

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Maxxam Job #: B4I4435
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J02013

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	Units	QC Limits
3783563	VCI	Spiked Blank	2,3,7,8-Tetra CDD	2014/10/15		88	%	67 - 158
			37CL4 2378 Tetra CDD	2014/10/15		50	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		50	%	24 - 164
3783563	VCI	Method Blank	2,3,7,8-Tetra CDD	2014/10/15	2.3 U, EDL=2.3		pg/L	
			37CL4 2378 Tetra CDD	2014/10/15		66	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		64	%	24 - 164

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Maxxam Job #: B4I4435
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Weck Laboratories Inc
Client Project #: 4J02013

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Kay Shaw

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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SUBCONTRACT ORDER

Subcontract Laboratory:
Maxxam Analytics, Inc. - Burlington
7070 Mississauga Road Suite #240
Mississauga-Ontario, CANADA L5N 7G2
Phone :(800) 668-0639
Fax: (905) 817-5775

Turn Around Time: Normal
Project Manager: Kim G Tu
Sampler Employed by: _____

Sample ID: 4J02013-01 **Sample ID:** DVC Monitoring Well GW01 **Matrix:** Water **Date Sampled:** 10-01-14 **Time Sampled:**09:15
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10-01-15 09:15	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J02013-02 **Sample ID:** DVC Monitoring Well GW12 **Matrix:** Water **Date Sampled:** 10-01-14 **Time Sampled:**08:15
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10-01-15 08:15	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J02013-03 **Sample ID:** DVC Monitoring Well GW305 **Matrix:** Water **Date Sampled:** 10-01-14 **Time Sampled:**10:13
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD_w SU	10-01-15 10:13	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

3-Oct-14 12:19
Ivana Vukovic
B414435
M_P ENV-809

Remarks / Special Comments:

Sample Condition:
Temperature: _____
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By: [signature] Date / Time: 10/2/14 13:30 Received By: [signature] Date / Time:

Relinquished by: [signature] Date / Time: Received By: SHRUTI PATEL Date / Time: 2014/10/03 12:19

5.4/5.0/5-1

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CERTIFICATE OF ANALYSIS

Client:	CalEnergy Corporation 7030 Gentry Rd. Calipatria CA, 92233	**Report Date:**	11/07/14 13:31
		Received Date:	10/01/14 10:15
		Turn Around:	Normal
Attention:	Stella Minaev	**Client Project:**	DVC 5 Year
Phone:	(760) 348-4439		
Fax:	(760) 348-4222	**PO Number:**	210007
Work Order(s):	4J01076		

NELAP #04229CA ELAP#1132 NEVADA #CA211 HAWAII LACSD #10143

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Weck Laboratories, Inc. certifies that the test results meet all NELAC requirements unless noted in the case narrative. This analytical report is confidential and is only intended for the use of Weck Laboratories, Inc. and its client. This report contains the Chain of Custody document, which is an integral part of it, and can only be reproduced in full with the authorization of Weck Laboratories, Inc.

Dear Stella Minaev :

Enclosed are the results of analyses for samples received 10/01/14 10:15 with the Chain of Custody document. The samples were received in good condition, at 1.4 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Case Narrative:

Reviewed by:

Kim G Tu
Project Manager

CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Sampled by:	Sample Comments	Lab ID	Matrix	Date Sampled
DVC Monitoring Well GW09A	Katherine West		4J01076-01	Water	09/30/14 08:55
DVC Monitoring Well GW10A	Katherine West		4J01076-02	Water	09/30/14 07:50
DVC Monitoring Well GW11	Katherine West		4J01076-03	Water	09/30/14 09:45

ANALYSES

Anions by IC, EPA Method 9056
Chlorinated Herbicides
Chlorinated Pesticides and/or PCBs
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods
EPA 1613B m
Metals (Aqueous) by EPA 6000/7000 Series Methods
Polychlorinated Biphenyls by EPA Method 8082
Semivolatile Organic Compounds by GC/MS
Subcontracted Analyses
Volatile Organic Compounds by EPA Method 8260B

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 DVC Monitoring Well GW09A

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	ND	0.50	mg/l	5	10/03/14 02:59	M-05

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0005 Prepared: 10/01/14 08:15 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/08/14 22:40	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/08/14 22:40	
2,4-D	ND		0.50	ug/l	1	10/08/14 22:40	
2,4-DB	ND		2.5	ug/l	1	10/08/14 22:40	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/08/14 22:40	
4-Nitrophenol	ND		1.2	ug/l	1	10/08/14 22:40	
Acifluorfen	ND		0.50	ug/l	1	10/08/14 22:40	
Bentazon	ND		2.5	ug/l	1	10/08/14 22:40	
Dalapon	ND		0.50	ug/l	1	10/08/14 22:40	
DCPA	ND		0.25	ug/l	1	10/08/14 22:40	
Dicamba	ND		0.75	ug/l	1	10/08/14 22:40	
Dichloroprop	ND		1.0	ug/l	1	10/08/14 22:40	
Dinoseb	ND		0.50	ug/l	1	10/08/14 22:40	
MCPA	ND		100	ug/l	1	10/08/14 22:40	
MCPP	ND		100	ug/l	1	10/08/14 22:40	
Pentachlorophenol	ND		0.25	ug/l	1	10/08/14 22:40	
Picloram	ND		0.75	ug/l	1	10/08/14 22:40	
Surr: 2,4-DCAA	*70 %*	Conc:*13.3*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 00:45	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 00:45	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 00:45	
Aldrin	ND	0.050	ug/l	1	10/10/14 00:45	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 00:45	
beta-BHC	ND	0.050	ug/l	1	10/10/14 00:45	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 00:45	
delta-BHC	ND	0.050	ug/l	1	10/10/14 00:45	
Dieldrin	ND	0.050	ug/l	1	10/10/14 00:45	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 00:45	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 00:45	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 00:45	
Endrin	ND	0.050	ug/l	1	10/10/14 00:45	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 00:45	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 00:45	
Heptachlor	ND		0.050	ug/l	1	10/10/14 00:45	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 00:45	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 00:45	
Toxaphene	ND		2.0	ug/l	1	10/10/14 00:45	
Surr: Decachlorobiphenyl	*65 %*	Conc:*0.310*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*96 %*	Conc:*0.456*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0086 Prepared: 10/02/14 08:08 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/02/14 14:44	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0089 Prepared: 10/02/14 08:27 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**8400**	10	mg/l	1	10/02/14 11:10	

Method: SM 4500H+-B Batch: W4J0108 Prepared: 10/02/14 10:25 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.00**	0.10	Units	1	10/02/14 11:08	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.1	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*62 %*	Conc:*124*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*61 %*	Conc:*122*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:02	
Arsenic, Total	**0.012**	0.010	mg/l	1	10/03/14 15:02	
Barium, Total	**0.029**	0.010	mg/l	1	10/03/14 15:02	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:02	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:02	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Molybdenum, Total	**0.024**	0.010	mg/l	1	10/03/14 15:02	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:02	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:02	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:02	
Vanadium, Total	ND	0.010	mg/l	1	10/03/14 15:02	
Zinc, Total	ND	0.050	mg/l	1	10/03/14 15:02	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:40	

Method: EPA 7470A Batch: W4J0103 Prepared: 10/02/14 10:03 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/02/14 17:25	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 00:45	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 00:45	
Surr: Decachlorobiphenyl	*59 %*	Conc:*0.281*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*85 %*	Conc:*0.404*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 19:14	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:14	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 19:14	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 19:14	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 19:14	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 19:14	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 19:14	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 19:14	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 19:14	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 19:14	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 19:14	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 19:14	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 19:14	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 19:14	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 19:14	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 19:14	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 19:14	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:14	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 19:14	
2-Picoline	ND	10	ug/l	1	11/03/14 13:10	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 19:14	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 19:14	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 19:14	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 19:14	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:14	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 19:14	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 19:14	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 19:14	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 19:14	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 19:14	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 19:14	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 19:14	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 19:14	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 19:14	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:14	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 19:14	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 19:14	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 19:14	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 19:14	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 19:14	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 19:14	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 19:14	
Acetophenone	ND	10	ug/l	1	10/07/14 19:14	
Aldrin	ND	5.0	ug/l	1	10/07/14 19:14	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 19:14	
Aniline	ND	1.0	ug/l	1	10/07/14 19:14	
Anthracene	ND	1.0	ug/l	1	10/07/14 19:14	
Aramite	ND	10	ug/l	1	11/03/14 13:10	
Benzidine	ND	10	ug/l	1	10/07/14 19:14	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 19:14	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 19:14	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 19:14	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 19:14	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 19:14	
Benzoic acid	ND	100	ug/l	1	10/07/14 19:14	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 19:14	
beta-BHC	ND	5.0	ug/l	1	10/07/14 19:14	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 19:14	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 19:14	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 19:14	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 19:14	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 19:14	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 19:14	
Chrysene	ND	1.0	ug/l	1	10/07/14 19:14	
delta-BHC	ND	5.0	ug/l	1	10/07/14 19:14	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 19:14	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 19:14	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 19:14	
Dieldrin	ND	5.0	ug/l	1	10/07/14 19:14	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 19:14	
Dimethoate	ND	10	ug/l	1	10/07/14 19:14	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 19:14	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 19:14	

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CalEnergy Corporation
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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 19:14	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 19:14	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 19:14	
Disulfoton	ND	10	ug/l	1	10/07/14 19:14	
Endosulfan I	ND	10	ug/l	1	10/07/14 19:14	
Endosulfan II	ND	10	ug/l	1	10/07/14 19:14	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 19:14	
Endrin	ND	5.0	ug/l	1	10/07/14 19:14	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 19:14	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 19:14	
Famphur	ND	10	ug/l	1	10/07/14 19:14	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 19:14	
Fluorene	ND	1.0	ug/l	1	10/07/14 19:14	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 19:14	
Heptachlor	ND	5.0	ug/l	1	10/07/14 19:14	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 19:14	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 19:14	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 19:14	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 19:14	
Hexachlorophene	ND	50	ug/l	1	11/03/14 13:10	
Hexachloropropene	ND	10	ug/l	1	10/07/14 19:14	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 19:14	
Isodrin	ND	10	ug/l	1	10/07/14 19:14	
Isophorone	ND	1.0	ug/l	1	10/07/14 19:14	
Isosafrole	ND	10	ug/l	1	10/07/14 19:14	
Kepone	ND	50	ug/l	1	10/07/14 19:14	
Methapyrilene	ND	50	ug/l	1	10/07/14 19:14	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 19:14	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 19:14	
Methyl parathion	ND	10	ug/l	1	10/07/14 19:14	
Naphthalene	ND	1.0	ug/l	1	10/07/14 19:14	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 19:14	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 19:14	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 19:14	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 19:14	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 19:14	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/07/14 19:14	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/07/14 19:14	
N-Nitrosomorpholine	ND	10	ug/l	1	10/07/14 19:14	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 19:14	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 19:14	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 19:14	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 19:14	
o-Toluidine	ND		10	ug/l	1	10/07/14 19:14	
Parathion	ND		10	ug/l	1	10/07/14 19:14	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 19:14	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 19:14	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 19:14	
Phenacetin	ND		10	ug/l	1	10/07/14 19:14	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 19:14	
Phenol	ND		1.0	ug/l	1	10/07/14 19:14	
Phorate	ND		10	ug/l	1	10/07/14 19:14	
Pronamide	ND		10	ug/l	1	10/07/14 19:14	
Pyrene	ND		1.0	ug/l	1	10/07/14 19:14	
Pyridine	ND		5.0	ug/l	1	10/07/14 19:14	
Safrole	ND		10	ug/l	1	10/07/14 19:14	
Surr: 2,4,6-Tribromophenol	*84 %*	Conc:*40.1*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*83 %*	Conc:*19.8*	*28-100*	%			
Surr: 2-Fluorophenol	*45 %*	Conc:*21.3*	*5-76*	%			
Surr: Nitrobenzene-d5	*77 %*	Conc:*18.4*	*34-104*	%			
Surr: Phenol-d5	*28 %*	Conc:*13.2*	*0.1-57*	%			
Surr: Terphenyl-d14	*91 %*	Conc:*21.8*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1-Dichloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1-Dichloroethene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,1-Dichloropropene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,2-Dichloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
1,3-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
2,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
2-Butanone	ND	5.0	ug/l	1	10/08/14 09:24	O-04
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/08/14 09:24	O-04
2-Hexanone	ND	5.0	ug/l	1	10/08/14 09:24	O-04
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/08/14 09:24	O-04
Acetone	ND	5.0	ug/l	1	10/08/14 09:24	O-04
Acetonitrile	ND	5.0	ug/l	1	10/07/14 01:32	
Acrolein	ND	5.0	ug/l	1	10/08/14 09:24	O-04
Acrylonitrile	ND	5.0	ug/l	1	10/08/14 09:24	O-04
Allyl chloride	ND	1.0	ug/l	1	10/07/14 01:32	
Benzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Bromochloromethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Bromodichloromethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Bromoform	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Bromomethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Carbon Disulfide	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Carbon tetrachloride	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Chlorobenzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Chloroethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Chloroform	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Chloromethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Chloroprene	ND	1.0	ug/l	1	10/07/14 01:32	
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Dibromochloromethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Dibromomethane	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Ethyl methacrylate	ND	1.0	ug/l	1	10/07/14 01:32	
Ethylbenzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Hexachlorobutadiene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Iodomethane	ND	1.0	ug/l	1	10/07/14 01:32	
Isobutanol	ND	5.0	ug/l	1	10/07/14 01:32	
m,p-Xylene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
m-Dichlorobenzene	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Methacrylonitrile	ND	5.0	ug/l	1	10/07/14 01:32	
Methyl methacrylate	ND	1.0	ug/l	1	10/07/14 01:32	
Methylene chloride	ND	1.0	ug/l	1	10/08/14 09:24	O-04
Naphthalene	ND	1.0	ug/l	1	10/08/14 09:24	O-04

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Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-01 **DVC Monitoring Well GW09A**

Sampled: 09/30/14 08:55 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
o-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
o-Xylene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
p-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Propionitrile	ND		5.0	ug/l	1	10/07/14 01:32	
sec-Butylbenzene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Styrene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Tetrachloroethene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Toluene	**3.8**		1.0	ug/l	1	10/08/14 09:24	O-04
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/07/14 01:32	
Trichloroethene	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Trichlorofluoromethane	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Vinyl acetate	ND		1.0	ug/l	1	10/07/14 01:32	
Vinyl chloride	ND		1.0	ug/l	1	10/08/14 09:24	O-04
Surr: 1,2-Dichloroethane-d4	*104 %*	Conc:*52.0*	*86-126*	%			*O-04*
Surr: 4-Bromofluorobenzene	*89 %*	Conc:*44.3*	*80-112*	%			*O-04*
Surr: Dibromofluoromethane	*105 %*	Conc:*52.4*	*89-120*	%			*O-04*
Surr: Toluene-d8	*99 %*	Conc:*49.4*	*91-111*	%			*O-04*

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Date Reported: 11/07/14 13:31

4J01076-02 DVC Monitoring Well GW10A

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	ND	0.50	mg/l	5	10/03/14 02:59	M-05

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0005 Prepared: 10/01/14 08:15 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/08/14 23:13	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/08/14 23:13	
2,4-D	ND		0.50	ug/l	1	10/08/14 23:13	
2,4-DB	ND		2.5	ug/l	1	10/08/14 23:13	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/08/14 23:13	
4-Nitrophenol	ND		1.2	ug/l	1	10/08/14 23:13	
Acifluorfen	ND		0.50	ug/l	1	10/08/14 23:13	
Bentazon	ND		2.5	ug/l	1	10/08/14 23:13	
Dalapon	ND		0.50	ug/l	1	10/08/14 23:13	
DCPA	ND		0.25	ug/l	1	10/08/14 23:13	
Dicamba	ND		0.75	ug/l	1	10/08/14 23:13	
Dichloroprop	ND		1.0	ug/l	1	10/08/14 23:13	
Dinoseb	ND		0.50	ug/l	1	10/08/14 23:13	
MCPA	ND		100	ug/l	1	10/08/14 23:13	
MCPP	ND		100	ug/l	1	10/08/14 23:13	
Pentachlorophenol	ND		0.25	ug/l	1	10/08/14 23:13	
Picloram	ND		0.75	ug/l	1	10/08/14 23:13	
Surr: 2,4-DCAA	*69 %*	Conc:*13.2*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 01:16	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 01:16	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 01:16	
Aldrin	ND	0.050	ug/l	1	10/10/14 01:16	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 01:16	
beta-BHC	ND	0.050	ug/l	1	10/10/14 01:16	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 01:16	
delta-BHC	ND	0.050	ug/l	1	10/10/14 01:16	
Dieldrin	ND	0.050	ug/l	1	10/10/14 01:16	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 01:16	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 01:16	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 01:16	
Endrin	ND	0.050	ug/l	1	10/10/14 01:16	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 01:16	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 01:16	
Heptachlor	ND		0.050	ug/l	1	10/10/14 01:16	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 01:16	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 01:16	
Toxaphene	ND		2.0	ug/l	1	10/10/14 01:16	
Surr: Decachlorobiphenyl	*87 %*	Conc:*0.413*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*103 %*	Conc:*0.489*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0086 Prepared: 10/02/14 08:08 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/02/14 14:44	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0089 Prepared: 10/02/14 08:27 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**11000**	10	mg/l	1	10/02/14 11:10	

Method: SM 4500H+-B Batch: W4J0108 Prepared: 10/02/14 10:25 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.01**	0.10	Units	1	10/02/14 11:08	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.4	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*61 %*	Conc:*122*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*62 %*	Conc:*124*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:05	
Arsenic, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Barium, Total	**0.029**	0.010	mg/l	1	10/03/14 15:05	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:05	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:05	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Molybdenum, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:05	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:05	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:05	
Vanadium, Total	ND	0.010	mg/l	1	10/03/14 15:05	
Zinc, Total	ND	0.050	mg/l	1	10/03/14 15:05	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:42	

Method: EPA 7470A Batch: W4J0103 Prepared: 10/02/14 10:03 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/02/14 17:25	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 01:16	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 01:16	
Surr: Decachlorobiphenyl	*77 %*	Conc:*0.368*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*90 %*	Conc:*0.430*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 19:43	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:43	

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Date Received: 10/01/14 10:15
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4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 19:43	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 19:43	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 19:43	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 19:43	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 19:43	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 19:43	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 19:43	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 19:43	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 19:43	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 19:43	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 19:43	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 19:43	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 19:43	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 19:43	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 19:43	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:43	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 19:43	
2-Picoline	ND	10	ug/l	1	11/03/14 13:40	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 19:43	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 19:43	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 19:43	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 19:43	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:43	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 19:43	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 19:43	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 19:43	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 19:43	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 19:43	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 19:43	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 19:43	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 19:43	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 19:43	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 19:43	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 19:43	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 19:43	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 19:43	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 19:43	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 19:43	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 19:43	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 19:43	
Acetophenone	ND	10	ug/l	1	10/07/14 19:43	
Aldrin	ND	5.0	ug/l	1	10/07/14 19:43	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 19:43	
Aniline	ND	1.0	ug/l	1	10/07/14 19:43	
Anthracene	ND	1.0	ug/l	1	10/07/14 19:43	
Aramite	ND	10	ug/l	1	11/03/14 13:40	
Benzidine	ND	10	ug/l	1	10/07/14 19:43	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 19:43	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 19:43	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 19:43	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 19:43	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 19:43	
Benzoic acid	ND	100	ug/l	1	10/07/14 19:43	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 19:43	
beta-BHC	ND	5.0	ug/l	1	10/07/14 19:43	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 19:43	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 19:43	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 19:43	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 19:43	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 19:43	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 19:43	
Chrysene	ND	1.0	ug/l	1	10/07/14 19:43	
delta-BHC	ND	5.0	ug/l	1	10/07/14 19:43	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 19:43	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 19:43	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 19:43	
Dieldrin	ND	5.0	ug/l	1	10/07/14 19:43	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 19:43	
Dimethoate	ND	10	ug/l	1	10/07/14 19:43	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 19:43	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 19:43	

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7030 Gentry Rd.
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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 19:43	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 19:43	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 19:43	
Disulfoton	ND	10	ug/l	1	10/07/14 19:43	
Endosulfan I	ND	10	ug/l	1	10/07/14 19:43	
Endosulfan II	ND	10	ug/l	1	10/07/14 19:43	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 19:43	
Endrin	ND	5.0	ug/l	1	10/07/14 19:43	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 19:43	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 19:43	
Famphur	ND	10	ug/l	1	10/07/14 19:43	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 19:43	
Fluorene	ND	1.0	ug/l	1	10/07/14 19:43	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 19:43	
Heptachlor	ND	5.0	ug/l	1	10/07/14 19:43	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 19:43	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 19:43	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 19:43	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 19:43	
Hexachlorophene	ND	50	ug/l	1	11/03/14 13:40	
Hexachloropropene	ND	10	ug/l	1	10/07/14 19:43	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 19:43	
Isodrin	ND	10	ug/l	1	10/07/14 19:43	
Isophorone	ND	1.0	ug/l	1	10/07/14 19:43	
Isosafrole	ND	10	ug/l	1	10/07/14 19:43	
Kepone	ND	50	ug/l	1	10/07/14 19:43	
Methapyrilene	ND	50	ug/l	1	10/07/14 19:43	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 19:43	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 19:43	
Methyl parathion	ND	10	ug/l	1	10/07/14 19:43	
Naphthalene	ND	1.0	ug/l	1	10/07/14 19:43	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 19:43	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 19:43	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 19:43	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 19:43	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 19:43	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/07/14 19:43	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/07/14 19:43	
N-Nitrosomorpholine	ND	10	ug/l	1	10/07/14 19:43	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 19:43	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 19:43	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 19:43	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 19:43	
o-Toluidine	ND		10	ug/l	1	10/07/14 19:43	
Parathion	ND		10	ug/l	1	10/07/14 19:43	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 19:43	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 19:43	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 19:43	
Phenacetin	ND		10	ug/l	1	10/07/14 19:43	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 19:43	
Phenol	ND		1.0	ug/l	1	10/07/14 19:43	
Phorate	ND		10	ug/l	1	10/07/14 19:43	
Pronamide	ND		10	ug/l	1	10/07/14 19:43	
Pyrene	ND		1.0	ug/l	1	10/07/14 19:43	
Pyridine	ND		5.0	ug/l	1	10/07/14 19:43	
Safrole	ND		10	ug/l	1	10/07/14 19:43	
Surr: 2,4,6-Tribromophenol	*83 %*	Conc:*39.7*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*83 %*	Conc:*19.9*	*28-100*	%			
Surr: 2-Fluorophenol	*42 %*	Conc:*19.9*	*5-76*	%			
Surr: Nitrobenzene-d5	*75 %*	Conc:*17.9*	*34-104*	%			
Surr: Phenol-d5	*28 %*	Conc:*13.4*	*0.1-57*	%			
Surr: Terphenyl-d14	*91 %*	Conc:*21.6*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1-Dichloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1-Dichloroethene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,1-Dichloropropene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,2-Dichloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04

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Date Received: 10/01/14 10:15
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4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
1,3-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
2,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
2-Butanone	ND	5.0	ug/l	1	10/08/14 09:52	O-04
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/08/14 09:52	O-04
2-Hexanone	ND	5.0	ug/l	1	10/08/14 09:52	O-04
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/08/14 09:52	O-04
Acetone	ND	5.0	ug/l	1	10/08/14 09:52	O-04
Acetonitrile	ND	5.0	ug/l	1	10/07/14 02:06	
Acrolein	ND	5.0	ug/l	1	10/08/14 09:52	O-04
Acrylonitrile	ND	5.0	ug/l	1	10/08/14 09:52	O-04
Allyl chloride	ND	1.0	ug/l	1	10/07/14 02:06	
Benzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Bromochloromethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Bromodichloromethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Bromoform	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Bromomethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Carbon Disulfide	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Carbon tetrachloride	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Chlorobenzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Chloroethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Chloroform	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Chloromethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Chloroprene	ND	1.0	ug/l	1	10/07/14 02:06	
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Dibromochloromethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Dibromomethane	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Ethyl methacrylate	ND	1.0	ug/l	1	10/07/14 02:06	
Ethylbenzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Hexachlorobutadiene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Iodomethane	ND	1.0	ug/l	1	10/07/14 02:06	
Isobutanol	ND	5.0	ug/l	1	10/07/14 02:06	
m,p-Xylene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
m-Dichlorobenzene	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Methacrylonitrile	ND	5.0	ug/l	1	10/07/14 02:06	
Methyl methacrylate	ND	1.0	ug/l	1	10/07/14 02:06	
Methylene chloride	ND	1.0	ug/l	1	10/08/14 09:52	O-04
Naphthalene	ND	1.0	ug/l	1	10/08/14 09:52	O-04

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4J01076-02 **DVC Monitoring Well GW10A**

Sampled: 09/30/14 07:50 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
o-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
o-Xylene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
p-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Propionitrile	ND		5.0	ug/l	1	10/07/14 02:06	
sec-Butylbenzene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Styrene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Tetrachloroethene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Toluene	**3.1**		1.0	ug/l	1	10/08/14 09:52	O-04
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/07/14 02:06	
Trichloroethene	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Trichlorofluoromethane	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Vinyl acetate	ND		1.0	ug/l	1	10/07/14 02:06	
Vinyl chloride	ND		1.0	ug/l	1	10/08/14 09:52	O-04
Surr: 1,2-Dichloroethane-d4	*110 %*	Conc:*55.2*	*86-126*	%			*O-04*
Surr: 4-Bromofluorobenzene	*95 %*	Conc:*47.6*	*80-112*	%			*O-04*
Surr: Dibromofluoromethane	*110 %*	Conc:*54.8*	*89-120*	%			*O-04*
Surr: Toluene-d8	*98 %*	Conc:*48.8*	*91-111*	%			*O-04*

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4J01076-03 DVC Monitoring Well GW11

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Anions by IC, EPA Method 9056

Method: EPA 300.0 Batch: W4J0113 Prepared: 10/02/14 10:45 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Fluoride, Total	ND	0.50	mg/l	5	10/03/14 02:59	M-05

Chlorinated Herbicides

Method: EPA 8151A Batch: W4J0005 Prepared: 10/01/14 08:15 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,4,5-T	ND		0.25	ug/l	1	10/08/14 23:45	
2,4,5-TP (Silvex)	ND		0.25	ug/l	1	10/08/14 23:45	
2,4-D	ND		0.50	ug/l	1	10/08/14 23:45	
2,4-DB	ND		2.5	ug/l	1	10/08/14 23:45	
3,5-Dichlorobenzoic acid	ND		1.2	ug/l	1	10/08/14 23:45	
4-Nitrophenol	ND		1.2	ug/l	1	10/08/14 23:45	
Acifluorfen	ND		0.50	ug/l	1	10/08/14 23:45	
Bentazon	ND		2.5	ug/l	1	10/08/14 23:45	
Dalapon	ND		0.50	ug/l	1	10/08/14 23:45	
DCPA	ND		0.25	ug/l	1	10/08/14 23:45	
Dicamba	ND		0.75	ug/l	1	10/08/14 23:45	
Dichloroprop	ND		1.0	ug/l	1	10/08/14 23:45	
Dinoseb	ND		0.50	ug/l	1	10/08/14 23:45	
MCPA	ND		100	ug/l	1	10/08/14 23:45	
MCPP	ND		100	ug/l	1	10/08/14 23:45	
Pentachlorophenol	ND		0.25	ug/l	1	10/08/14 23:45	
Picloram	ND		0.75	ug/l	1	10/08/14 23:45	
Surr: 2,4-DCAA	*56 %*	Conc:*10.7*	*56-156*	%			

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4,4´-DDD	ND	0.050	ug/l	1	10/10/14 01:46	
4,4´-DDE	ND	0.050	ug/l	1	10/10/14 01:46	
4,4´-DDT	ND	0.050	ug/l	1	10/10/14 01:46	
Aldrin	ND	0.050	ug/l	1	10/10/14 01:46	
alpha-BHC	ND	0.050	ug/l	1	10/10/14 01:46	
beta-BHC	ND	0.050	ug/l	1	10/10/14 01:46	
Chlordane (tech)	ND	0.50	ug/l	1	10/10/14 01:46	
delta-BHC	ND	0.050	ug/l	1	10/10/14 01:46	
Dieldrin	ND	0.050	ug/l	1	10/10/14 01:46	
Endosulfan I	ND	0.050	ug/l	1	10/10/14 01:46	
Endosulfan II	ND	0.050	ug/l	1	10/10/14 01:46	
Endosulfan sulfate	ND	0.050	ug/l	1	10/10/14 01:46	
Endrin	ND	0.050	ug/l	1	10/10/14 01:46	

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4J01076-03 DVC Monitoring Well GW11

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Chlorinated Pesticides and/or PCBs

Method: EPA 8081A Batch: W4J0201 Prepared: 10/03/14 14:13 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Endrin aldehyde	ND		0.050	ug/l	1	10/10/14 01:46	
gamma-BHC (Lindane)	ND		0.050	ug/l	1	10/10/14 01:46	
Heptachlor	ND		0.050	ug/l	1	10/10/14 01:46	
Heptachlor epoxide	ND		0.050	ug/l	1	10/10/14 01:46	
Methoxychlor	ND		0.050	ug/l	1	10/10/14 01:46	
Toxaphene	ND		2.0	ug/l	1	10/10/14 01:46	
Surr: Decachlorobiphenyl	*48 %*	Conc:*0.230*	*0.1-123*	%			
Surr: Tetrachloro-meta-xylene	*99 %*	Conc:*0.473*	*10-137*	%			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: ASTM D7511 Batch: W4J0086 Prepared: 10/02/14 08:08 Analyst: Rebecca Juea Song

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cyanide, Total	ND	2.0	ug/l	1	10/02/14 14:44	

Method: EPA 9034 Batch: W4J0134 Prepared: 10/02/14 13:25 Analyst: Nina Katrina Reyes Aranas

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Sulfide, Total	ND	0.10	mg/l	1	10/02/14 13:49	

Method: SM 2540C Batch: W4J0089 Prepared: 10/02/14 08:27 Analyst: Angela J Whittington

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Total Dissolved Solids	**9600**	10	mg/l	1	10/02/14 11:10	

Method: SM 4500H+-B Batch: W4J0108 Prepared: 10/02/14 10:25 Analyst: Ashley J Partridge

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
pH	**7.20**	0.10	Units	1	10/02/14 11:08	*

EPA 1613B m

Method: EPA 1613B m Batch: 3783563 Prepared: 10/07/14 00:00 Analyst:

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
2,3,7,8-Tetra CDD	ND		4.7	pg/L	1	10/14/14 00:00	S_MAXX
Surr: 37CL4 2378 Tetra CDD	*64 %*	Conc:*128*	*40-130*	%			*S_MAXX*
Surr: C13-2378 TetraCDD	*63 %*	Conc:*126*	*24-164*	%			*S_MAXX*

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Antimony, Total	ND	0.040	mg/l	1	10/03/14 15:12	
Arsenic, Total	**0.090**	0.010	mg/l	1	10/03/14 15:12	
Barium, Total	**0.11**	0.010	mg/l	1	10/03/14 15:12	
Beryllium, Total	ND	0.010	mg/l	1	10/03/14 15:12	

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4J01076-03 DVC Monitoring Well GW11

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Metals (Aqueous) by EPA 6000/7000 Series Methods

Method: EPA 6010B Batch: W4J0151 Prepared: 10/02/14 16:15 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Cadmium, Total	ND	0.010	mg/l	1	10/03/14 15:12	
Chromium, Total	ND	0.010	mg/l	1	10/03/14 15:12	
Cobalt, Total	ND	0.010	mg/l	1	10/03/14 15:12	
Copper, Total	ND	0.020	mg/l	1	10/03/14 15:12	
Lead, Total	ND	0.010	mg/l	1	10/03/14 15:12	
Molybdenum, Total	**0.023**	0.010	mg/l	1	10/03/14 15:12	
Nickel, Total	ND	0.010	mg/l	1	10/03/14 15:12	
Selenium, Total	ND	0.030	mg/l	1	10/03/14 15:12	
Silver, Total	ND	0.0050	mg/l	1	10/03/14 15:12	
Thallium, Total	ND	0.050	mg/l	1	10/03/14 15:12	
Vanadium, Total	**0.013**	0.010	mg/l	1	10/03/14 15:12	
Zinc, Total	**0.079**	0.050	mg/l	1	10/03/14 15:12	

Method: EPA 6010B Batch: W4J0268 Prepared: 10/06/14 10:02 Analyst: Jessie Kristie

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Tin, Total	ND	0.020	mg/l	1	10/07/14 11:44	

Method: EPA 7470A Batch: W4J0103 Prepared: 10/02/14 10:03 Analyst: Anand Panchal

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Mercury, Total	ND	0.10	ug/l	1	10/02/14 17:25	

Polychlorinated Biphenyls by EPA Method 8082

Method: EPA 8082 Batch: W4J0203 Prepared: 10/03/14 14:14 Analyst: Maxwell Wang

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Aroclor 1016	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1221	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1232	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1242	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1248	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1254	ND		1.0	ug/l	1	10/10/14 01:46	
Aroclor 1260	ND		1.0	ug/l	1	10/10/14 01:46	
Surr: Decachlorobiphenyl	*44 %*	Conc:*0.209*	*0.1-146*	%			
Surr: Tetrachloro-meta-xylene	*89 %*	Conc:*0.422*	*18-139*	%			

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l	1	10/07/14 20:12	
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
1,2-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:12	

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4J01076-03 **DVC Monitoring Well GW11**

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
1,3,5-Trinitrobenzene	ND	10	ug/l	1	10/07/14 20:12	
1,3-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
1,3-Dinitrobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
1,4-Dichlorobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
1,4-Naphthoquinone	ND	10	ug/l	1	10/07/14 20:12	
1,4-Phenylenediamine	ND	10	ug/l	1	10/07/14 20:12	
1-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 20:12	
1-Naphthylamine	ND	10	ug/l	1	10/07/14 20:12	
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2,4,5-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2,4,6-Trichlorophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2,4-Dichlorophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2,4-Dimethylphenol	ND	1.0	ug/l	1	10/07/14 20:12	
2,4-Dinitrophenol	ND	10	ug/l	1	10/07/14 20:12	
2,4-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 20:12	
2,6-Dichlorophenol	ND	10	ug/l	1	10/07/14 20:12	
2,6-Dinitrotoluene	ND	1.0	ug/l	1	10/07/14 20:12	
2-Acetylaminofluorene	ND	10	ug/l	1	10/07/14 20:12	
2-Chloronaphthalene	ND	1.0	ug/l	1	10/07/14 20:12	
2-Chlorophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2-Methylnaphthalene	ND	1.0	ug/l	1	10/07/14 20:12	
2-Methylphenol	ND	1.0	ug/l	1	10/07/14 20:12	
2-Naphthylamine	ND	10	ug/l	1	10/07/14 20:12	
2-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:12	
2-Nitrophenol	ND	1.0	ug/l	1	10/07/14 20:12	
2-Picoline	ND	10	ug/l	1	11/03/14 14:10	
3 & 4-Methylphenol	ND	1.0	ug/l	1	10/07/14 20:12	
3,3'- Dimethylbenzidine	ND	10	ug/l	1	10/07/14 20:12	
3,3'-Dichlorobenzidine	ND	5.0	ug/l	1	10/07/14 20:12	
3-Methylcholanthrene	ND	10	ug/l	1	10/07/14 20:12	
3-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:12	
4,4´-DDD	ND	5.0	ug/l	1	10/07/14 20:12	
4,4´-DDE	ND	5.0	ug/l	1	10/07/14 20:12	
4,4´-DDT	ND	5.0	ug/l	1	10/07/14 20:12	
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l	1	10/07/14 20:12	
4-Aminobiphenyl	ND	10	ug/l	1	10/07/14 20:12	
4-Bromophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 20:12	
4-Chloro-3-methylphenol	ND	1.0	ug/l	1	10/07/14 20:12	
4-Chloroaniline	ND	1.0	ug/l	1	10/07/14 20:12	

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4J01076-03 **DVC Monitoring Well GW11**

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
4-Chlorophenyl phenyl ether	ND	1.0	ug/l	1	10/07/14 20:12	
4-Nitroaniline	ND	1.0	ug/l	1	10/07/14 20:12	
4-Nitrophenol	ND	5.0	ug/l	1	10/07/14 20:12	
4-Nitroquinoline-n-oxide	ND	50	ug/l	1	10/07/14 20:12	
5-Nitro-o-toluidine	ND	10	ug/l	1	10/07/14 20:12	
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l	1	10/07/14 20:12	
a,a-Dimethylphenethylamine	ND	10	ug/l	1	10/07/14 20:12	
Acenaphthene	ND	1.0	ug/l	1	10/07/14 20:12	
Acenaphthylene	ND	1.0	ug/l	1	10/07/14 20:12	
Acetophenone	ND	10	ug/l	1	10/07/14 20:12	
Aldrin	ND	5.0	ug/l	1	10/07/14 20:12	
alpha-BHC	ND	5.0	ug/l	1	10/07/14 20:12	
Aniline	ND	1.0	ug/l	1	10/07/14 20:12	
Anthracene	ND	1.0	ug/l	1	10/07/14 20:12	
Aramite	ND	10	ug/l	1	11/03/14 14:10	
Benzidine	ND	10	ug/l	1	10/07/14 20:12	
Benzo (a) anthracene	ND	1.0	ug/l	1	10/07/14 20:12	
Benzo (a) pyrene	ND	1.0	ug/l	1	10/07/14 20:12	
Benzo (b) fluoranthene	ND	1.0	ug/l	1	10/07/14 20:12	
Benzo (g,h,i) perylene	ND	2.0	ug/l	1	10/07/14 20:12	
Benzo (k) fluoranthene	ND	1.0	ug/l	1	10/07/14 20:12	
Benzoic acid	ND	100	ug/l	1	10/07/14 20:12	
Benzyl alcohol	ND	1.0	ug/l	1	10/07/14 20:12	
beta-BHC	ND	5.0	ug/l	1	10/07/14 20:12	
Bis(2-chloroethoxy)methane	ND	1.0	ug/l	1	10/07/14 20:12	
Bis(2-chloroethyl)ether	ND	1.0	ug/l	1	10/07/14 20:12	
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l	1	10/07/14 20:12	
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l	1	10/07/14 20:12	
Butyl benzyl phthalate	ND	1.0	ug/l	1	10/07/14 20:12	
Chlorobenzilate	ND	10	ug/l	1	10/07/14 20:12	
Chrysene	ND	1.0	ug/l	1	10/07/14 20:12	
delta-BHC	ND	5.0	ug/l	1	10/07/14 20:12	
Diallate (cis or trans)	ND	10	ug/l	1	10/07/14 20:12	
Dibenzo (a,h) anthracene	ND	2.0	ug/l	1	10/07/14 20:12	
Dibenzofuran	ND	1.0	ug/l	1	10/07/14 20:12	
Dieldrin	ND	5.0	ug/l	1	10/07/14 20:12	
Diethyl phthalate	ND	1.0	ug/l	1	10/07/14 20:12	
Dimethoate	ND	10	ug/l	1	10/07/14 20:12	
Dimethyl phthalate	ND	1.0	ug/l	1	10/07/14 20:12	
Dimethylaminoazobenzene	ND	10	ug/l	1	10/07/14 20:12	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-03 DVC Monitoring Well GW11

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Di-n-butyl phthalate	ND	1.0	ug/l	1	10/07/14 20:12	
Di-n-octyl phthalate	ND	1.0	ug/l	1	10/07/14 20:12	
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l	1	10/07/14 20:12	
Disulfoton	ND	10	ug/l	1	10/07/14 20:12	
Endosulfan I	ND	10	ug/l	1	10/07/14 20:12	
Endosulfan II	ND	10	ug/l	1	10/07/14 20:12	
Endosulfan sulfate	ND	5.0	ug/l	1	10/07/14 20:12	
Endrin	ND	5.0	ug/l	1	10/07/14 20:12	
Endrin aldehyde	ND	5.0	ug/l	1	10/07/14 20:12	
Ethyl methanesulfonate	ND	10	ug/l	1	10/07/14 20:12	
Famphur	ND	10	ug/l	1	10/07/14 20:12	
Fluoranthene	ND	1.0	ug/l	1	10/07/14 20:12	
Fluorene	ND	1.0	ug/l	1	10/07/14 20:12	
gamma-BHC (Lindane)	ND	5.0	ug/l	1	10/07/14 20:12	
Heptachlor	ND	5.0	ug/l	1	10/07/14 20:12	
Heptachlor epoxide	ND	5.0	ug/l	1	10/07/14 20:12	
Hexachlorobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
Hexachlorobutadiene	ND	1.0	ug/l	1	10/07/14 20:12	
Hexachlorocyclopentadiene	ND	5.0	ug/l	1	10/07/14 20:12	
Hexachloroethane	ND	1.0	ug/l	1	10/07/14 20:12	
Hexachlorophene	ND	50	ug/l	1	11/03/14 14:10	
Hexachloropropene	ND	10	ug/l	1	10/07/14 20:12	
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l	1	10/07/14 20:12	
Isodrin	ND	10	ug/l	1	10/07/14 20:12	
Isophorone	ND	1.0	ug/l	1	10/07/14 20:12	
Isosafrole	ND	10	ug/l	1	10/07/14 20:12	
Kepone	ND	50	ug/l	1	10/07/14 20:12	
Methapyrilene	ND	50	ug/l	1	10/07/14 20:12	
Methoxychlor	ND	5.0	ug/l	1	10/07/14 20:12	
Methyl methanesulfonate	ND	10	ug/l	1	10/07/14 20:12	
Methyl parathion	ND	10	ug/l	1	10/07/14 20:12	
Naphthalene	ND	1.0	ug/l	1	10/07/14 20:12	
Nitrobenzene	ND	1.0	ug/l	1	10/07/14 20:12	
N-Nitrosodiethylamine	ND	10	ug/l	1	10/07/14 20:12	
N-Nitrosodimethylamine	ND	1.0	ug/l	1	10/07/14 20:12	
N-Nitrosodi-n-butylamine	ND	10	ug/l	1	10/07/14 20:12	
N-Nitrosodi-n-propylamine	ND	1.0	ug/l	1	10/07/14 20:12	
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l	1	10/07/14 20:12	
N-Nitrosomethylethylamine	ND	10	ug/l	1	10/07/14 20:12	
N-Nitrosomorpholine	ND	10	ug/l	1	10/07/14 20:12	

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-03 DVC Monitoring Well GW11

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Semivolatile Organic Compounds by GC/MS

Method: EPA 8270C Batch: W4J0166 Prepared: 10/03/14 08:12 Analyst: Armando Bielma

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
N-Nitrosopiperidine	ND		10	ug/l	1	10/07/14 20:12	
N-Nitrosopyrrolidine	ND		10	ug/l	1	10/07/14 20:12	
o,o,o-Triethyl phosphorothioate	ND		10	ug/l	1	10/07/14 20:12	
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND		10	ug/l	1	10/07/14 20:12	
o-Toluidine	ND		10	ug/l	1	10/07/14 20:12	
Parathion	ND		10	ug/l	1	10/07/14 20:12	
Pentachlorobenzene	ND		10	ug/l	1	10/07/14 20:12	
Pentachloronitrobenzene (PCNB)	ND		10	ug/l	1	10/07/14 20:12	
Pentachlorophenol	ND		1.0	ug/l	1	10/07/14 20:12	
Phenacetin	ND		10	ug/l	1	10/07/14 20:12	
Phenanthrene	ND		1.0	ug/l	1	10/07/14 20:12	
Phenol	ND		1.0	ug/l	1	10/07/14 20:12	
Phorate	ND		10	ug/l	1	10/07/14 20:12	
Pronamide	ND		10	ug/l	1	10/07/14 20:12	
Pyrene	ND		1.0	ug/l	1	10/07/14 20:12	
Pyridine	ND		5.0	ug/l	1	10/07/14 20:12	
Safrole	ND		10	ug/l	1	10/07/14 20:12	
Surr: 2,4,6-Tribromophenol	*76 %*	Conc:*36.2*	*33-96*	%			
Surr: 2-Fluorobiphenyl	*69 %*	Conc:*16.5*	*28-100*	%			
Surr: 2-Fluorophenol	*38 %*	Conc:*18.1*	*5-76*	%			
Surr: Nitrobenzene-d5	*65 %*	Conc:*15.4*	*34-104*	%			
Surr: Phenol-d5	*24 %*	Conc:*11.3*	*0.1-57*	%			
Surr: Terphenyl-d14	*90 %*	Conc:*21.3*	*39-104*	%			

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1,1-Trichloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1,2-Trichloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1-Dichloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1-Dichloroethene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,1-Dichloropropene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2,3-Trichloropropane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2,4-Trichlorobenzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2,4-Trimethylbenzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2-Dibromoethane (EDB)	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,2-Dichloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-03 **DVC Monitoring Well GW11**

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
1,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
1,3-Dichloropropane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
2,2-Dichloropropane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
2-Butanone	ND	5.0	ug/l	1	10/08/14 10:20	O-04
2-Chloroethyl vinyl ether	ND	5.0	ug/l	1	10/08/14 10:20	O-04
2-Hexanone	ND	5.0	ug/l	1	10/08/14 10:20	O-04
4-Methyl-2-pentanone	ND	5.0	ug/l	1	10/08/14 10:20	O-04
Acetone	ND	5.0	ug/l	1	10/08/14 10:20	O-04
Acetonitrile	ND	5.0	ug/l	1	10/07/14 02:35	
Acrolein	ND	5.0	ug/l	1	10/08/14 10:20	O-04
Acrylonitrile	ND	5.0	ug/l	1	10/08/14 10:20	O-04
Allyl chloride	ND	1.0	ug/l	1	10/07/14 02:35	
Benzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Bromochloromethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Bromodichloromethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Bromoform	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Bromomethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Carbon Disulfide	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Carbon tetrachloride	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Chlorobenzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Chloroethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Chloroform	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Chloromethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Chloroprene	ND	1.0	ug/l	1	10/07/14 02:35	
cis-1,2-Dichloroethene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
cis-1,3-Dichloropropene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Dibromochloromethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Dibromomethane	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Ethyl methacrylate	ND	1.0	ug/l	1	10/07/14 02:35	
Ethylbenzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Hexachlorobutadiene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Iodomethane	ND	1.0	ug/l	1	10/07/14 02:35	
Isobutanol	ND	5.0	ug/l	1	10/07/14 02:35	
m,p-Xylene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
m-Dichlorobenzene	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Methacrylonitrile	ND	5.0	ug/l	1	10/07/14 02:35	
Methyl methacrylate	ND	1.0	ug/l	1	10/07/14 02:35	
Methylene chloride	ND	1.0	ug/l	1	10/08/14 10:20	O-04
Naphthalene	ND	1.0	ug/l	1	10/08/14 10:20	O-04

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Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

4J01076-03 **DVC Monitoring Well GW11**

Sampled: 09/30/14 09:45 **Sampled By:** Katherine West **Matrix:** Water

Volatile Organic Compounds by EPA Method 8260B

Method: EPA 8260B Batch: W4J0299 Prepared: 10/06/14 10:22 Analyst: Marfel Tipon

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
o-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
o-Xylene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
p-Dichlorobenzene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Propionitrile	ND		5.0	ug/l	1	10/07/14 02:35	
sec-Butylbenzene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Styrene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Tetrachloroethene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Toluene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
trans-1,2-Dichloroethene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
trans-1,3-Dichloropropene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
trans-1,4-Dichloro-2-butene	ND		1.0	ug/l	1	10/07/14 02:35	
Trichloroethene	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Trichlorofluoromethane	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Vinyl acetate	ND		1.0	ug/l	1	10/07/14 02:35	
Vinyl chloride	ND		1.0	ug/l	1	10/08/14 10:20	O-04
Surr: 1,2-Dichloroethane-d4	*108 %*	Conc:*54.0*	*86-126*	%			*O-04*
Surr: 4-Bromofluorobenzene	*90 %*	Conc:*44.9*	*80-112*	%			*O-04*
Surr: Dibromofluoromethane	*108 %*	Conc:*53.8*	*89-120*	%			*O-04*
Surr: Toluene-d8	*99 %*	Conc:*49.6*	*91-111*	%			*O-04*

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QUALITY CONTROL SECTION

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Anions by IC, EPA Method 9056 - Quality Control

Batch W4J0113 - EPA 300.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0113-BLK1)				Analyzed: 10/03/14 02:59						
Fluoride, Total	ND	0.10	mg/l							
LCS (W4J0113-BS1)				Analyzed: 10/03/14 02:59						
Fluoride, Total	2.12	0.10	mg/l	2.00		106	90-110			
Matrix Spike (W4J0113-MS1)		**Source: 4J01070-01**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.7	2.5	mg/l	50.0	0.610	104	86-107			
Matrix Spike (W4J0113-MS2)		**Source: 4J01070-02**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.6	2.5	mg/l	50.0	0.560	104	86-107			
Matrix Spike Dup (W4J0113-MSD1)		**Source: 4J01070-01**		Analyzed: 10/03/14 02:59						
Fluoride, Total	52.8	2.5	mg/l	50.0	0.610	104	86-107	0.3	20	
Matrix Spike Dup (W4J0113-MSD2)		**Source: 4J01070-02**		Analyzed: 10/03/14 02:59						
Fluoride, Total	53.2	2.5	mg/l	50.0	0.560	105	86-107	0.9	20	

Chlorinated Herbicides - Quality Control

Batch W4J0005 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0005-BLK1)				Analyzed: 10/08/14 19:56						
2,4,5-T	ND	0.25	ug/l							
2,4,5-TP (Silvex)	ND	0.25	ug/l							
2,4-D	ND	0.50	ug/l							
2,4-DB	ND	2.5	ug/l							
3,5-Dichlorobenzoic acid	ND	1.2	ug/l							
4-Nitrophenol	ND	1.2	ug/l							
Acifluorfen	ND	0.50	ug/l							
Bentazon	ND	2.5	ug/l							
Dalapon	ND	0.50	ug/l							
DCPA	ND	0.25	ug/l							
Dicamba	ND	0.75	ug/l							
Dichloroprop	ND	1.0	ug/l							
Dinoseb	ND	0.50	ug/l							
MCPA	ND	100	ug/l							
MCPP	ND	100	ug/l							
Pentachlorophenol	ND	0.25	ug/l							
Picloram	ND	0.75	ug/l							
Surr: 2,4-DCAA	*13.4*		*ug/l*	*20.0*		*67*	*56-156*			
LCS (W4J0005-BS1)				Analyzed: 10/08/14 20:29						
2,4,5-T	1.95	0.25	ug/l	2.50		78	39-151			
2,4,5-TP (Silvex)	1.91	0.25	ug/l	2.50		76	46-142			
2,4-D	4.83	0.50	ug/l	5.00		97	56-164			

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Chlorinated Herbicides - Quality Control

Batch W4J0005 - EPA 8151A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0005-BS1)				Analyzed: 10/08/14 20:29						
2,4-DB	6.71	2.5	ug/l	10.0		67	27-161			
3,5-Dichlorobenzoic acid	4.22	1.2	ug/l	5.00		84	54-154			
4-Nitrophenol	7.84	1.2	ug/l	10.0		78	3-105			
Acifluorfen	2.27	0.50	ug/l	2.50		91	39-134			
Bentazon	7.01	2.5	ug/l	10.0		70	44-139			
Dalapon	3.28	0.50	ug/l	5.00		66	40-139			
DCPA	1.59	0.25	ug/l	2.50		63	34-135			
Dicamba	4.01	0.75	ug/l	5.00		80	46-140			
Dichloroprop	4.23	1.0	ug/l	5.00		85	43-158			
Dinoseb	1.81	0.50	ug/l	2.50		72	42-146			
MCPA	445	100	ug/l	500		89	28-144			
MCPP	340	100	ug/l	500		68	31-153			
Pentachlorophenol	1.79	0.25	ug/l	2.50		71	37-136			
Picloram	2.17	0.75	ug/l	2.50		87	35-138			
Surr: 2,4-DCAA	*14.0*		*ug/l*	*20.0*		*70*	*56-156*			
LCS Dup (W4J0005-BSD1)				Analyzed: 10/08/14 21:01						
2,4,5-T	2.02	0.25	ug/l	2.50		81	39-151	4	25	
2,4,5-TP (Silvex)	1.99	0.25	ug/l	2.50		80	46-142	4	25	
2,4-D	5.05	0.50	ug/l	5.00		101	56-164	4	25	
2,4-DB	7.24	2.5	ug/l	10.0		72	27-161	8	25	
3,5-Dichlorobenzoic acid	4.34	1.2	ug/l	5.00		87	54-154	3	25	
4-Nitrophenol	8.33	1.2	ug/l	10.0		83	3-105	6	25	
Acifluorfen	2.32	0.50	ug/l	2.50		93	39-134	2	25	
Bentazon	7.18	2.5	ug/l	10.0		72	44-139	2	25	
Dalapon	3.23	0.50	ug/l	5.00		65	40-139	2	25	
DCPA	1.61	0.25	ug/l	2.50		64	34-135	2	25	
Dicamba	4.12	0.75	ug/l	5.00		82	46-140	3	25	
Dichloroprop	4.33	1.0	ug/l	5.00		87	43-158	2	25	
Dinoseb	1.92	0.50	ug/l	2.50		77	42-146	6	25	
MCPA	410	100	ug/l	500		82	28-144	8	25	
MCPP	351	100	ug/l	500		70	31-153	3	25	
Pentachlorophenol	1.90	0.25	ug/l	2.50		76	37-136	6	25	
Picloram	2.24	0.75	ug/l	2.50		90	35-138	3	25	
Surr: 2,4-DCAA	*14.6*		*ug/l*	*20.0*		*73*	*56-156*			

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0201-BLK1)				Analyzed: 10/09/14 21:41						
4,4´-DDD	ND	0.050	ug/l							
4,4´-DDE	ND	0.050	ug/l							

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Date Received: 10/01/14 10:15
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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0201-BLK1)				Analyzed: 10/09/14 21:41						
4,4´-DDT	ND	0.050	ug/l							
Aldrin	ND	0.050	ug/l							
alpha-BHC	ND	0.050	ug/l							
beta-BHC	ND	0.050	ug/l							
Chlordane (tech)	ND	0.50	ug/l							
delta-BHC	ND	0.050	ug/l							
Dieldrin	ND	0.050	ug/l							
Endosulfan I	ND	0.050	ug/l							
Endosulfan II	ND	0.050	ug/l							
Endosulfan sulfate	ND	0.050	ug/l							
Endrin	ND	0.050	ug/l							
Endrin aldehyde	ND	0.050	ug/l							
gamma-BHC (Lindane)	ND	0.050	ug/l							
Heptachlor	ND	0.050	ug/l							
Heptachlor epoxide	ND	0.050	ug/l							
Methoxychlor	ND	0.050	ug/l							
Toxaphene	ND	2.0	ug/l							
Surr: Decachlorobiphenyl	*0.479*		*ug/l*	*0.500*		*96*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.478*		*ug/l*	*0.500*		*96*	*10-137*			
LCS (W4J0201-BS1)				Analyzed: 10/09/14 22:11						
4,4´-DDD	0.586	0.050	ug/l	0.500		117	59-143			
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126			
4,4´-DDT	0.593	0.050	ug/l	0.500		119	43-165			
Aldrin	0.568	0.050	ug/l	0.500		114	54-116			
alpha-BHC	0.604	0.050	ug/l	0.500		121	70-121			
beta-BHC	0.607	0.050	ug/l	0.500		121	71-126			
delta-BHC	0.645	0.050	ug/l	0.500		129	72-129			
Dieldrin	0.587	0.050	ug/l	0.500		117	70-130			
Endosulfan I	0.468	0.050	ug/l	0.500		94	48-113			
Endosulfan II	0.497	0.050	ug/l	0.500		99	58-118			
Endosulfan sulfate	0.606	0.050	ug/l	0.500		121	68-142			
Endrin	0.640	0.050	ug/l	0.500		128	53-150			
Endrin aldehyde	0.566	0.050	ug/l	0.500		113	56-147			
gamma-BHC (Lindane)	0.608	0.050	ug/l	0.500		122	71-123			
Heptachlor	0.610	0.050	ug/l	0.500		122	58-138			
Heptachlor epoxide	0.568	0.050	ug/l	0.500		114	71-127			
Methoxychlor	0.613	0.050	ug/l	0.500		123	49-158			
Surr: Decachlorobiphenyl	*0.511*		*ug/l*	*0.500*		*102*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.502*		*ug/l*	*0.500*		*100*	*10-137*			

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Chlorinated Pesticides and/or PCBs - Quality Control

Batch W4J0201 - EPA 8081A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0201-BSD1)				Analyzed: 10/09/14 22:42						
4,4´-DDD	0.579	0.050	ug/l	0.500		116	59-143	1	25	
4,4´-DDE	0.619	0.050	ug/l	0.500		124	63-126	0.1	25	
4,4´-DDT	0.597	0.050	ug/l	0.500		119	43-165	0.7	25	
Aldrin	0.576	0.050	ug/l	0.500		115	54-116	1	25	
alpha-BHC	0.613	0.050	ug/l	0.500		123	70-121	2	25	Q-08
beta-BHC	0.613	0.050	ug/l	0.500		123	71-126	0.9	25	
delta-BHC	0.664	0.050	ug/l	0.500		133	72-129	3	25	Q-08
Dieldrin	0.591	0.050	ug/l	0.500		118	70-130	0.7	25	
Endosulfan I	0.470	0.050	ug/l	0.500		94	48-113	0.3	25	
Endosulfan II	0.495	0.050	ug/l	0.500		99	58-118	0.4	25	
Endosulfan sulfate	0.605	0.050	ug/l	0.500		121	68-142	0.1	25	
Endrin	0.654	0.050	ug/l	0.500		131	53-150	2	25	
Endrin aldehyde	0.582	0.050	ug/l	0.500		116	56-147	3	25	
gamma-BHC (Lindane)	0.620	0.050	ug/l	0.500		124	71-123	2	25	Q-08
Heptachlor	0.625	0.050	ug/l	0.500		125	58-138	2	25	
Heptachlor epoxide	0.569	0.050	ug/l	0.500		114	71-127	0.1	25	
Methoxychlor	0.618	0.050	ug/l	0.500		124	49-158	0.7	25	
Surr: Decachlorobiphenyl	*0.501*		*ug/l*	*0.500*		*100*	*0.1-123*			
Surr: Tetrachloro-meta-xylene	*0.512*		*ug/l*	*0.500*		*102*	*10-137*			

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0086 - ASTM D7511

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0086-BLK1)				Analyzed: 10/02/14 14:44						
Cyanide, Total	ND	2.0	ug/l							
LCS (W4J0086-BS1)				Analyzed: 10/02/14 14:44						
Cyanide, Total	45.2	2.0	ug/l	50.0		90	84-116			
Matrix Spike (W4J0086-MS1)		**Source: 4J01076-01**		Analyzed: 10/02/14 14:44						
Cyanide, Total	51.0	2.0	ug/l	50.0	1.47	99	64-136			
Matrix Spike (W4J0086-MS2)		**Source: 4J01076-03**		Analyzed: 10/02/14 14:44						
Cyanide, Total	49.2	2.0	ug/l	50.0	ND	98	64-136			
Matrix Spike Dup (W4J0086-MSD1)		**Source: 4J01076-01**		Analyzed: 10/02/14 14:44						
Cyanide, Total	50.9	2.0	ug/l	50.0	1.47	99	64-136	0.2	47	
Matrix Spike Dup (W4J0086-MSD2)		**Source: 4J01076-03**		Analyzed: 10/02/14 14:44						
Cyanide, Total	48.5	2.0	ug/l	50.0	ND	97	64-136	2	47	

Batch W4J0089 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers

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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods - Quality Control

Batch W4J0089 - SM 2540C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0089-BLK1)				Analyzed: 10/02/14 11:10						
Total Dissolved Solids	ND	10	mg/l							
LCS (W4J0089-BS1)				Analyzed: 10/02/14 11:10						
Total Dissolved Solids	817	10	mg/l	824		99	96-102			
Duplicate (W4J0089-DUP1)		**Source: 4J01059-01**		Analyzed: 10/02/14 11:10						
Total Dissolved Solids	1640	10	mg/l		1660			1	10	
Duplicate (W4J0089-DUP2)		**Source: 4J01076-02**		Analyzed: 10/02/14 11:10						
Total Dissolved Solids	10600	10	mg/l		10800			1	10	

Batch W4J0108 - SM 4500H+-B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0108-BS1)				Analyzed: 10/02/14 11:08						
pH	7.40	0.10	Units	7.41		100	98.8-101			
Duplicate (W4J0108-DUP1)		**Source: 4J01076-02**		Analyzed: 10/02/14 11:08						
pH	7.04	0.10	Units		7.01			0.4	3.1	

Batch W4J0134 - EPA 9034

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0134-BLK1)				Analyzed: 10/02/14 13:49						
Sulfide, Total	ND	0.10	mg/l							
LCS (W4J0134-BS1)				Analyzed: 10/02/14 13:49						
Sulfide, Total	0.100	0.10	mg/l	0.100		100	95-104			
Duplicate (W4J0134-DUP1)		**Source: 4J02013-03**		Analyzed: 10/02/14 13:49						
Sulfide, Total	ND	0.10	mg/l		ND					

Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0103 - EPA 7470A

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0103-BLK1)				Analyzed: 10/02/14 17:25						
Mercury, Total	ND	0.10	ug/l							
LCS (W4J0103-BS1)				Analyzed: 10/02/14 17:25						
Mercury, Total	0.979	0.10	ug/l	1.00		98	80-120			
Matrix Spike (W4J0103-MS1)		**Source: 4J01076-01**		Analyzed: 10/02/14 17:25						
Mercury, Total	0.977	0.10	ug/l	1.00	ND	98	60-129			
Matrix Spike Dup (W4J0103-MSD1)		**Source: 4J01076-01**		Analyzed: 10/02/14 17:25						
Mercury, Total	0.996	0.10	ug/l	1.00	ND	100	60-129	2	20	

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0151-BLK1)				Analyzed: 10/03/14 14:38						
Antimony, Total	ND	0.040	mg/l							
Arsenic, Total	ND	0.010	mg/l							
Barium, Total	ND	0.010	mg/l							
Beryllium, Total	ND	0.010	mg/l							
Cadmium, Total	ND	0.010	mg/l							
Chromium, Total	ND	0.010	mg/l							
Cobalt, Total	ND	0.010	mg/l							
Copper, Total	ND	0.020	mg/l							
Lead, Total	ND	0.010	mg/l							
Molybdenum, Total	ND	0.010	mg/l							
Nickel, Total	ND	0.010	mg/l							
Selenium, Total	ND	0.030	mg/l							
Silver, Total	ND	0.0050	mg/l							
Thallium, Total	ND	0.050	mg/l							
Vanadium, Total	ND	0.010	mg/l							
Zinc, Total	ND	0.050	mg/l							
LCS (W4J0151-BS1)				Analyzed: 10/03/14 14:40						
Antimony, Total	0.971	0.040	mg/l	1.00		97	80-120			
Arsenic, Total	1.01	0.010	mg/l	1.00		101	80-125			
Barium, Total	0.968	0.010	mg/l	1.00		97	80-125			
Beryllium, Total	0.942	0.010	mg/l	1.00		94	80-120			
Cadmium, Total	0.957	0.010	mg/l	1.00		96	80-120			
Chromium, Total	0.957	0.010	mg/l	1.00		96	80-120			
Cobalt, Total	0.922	0.010	mg/l	1.00		92	80-120			
Copper, Total	0.891	0.020	mg/l	1.00		89	80-120			
Lead, Total	0.951	0.010	mg/l	1.00		95	80-120			
Molybdenum, Total	0.937	0.010	mg/l	1.00		94	80-120			
Nickel, Total	0.957	0.010	mg/l	1.00		96	80-120			
Selenium, Total	0.969	0.030	mg/l	1.00		97	80-120			
Silver, Total	0.956	0.0050	mg/l	1.00		96	80-125			
Thallium, Total	0.948	0.050	mg/l	1.00		95	80-120			
Vanadium, Total	0.984	0.010	mg/l	1.00		98	80-120			
Zinc, Total	0.894	0.050	mg/l	1.00		89	80-120			
Matrix Spike (W4J0151-MS1)	**Source: 4J01076-02**			Analyzed: 10/03/14 15:23						
Antimony, Total	1.03	0.040	mg/l	1.00	ND	103	75-125			
Arsenic, Total	1.10	0.010	mg/l	1.00	0.00587	109	75-125			
Barium, Total	0.932	0.010	mg/l	1.00	0.0291	90	75-125			
Beryllium, Total	0.911	0.010	mg/l	1.00	ND	91	75-125			
Cadmium, Total	0.846	0.010	mg/l	1.00	).000843	85	75-125			

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Metals (Aqueous) by EPA 6000/7000 Series Methods - Quality Control

Batch W4J0151 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0151-MS1)		**Source: 4J01076-02**		Analyzed: 10/03/14 15:23						
Chromium, Total	0.896	0.010	mg/l	1.00	ND	90	75-125			
Cobalt, Total	0.830	0.010	mg/l	1.00	).000956	83	75-125			
Copper, Total	0.871	0.020	mg/l	1.00	ND	87	75-125			
Lead, Total	0.870	0.010	mg/l	1.00	ND	87	75-125			
Molybdenum, Total	0.984	0.010	mg/l	1.00	0.00720	98	75-125			
Nickel, Total	0.863	0.010	mg/l	1.00	0.00519	86	75-125			
Selenium, Total	0.970	0.030	mg/l	1.00	ND	97	75-125			
Silver, Total	0.965	0.0050	mg/l	1.00	ND	97	75-125			
Thallium, Total	0.869	0.050	mg/l	1.00	ND	87	75-125			
Vanadium, Total	0.996	0.010	mg/l	1.00	ND	100	75-125			
Zinc, Total	0.904	0.050	mg/l	1.00	0.0126	89	75-125			
Matrix Spike Dup (W4J0151-MSD1)		**Source: 4J01076-02**		Analyzed: 10/03/14 15:25						
Antimony, Total	1.09	0.040	mg/l	1.00	ND	109	75-125	6	20	
Arsenic, Total	1.18	0.010	mg/l	1.00	0.00587	117	75-125	7	20	
Barium, Total	0.958	0.010	mg/l	1.00	0.0291	93	75-125	3	20	
Beryllium, Total	0.937	0.010	mg/l	1.00	ND	94	75-125	3	20	
Cadmium, Total	0.878	0.010	mg/l	1.00	).000843	88	75-125	4	20	
Chromium, Total	0.916	0.010	mg/l	1.00	ND	92	75-125	2	20	
Cobalt, Total	0.855	0.010	mg/l	1.00	).000956	85	75-125	3	20	
Copper, Total	0.882	0.020	mg/l	1.00	ND	88	75-125	1	20	
Lead, Total	0.918	0.010	mg/l	1.00	ND	92	75-125	5	20	
Molybdenum, Total	1.03	0.010	mg/l	1.00	0.00720	102	75-125	4	20	
Nickel, Total	0.862	0.010	mg/l	1.00	0.00519	86	75-125	0.09	20	
Selenium, Total	1.04	0.030	mg/l	1.00	ND	104	75-125	7	20	
Silver, Total	0.984	0.0050	mg/l	1.00	ND	98	75-125	2	20	
Thallium, Total	0.908	0.050	mg/l	1.00	ND	91	75-125	4	20	
Vanadium, Total	1.01	0.010	mg/l	1.00	ND	101	75-125	2	20	
Zinc, Total	0.932	0.050	mg/l	1.00	0.0126	92	75-125	3	20	

Batch W4J0268 - EPA 6010B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0268-BLK1)				Analyzed: 10/07/14 11:20						
Tin, Total	ND	0.020	mg/l							
LCS (W4J0268-BS1)				Analyzed: 10/07/14 11:23						
Tin, Total	0.942	0.020	mg/l	1.00		94	80-120			
Matrix Spike (W4J0268-MS1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:11						
Tin, Total	0.910	0.020	mg/l	1.00	ND	91	75-125			
Matrix Spike Dup (W4J0268-MSD1)		**Source: 4J03011-03**		Analyzed: 10/07/14 12:14						
Tin, Total	0.919	0.020	mg/l	1.00	ND	92	75-125	1	20	

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Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Batch W4J0203 - EPA 8082

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0203-BLK1)				Analyzed: 10/09/14 21:41						
Aroclor 1016	ND	1.0	ug/l							
Aroclor 1221	ND	1.0	ug/l							
Aroclor 1232	ND	1.0	ug/l							
Aroclor 1242	ND	1.0	ug/l							
Aroclor 1248	ND	1.0	ug/l							
Aroclor 1254	ND	1.0	ug/l							
Aroclor 1260	ND	1.0	ug/l							
Surr: Decachlorobiphenyl	*0.431*		*ug/l*	*0.500*		*86*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.428*		*ug/l*	*0.500*		*86*	*18-139*			
LCS (W4J0203-BS1)				Analyzed: 10/09/14 23:13						
Aroclor 1016	4.78	1.0	ug/l	5.00		96	46-151			
Aroclor 1260	4.73	1.0	ug/l	5.00		95	46-160			
Surr: Decachlorobiphenyl	*0.459*		*ug/l*	*0.500*		*92*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.436*		*ug/l*	*0.500*		*87*	*18-139*			
LCS Dup (W4J0203-BSD1)				Analyzed: 10/09/14 23:44						
Aroclor 1016	5.07	1.0	ug/l	5.00		101	46-151	6	25	
Aroclor 1260	4.96	1.0	ug/l	5.00		99	46-160	5	25	
Surr: Decachlorobiphenyl	*0.469*		*ug/l*	*0.500*		*94*	*0.1-146*			
Surr: Tetrachloro-meta-xylene	*0.458*		*ug/l*	*0.500*		*92*	*18-139*			

Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
1,2,4,5-Tetrachlorobenzene	ND	10	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							
1,2-Dichlorobenzene	ND	1.0	ug/l							
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	ug/l							
1,3,5-Trinitrobenzene	ND	10	ug/l							
1,3-Dichlorobenzene	ND	1.0	ug/l							
1,3-Dinitrobenzene	ND	1.0	ug/l							
1,4-Dichlorobenzene	ND	1.0	ug/l							
1,4-Naphthoquinone	ND	10	ug/l							
1,4-Phenylenediamine	ND	10	ug/l							
1-Methylnaphthalene	ND	1.0	ug/l							
1-Naphthylamine	ND	10	ug/l							
2,3,4,6-Tetrachlorophenol	ND	1.0	ug/l							
2,4,5-Trichlorophenol	ND	1.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
2,4,6-Trichlorophenol	ND	1.0	ug/l							
2,4-Dichlorophenol	ND	1.0	ug/l							
2,4-Dimethylphenol	ND	1.0	ug/l							
2,4-Dinitrophenol	ND	10	ug/l							
2,4-Dinitrotoluene	ND	1.0	ug/l							
2,6-Dichlorophenol	ND	10	ug/l							
2,6-Dinitrotoluene	ND	1.0	ug/l							
2-Acetylaminofluorene	ND	10	ug/l							
2-Chloronaphthalene	ND	1.0	ug/l							
2-Chlorophenol	ND	1.0	ug/l							
2-Methylnaphthalene	ND	1.0	ug/l							
2-Methylphenol	ND	1.0	ug/l							
2-Naphthylamine	ND	10	ug/l							
2-Nitroaniline	ND	1.0	ug/l							
2-Nitrophenol	ND	1.0	ug/l							
2-Picoline	ND	10	ug/l							
3 & 4-Methylphenol	ND	1.0	ug/l							
3,3'- Dimethylbenzidine	ND	10	ug/l							
3,3'-Dichlorobenzidine	ND	5.0	ug/l							
3-Methylcholanthrene	ND	10	ug/l							
3-Nitroaniline	ND	1.0	ug/l							
4,4´-DDD	ND	5.0	ug/l							
4,4´-DDE	ND	5.0	ug/l							
4,4´-DDT	ND	5.0	ug/l							
4,6-Dinitro-2-methylphenol	ND	5.0	ug/l							
4-Aminobiphenyl	ND	10	ug/l							
4-Bromophenyl phenyl ether	ND	1.0	ug/l							
4-Chloro-3-methylphenol	ND	1.0	ug/l							
4-Chloroaniline	ND	1.0	ug/l							
4-Chlorophenyl phenyl ether	ND	1.0	ug/l							
4-Nitroaniline	ND	1.0	ug/l							
4-Nitrophenol	ND	5.0	ug/l							
4-Nitroquinoline-n-oxide	ND	50	ug/l							
5-Nitro-o-toluidine	ND	10	ug/l							
7,12-Dimethylbenz (a) anthracene	ND	10	ug/l							
a,a-Dimethylphenethylamine	ND	10	ug/l							
Acenaphthene	ND	1.0	ug/l							
Acenaphthylene	ND	1.0	ug/l							
Acetophenone	ND	10	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
Aldrin	ND	5.0	ug/l							
alpha-BHC	ND	5.0	ug/l							
Aniline	ND	1.0	ug/l							
Anthracene	ND	1.0	ug/l							
Aramite	ND	10	ug/l							
Benzidine	ND	10	ug/l							
Benzo (a) anthracene	ND	1.0	ug/l							
Benzo (a) pyrene	ND	1.0	ug/l							
Benzo (b) fluoranthene	ND	1.0	ug/l							
Benzo (g,h,i) perylene	ND	2.0	ug/l							
Benzo (k) fluoranthene	ND	1.0	ug/l							
Benzoic acid	ND	100	ug/l							
Benzyl alcohol	ND	1.0	ug/l							
beta-BHC	ND	5.0	ug/l							
Bis(2-chloroethoxy)methane	ND	1.0	ug/l							
Bis(2-chloroethyl)ether	ND	1.0	ug/l							
Bis(2-chloroisopropyl)ether	ND	1.0	ug/l							
Bis(2-ethylhexyl)phthalate	ND	5.0	ug/l							
Butyl benzyl phthalate	ND	1.0	ug/l							
Chlorobenzilate	ND	10	ug/l							
Chrysene	ND	1.0	ug/l							
delta-BHC	ND	5.0	ug/l							
Diallate (cis or trans)	ND	10	ug/l							
Dibenzo (a,h) anthracene	ND	2.0	ug/l							
Dibenzofuran	ND	1.0	ug/l							
Dieldrin	ND	5.0	ug/l							
Diethyl phthalate	ND	1.0	ug/l							
Dimethoate	ND	10	ug/l							
Dimethyl phthalate	ND	1.0	ug/l							
Dimethylaminoazobenzene	ND	10	ug/l							
Di-n-butyl phthalate	ND	1.0	ug/l							
Di-n-octyl phthalate	ND	1.0	ug/l							
Diphenylamine/N-Nitrosodiphenylamine	ND	1.0	ug/l							
Disulfoton	ND	10	ug/l							
Endosulfan I	ND	10	ug/l							
Endosulfan II	ND	10	ug/l							
Endosulfan sulfate	ND	5.0	ug/l							
Endrin	ND	5.0	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
Endrin aldehyde	ND	5.0	ug/l							
Ethyl methanesulfonate	ND	10	ug/l							
Famphur	ND	10	ug/l							
Fluoranthene	ND	1.0	ug/l							
Fluorene	ND	1.0	ug/l							
gamma-BHC (Lindane)	ND	5.0	ug/l							
Heptachlor	ND	5.0	ug/l							
Heptachlor epoxide	ND	5.0	ug/l							
Hexachlorobenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Hexachlorocyclopentadiene	ND	5.0	ug/l							
Hexachloroethane	ND	1.0	ug/l							
Hexachloropropene	ND	10	ug/l							
Indeno (1,2,3-cd) pyrene	ND	2.0	ug/l							
Isodrin	ND	10	ug/l							
Isophorone	ND	1.0	ug/l							
Isosafrole	ND	10	ug/l							
Kepone	ND	50	ug/l							
Methapyrilene	ND	50	ug/l							
Methoxychlor	ND	5.0	ug/l							
Methyl methanesulfonate	ND	10	ug/l							
Methyl parathion	ND	10	ug/l							
Naphthalene	ND	1.0	ug/l							
Nitrobenzene	ND	1.0	ug/l							
N-Nitrosodiethylamine	ND	10	ug/l							
N-Nitrosodimethylamine	ND	1.0	ug/l							
N-Nitrosodi-n-butylamine	ND	10	ug/l							
N-Nitrosodi-n-propylamine	ND	1.0	ug/l							
N-Nitrosodiphenylamine/Diphenylamine	ND	1.0	ug/l							
N-Nitrosomethylethylamine	ND	10	ug/l							
N-Nitrosomorpholine	ND	10	ug/l							
N-Nitrosopiperidine	ND	10	ug/l							
N-Nitrosopyrrolidine	ND	10	ug/l							
o,o,o-Triethyl phosphorothioate	ND	10	ug/l							
o,o-Diethyl o-2-pyrazinylphosphorothioate	ND	10	ug/l							
o-Toluidine	ND	10	ug/l							
Parathion	ND	10	ug/l							
Pentachlorobenzene	ND	10	ug/l							

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0166-BLK1)				Analyzed: 10/07/14 17:47						
Pentachloronitrobenzene (PCNB)	ND	10	ug/l							
Pentachlorophenol	ND	1.0	ug/l							
Phenacetin	ND	10	ug/l							
Phenanthrene	ND	1.0	ug/l							
Phenol	ND	1.0	ug/l							
Phorate	ND	10	ug/l							
Pronamide	ND	10	ug/l							
Pyrene	ND	1.0	ug/l							
Pyridine	ND	5.0	ug/l							
Safrole	ND	10	ug/l							
Surr: 2,4,6-Tribromophenol	*40.8*		*ug/l*	*50.0*		*82*	*33-96*			
Surr: 2-Fluorobiphenyl	*19.4*		*ug/l*	*25.0*		*77*	*28-100*			
Surr: 2-Fluorophenol	*23.7*		*ug/l*	*50.0*		*47*	*5-76*			
Surr: Nitrobenzene-d5	*19.9*		*ug/l*	*25.0*		*80*	*34-104*			
Surr: Phenol-d5	*14.8*		*ug/l*	*50.0*		*30*	*0.1-57*			
Surr: Terphenyl-d14	*21.4*		*ug/l*	*25.0*		*86*	*39-104*			
Blank (W4J0166-BLK2)				Analyzed: 11/03/14 12:39						
Hexachlorophene	ND	50	ug/l							
LCS (W4J0166-BS1)				Analyzed: 10/07/14 18:16						
1,2,4-Trichlorobenzene	17.8	1.0	ug/l	25.0		71	27-99			
1,2-Dichlorobenzene	18.2	1.0	ug/l	25.0		73	22-102			
1,3-Dichlorobenzene	15.9	1.0	ug/l	25.0		64	22-100			
1,4-Dichlorobenzene	17.1	1.0	ug/l	25.0		68	24-101			
2,4,6-Trichlorophenol	19.3	1.0	ug/l	25.0		77	39-105			
2,4-Dichlorophenol	20.3	1.0	ug/l	25.0		81	39-102			
2,4-Dimethylphenol	11.6	1.0	ug/l	25.0		46	27-102			
2,4-Dinitrophenol	20.2	10	ug/l	25.0		81	11-142			
2,4-Dinitrotoluene	23.4	1.0	ug/l	25.0		94	44-105			
2,6-Dinitrotoluene	20.9	1.0	ug/l	25.0		84	44-106			
2-Chloronaphthalene	20.0	1.0	ug/l	25.0		80	36-100			
2-Chlorophenol	16.8	1.0	ug/l	25.0		67	34-96			
2-Nitrophenol	20.0	1.0	ug/l	25.0		80	38-103			
3,3'-Dichlorobenzidine	21.1	5.0	ug/l	25.0		84	0.1-308			
4,6-Dinitro-2-methylphenol	24.9	5.0	ug/l	25.0		100	42-111			
4-Bromophenyl phenyl ether	19.2	1.0	ug/l	25.0		77	38-92			
4-Chloro-3-methylphenol	24.9	1.0	ug/l	25.0		99	39-103			
4-Chlorophenyl phenyl ether	21.7	1.0	ug/l	25.0		87	40-102			
4-Nitrophenol	10.6	5.0	ug/l	25.0		42	4-50			
Acenaphthene	22.0	1.0	ug/l	25.0		88	41-110			
Acenaphthylene	21.5	1.0	ug/l	25.0		86	39-110			

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0166-BS1)				Analyzed: 10/07/14 18:16						
Anthracene	23.1	1.0	ug/l	25.0		92	45-114			
Benzo (a) anthracene	24.1	1.0	ug/l	25.0		96	44-109			
Benzo (a) pyrene	29.0	1.0	ug/l	25.0		116	26-122			
Benzo (b) fluoranthene	28.1	1.0	ug/l	25.0		113	37-121			
Benzo (g,h,i) perylene	27.7	2.0	ug/l	25.0		111	13-135			
Benzo (k) fluoranthene	29.2	1.0	ug/l	25.0		117	36-119			
Bis(2-chloroethoxy)methane	19.7	1.0	ug/l	25.0		79	42-105			
Bis(2-chloroethyl)ether	17.6	1.0	ug/l	25.0		70	38-100			
Bis(2-chloroisopropyl)ether	19.4	1.0	ug/l	25.0		77	29-130			
Bis(2-ethylhexyl)phthalate	27.0	5.0	ug/l	25.0		108	41-118			
Butyl benzyl phthalate	24.9	1.0	ug/l	25.0		99	49-109			
Chrysene	26.5	1.0	ug/l	25.0		106	48-116			
Dibenzo (a,h) anthracene	26.8	2.0	ug/l	25.0		107	45-110			
Diethyl phthalate	23.2	1.0	ug/l	25.0		93	44-113			
Dimethyl phthalate	22.4	1.0	ug/l	25.0		89	26-123			
Di-n-butyl phthalate	23.6	1.0	ug/l	25.0		95	45-108			
Di-n-octyl phthalate	26.2	1.0	ug/l	25.0		105	41-100			Q-08
Fluoranthene	23.8	1.0	ug/l	25.0		95	44-114			
Fluorene	22.4	1.0	ug/l	25.0		89	41-109			
Hexachlorobenzene	23.8	1.0	ug/l	25.0		95	44-106			
Hexachlorobutadiene	19.9	1.0	ug/l	25.0		80	26-107			
Hexachlorocyclopentadiene	15.6	5.0	ug/l	25.0		63	6-100			
Hexachloroethane	17.7	1.0	ug/l	25.0		71	20-91			
Indeno (1,2,3-cd) pyrene	23.5	2.0	ug/l	25.0		94	15-131			
Isophorone	18.4	1.0	ug/l	25.0		73	41-94			
Naphthalene	20.3	1.0	ug/l	25.0		81	31-107			
Nitrobenzene	18.8	1.0	ug/l	25.0		75	41-100			
N-Nitrosodimethylamine	12.2	1.0	ug/l	25.0		49	14-63			
N-Nitrosodi-n-propylamine	19.8	1.0	ug/l	25.0		79	38-105			
Pentachlorophenol	22.3	1.0	ug/l	25.0		89	36-105			
Phenanthrene	24.1	1.0	ug/l	25.0		96	46-115			
Phenol	7.15	1.0	ug/l	25.0		29	7-44			
Pyrene	24.0	1.0	ug/l	25.0		96	38-123			
Surr: 2,4,6-Tribromophenol	*43.3*		*ug/l*	*50.0*		*87*	*33-96*			
Surr: 2-Fluorobiphenyl	*19.7*		*ug/l*	*25.0*		*79*	*28-100*			
Surr: 2-Fluorophenol	*22.1*		*ug/l*	*50.0*		*44*	*5-76*			
Surr: Nitrobenzene-d5	*18.5*		*ug/l*	*25.0*		*74*	*34-104*			
Surr: Phenol-d5	*14.2*		*ug/l*	*50.0*		*28*	*0.1-57*			
Surr: Terphenyl-d14	*22.5*		*ug/l*	*25.0*		*90*	*39-104*			
LCS Dup (W4J0166-BSD1)				Analyzed: 10/07/14 18:45						

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0166-BSD1)				Analyzed: 10/07/14 18:45						
1,2,4-Trichlorobenzene	19.2	1.0	ug/l	25.0		77	27-99	8	30	
1,2-Dichlorobenzene	20.1	1.0	ug/l	25.0		80	22-102	10	30	
1,3-Dichlorobenzene	17.6	1.0	ug/l	25.0		70	22-100	10	30	
1,4-Dichlorobenzene	19.4	1.0	ug/l	25.0		78	24-101	12	30	
2,4,6-Trichlorophenol	21.1	1.0	ug/l	25.0		84	39-105	9	30	
2,4-Dichlorophenol	21.9	1.0	ug/l	25.0		87	39-102	7	30	
2,4-Dimethylphenol	12.7	1.0	ug/l	25.0		51	27-102	10	30	
2,4-Dinitrophenol	23.4	10	ug/l	25.0		94	11-142	14	30	
2,4-Dinitrotoluene	23.9	1.0	ug/l	25.0		95	44-105	2	30	
2,6-Dinitrotoluene	22.0	1.0	ug/l	25.0		88	44-106	5	30	
2-Chloronaphthalene	22.1	1.0	ug/l	25.0		88	36-100	10	30	
2-Chlorophenol	18.3	1.0	ug/l	25.0		73	34-96	8	30	
2-Nitrophenol	21.4	1.0	ug/l	25.0		86	38-103	7	30	
3,3'-Dichlorobenzidine	24.2	5.0	ug/l	25.0		97	0.1-308	14	30	
4,6-Dinitro-2-methylphenol	24.4	5.0	ug/l	25.0		98	42-111	2	30	
4-Bromophenyl phenyl ether	19.5	1.0	ug/l	25.0		78	38-92	2	30	
4-Chloro-3-methylphenol	26.1	1.0	ug/l	25.0		104	39-103	5	30	Q-08
4-Chlorophenyl phenyl ether	22.7	1.0	ug/l	25.0		91	40-102	5	30	
4-Nitrophenol	12.2	5.0	ug/l	25.0		49	4-50	14	30	
Acenaphthene	23.4	1.0	ug/l	25.0		94	41-110	6	30	
Acenaphthylene	24.0	1.0	ug/l	25.0		96	39-110	11	30	
Anthracene	23.2	1.0	ug/l	25.0		93	45-114	0.6	30	
Benzo (a) anthracene	25.5	1.0	ug/l	25.0		102	44-109	6	30	
Benzo (a) pyrene	27.2	1.0	ug/l	25.0		109	26-122	6	30	
Benzo (b) fluoranthene	26.6	1.0	ug/l	25.0		107	37-121	5	30	
Benzo (g,h,i) perylene	33.8	2.0	ug/l	25.0		135	13-135	20	30	
Benzo (k) fluoranthene	29.6	1.0	ug/l	25.0		118	36-119	1	30	
Bis(2-chloroethoxy)methane	21.8	1.0	ug/l	25.0		87	42-105	10	30	
Bis(2-chloroethyl)ether	19.7	1.0	ug/l	25.0		79	38-100	11	30	
Bis(2-chloroisopropyl)ether	21.8	1.0	ug/l	25.0		87	29-130	12	30	
Bis(2-ethylhexyl)phthalate	28.0	5.0	ug/l	25.0		112	41-118	4	30	
Butyl benzyl phthalate	26.6	1.0	ug/l	25.0		106	49-109	7	30	
Chrysene	26.8	1.0	ug/l	25.0		107	48-116	1	30	
Dibenzo (a,h) anthracene	29.4	2.0	ug/l	25.0		117	45-110	9	30	Q-08
Diethyl phthalate	23.7	1.0	ug/l	25.0		95	44-113	2	30	
Dimethyl phthalate	24.4	1.0	ug/l	25.0		98	26-123	9	30	
Di-n-butyl phthalate	23.9	1.0	ug/l	25.0		95	45-108	0.9	30	
Di-n-octyl phthalate	25.6	1.0	ug/l	25.0		102	41-100	2	30	Q-08
Fluoranthene	25.3	1.0	ug/l	25.0		101	44-114	6	30	

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Semivolatile Organic Compounds by GC/MS - Quality Control

Batch W4J0166 - EPA 8270C

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4J0166-BSD1)				Analyzed: 10/07/14 18:45						
Fluorene	23.4	1.0	ug/l	25.0		94	41-109	5	30	
Hexachlorobenzene	23.5	1.0	ug/l	25.0		94	44-106	1	30	
Hexachlorobutadiene	22.2	1.0	ug/l	25.0		89	26-107	11	30	
Hexachlorocyclopentadiene	18.1	5.0	ug/l	25.0		73	6-100	15	30	
Hexachloroethane	19.1	1.0	ug/l	25.0		76	20-91	8	30	
Indeno (1,2,3-cd) pyrene	25.1	2.0	ug/l	25.0		100	15-131	7	30	
Isophorone	20.5	1.0	ug/l	25.0		82	41-94	11	30	
Naphthalene	22.4	1.0	ug/l	25.0		90	31-107	10	30	
Nitrobenzene	20.0	1.0	ug/l	25.0		80	41-100	6	30	
N-Nitrosodimethylamine	13.1	1.0	ug/l	25.0		52	14-63	7	30	
N-Nitrosodi-n-propylamine	21.8	1.0	ug/l	25.0		87	38-105	9	30	
Pentachlorophenol	22.5	1.0	ug/l	25.0		90	36-105	1	30	
Phenanthrene	24.2	1.0	ug/l	25.0		97	46-115	0.5	30	
Phenol	8.38	1.0	ug/l	25.0		34	7-44	16	30	
Pyrene	25.9	1.0	ug/l	25.0		104	38-123	8	30	
Surr: 2,4,6-Tribromophenol	*43.9*		*ug/l*	*50.0*		*88*	*33-96*			
Surr: 2-Fluorobiphenyl	*22.2*		*ug/l*	*25.0*		*89*	*28-100*			
Surr: 2-Fluorophenol	*25.6*		*ug/l*	*50.0*		*51*	*5-76*			
Surr: Nitrobenzene-d5	*20.1*		*ug/l*	*25.0*		*80*	*34-104*			
Surr: Phenol-d5	*16.6*		*ug/l*	*50.0*		*33*	*0.1-57*			
Surr: Terphenyl-d14	*23.5*		*ug/l*	*25.0*		*94*	*39-104*			

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0299-BLK1)				Analyzed: 10/08/14 10:48						
1,1,1,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,1-Trichloroethane	ND	1.0	ug/l							
1,1,2,2-Tetrachloroethane	ND	1.0	ug/l							
1,1,2-Trichloroethane	ND	1.0	ug/l							
1,1-Dichloroethane	ND	1.0	ug/l							
1,1-Dichloroethene	ND	1.0	ug/l							
1,1-Dichloropropene	ND	1.0	ug/l							
1,2,3-Trichloropropane	ND	1.0	ug/l							
1,2,4-Trichlorobenzene	ND	1.0	ug/l							
1,2,4-Trimethylbenzene	ND	1.0	ug/l							
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l							
1,2-Dibromoethane (EDB)	ND	1.0	ug/l							

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0299-BLK1)				Analyzed: 10/08/14 10:48						
1,2-Dichloroethane	ND	1.0	ug/l							
1,2-Dichloropropane	ND	1.0	ug/l							
1,3-Dichloropropane	ND	1.0	ug/l							
2,2-Dichloropropane	ND	1.0	ug/l							
2-Butanone	ND	5.0	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	ug/l							
2-Hexanone	ND	5.0	ug/l							
4-Methyl-2-pentanone	ND	5.0	ug/l							
Acetone	ND	5.0	ug/l							
Acetonitrile	ND	5.0	ug/l							
Acrolein	ND	5.0	ug/l							
Acrylonitrile	ND	5.0	ug/l							
Allyl chloride	ND	1.0	ug/l							
Benzene	ND	1.0	ug/l							
Bromochloromethane	ND	1.0	ug/l							
Bromodichloromethane	ND	1.0	ug/l							
Bromoform	ND	1.0	ug/l							
Bromomethane	ND	1.0	ug/l							
Carbon Disulfide	ND	1.0	ug/l							
Carbon tetrachloride	ND	1.0	ug/l							
Chlorobenzene	ND	1.0	ug/l							
Chloroethane	ND	1.0	ug/l							
Chloroform	ND	1.0	ug/l							
Chloromethane	ND	1.0	ug/l							
Chloroprene	ND	1.0	ug/l							
cis-1,2-Dichloroethene	ND	1.0	ug/l							
cis-1,3-Dichloropropene	ND	1.0	ug/l							
Dibromochloromethane	ND	1.0	ug/l							
Dibromomethane	ND	1.0	ug/l							
Dichlorodifluoromethane (Freon 12)	ND	1.0	ug/l							
Ethyl methacrylate	ND	1.0	ug/l							
Ethylbenzene	ND	1.0	ug/l							
Hexachlorobutadiene	ND	1.0	ug/l							
Iodomethane	ND	1.0	ug/l							
Isobutanol	ND	5.0	ug/l							
m,p-Xylene	ND	1.0	ug/l							
m-Dichlorobenzene	ND	1.0	ug/l							
Methacrylonitrile	ND	5.0	ug/l							
Methyl methacrylate	ND	1.0	ug/l							

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4J0299-BLK1)				Analyzed: 10/08/14 10:48						
Methylene chloride	ND	1.0	ug/l							
Naphthalene	ND	1.0	ug/l							
o-Dichlorobenzene	ND	1.0	ug/l							
o-Xylene	ND	1.0	ug/l							
p-Dichlorobenzene	ND	1.0	ug/l							
Propionitrile	ND	5.0	ug/l							
sec-Butylbenzene	ND	1.0	ug/l							
Styrene	ND	1.0	ug/l							
Tetrachloroethene	ND	1.0	ug/l							
Toluene	ND	1.0	ug/l							
trans-1,2-Dichloroethene	ND	1.0	ug/l							
trans-1,3-Dichloropropene	ND	1.0	ug/l							
trans-1,4-Dichloro-2-butene	ND	1.0	ug/l							
Trichloroethene	ND	1.0	ug/l							
Trichlorofluoromethane	ND	1.0	ug/l							
Vinyl acetate	ND	1.0	ug/l							
Vinyl chloride	ND	1.0	ug/l							
Surr: 1,2-Dichloroethane-d4	*51.9*		*ug/l*	*50.0*		*104*	*86-126*			
Surr: 4-Bromofluorobenzene	*46.1*		*ug/l*	*50.0*		*92*	*80-112*			
Surr: Dibromofluoromethane	*51.8*		*ug/l*	*50.0*		*104*	*89-120*			
Surr: Toluene-d8	*47.1*		*ug/l*	*50.0*		*94*	*91-111*			
LCS (W4J0299-BS1)				Analyzed: 10/07/14 21:50						
1,1,1,2-Tetrachloroethane	49.8	1.0	ug/l	50.0		100	83-118			
1,1,1-Trichloroethane	48.1	1.0	ug/l	50.0		96	82-123			
1,1,2,2-Tetrachloroethane	54.0	1.0	ug/l	50.0		108	72-116			
1,1,2-Trichloroethane	51.6	1.0	ug/l	50.0		103	84-118			
1,1-Dichloroethane	49.7	1.0	ug/l	50.0		99	83-114			
1,1-Dichloroethene	55.6	1.0	ug/l	50.0		111	76-130			
1,1-Dichloropropene	56.0	1.0	ug/l	50.0		112	82-128			
1,2,3-Trichloropropane	47.3	1.0	ug/l	50.0		95	72-117			
1,2,4-Trichlorobenzene	47.4	1.0	ug/l	50.0		95	70-131			
1,2,4-Trimethylbenzene	48.9	1.0	ug/l	50.0		98	83-119			
1,2-Dibromo-3-chloropropane	46.0	1.0	ug/l	50.0		92	67-126			
1,2-Dibromoethane (EDB)	50.4	1.0	ug/l	50.0		101	85-123			
1,2-Dichloroethane	48.4	1.0	ug/l	50.0		97	79-117			
1,2-Dichloropropane	57.8	1.0	ug/l	50.0		116	79-124			
1,3-Dichloropropane	51.8	1.0	ug/l	50.0		104	79-129			
2,2-Dichloropropane	46.5	1.0	ug/l	50.0		93	73-131			
2-Butanone	53.9	5.0	ug/l	50.0		108	66-134			
2-Chloroethyl vinyl ether	44.0	5.0	ug/l	50.0		88	55-141			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0299-BS1)				Analyzed: 10/07/14 21:50						
2-Hexanone	48.0	5.0	ug/l	50.0		96	66-142			
4-Methyl-2-pentanone	52.8	5.0	ug/l	50.0		106	68-139			
Acetone	57.7	5.0	ug/l	50.0		115	58-147			
Acetonitrile	253	5.0	ug/l	250		101	60-140			
Acrolein	47.2	5.0	ug/l	50.0		94	40-158			
Acrylonitrile	56.6	5.0	ug/l	50.0		113	67-131			
Allyl chloride	50.7	1.0	ug/l	50.0		101	74-129			
Benzene	55.1	1.0	ug/l	50.0		110	80-117			
Bromochloromethane	53.5	1.0	ug/l	50.0		107	79-117			
Bromodichloromethane	50.1	1.0	ug/l	50.0		100	83-132			
Bromoform	50.5	1.0	ug/l	50.0		101	72-129			
Bromomethane	49.6	1.0	ug/l	50.0		99	52-144			
Carbon Disulfide	57.2	1.0	ug/l	50.0		114	76-124			
Carbon tetrachloride	48.1	1.0	ug/l	50.0		96	77-134			
Chlorobenzene	51.1	1.0	ug/l	50.0		102	82-114			
Chloroethane	57.1	1.0	ug/l	50.0		114	68-127			
Chloroform	51.1	1.0	ug/l	50.0		102	83-118			
Chloromethane	52.8	1.0	ug/l	50.0		106	59-120			
Chloroprene	53.4	1.0	ug/l	50.0		107	66-135			
cis-1,2-Dichloroethene	53.1	1.0	ug/l	50.0		106	80-126			
cis-1,3-Dichloropropene	57.2	1.0	ug/l	50.0		114	84-130			
Dibromochloromethane	50.9	1.0	ug/l	50.0		102	83-132			
Dibromomethane	51.4	1.0	ug/l	50.0		103	80-122			
Dichlorodifluoromethane (Freon 12)	45.1	1.0	ug/l	50.0		90	65-119			
Ethyl methacrylate	42.7	1.0	ug/l	50.0		85	67-135			
Ethylbenzene	54.0	1.0	ug/l	50.0		108	76-131			
Hexachlorobutadiene	42.0	1.0	ug/l	50.0		84	71-124			
Iodomethane	55.6	1.0	ug/l	50.0		111	74-134			
Isobutanol	235	5.0	ug/l	250		94	66-133			
m,p-Xylene	56.6	1.0	ug/l	50.0		113	80-126			
m-Dichlorobenzene	50.1	1.0	ug/l	50.0		100	79-119			
Methacrylonitrile	272	5.0	ug/l	250		109	69-131			
Methyl methacrylate	60.7	1.0	ug/l	50.0		121	72-133			
Methylene chloride	59.2	1.0	ug/l	50.0		118	78-115			Q-08
Naphthalene	47.7	1.0	ug/l	50.0		95	64-145			
o-Dichlorobenzene	47.4	1.0	ug/l	50.0		95	80-117			
o-Xylene	52.3	1.0	ug/l	50.0		105	84-121			
p-Dichlorobenzene	45.8	1.0	ug/l	50.0		92	80-117			
Propionitrile	252	5.0	ug/l	250		101	64-133			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4J0299-BS1)				Analyzed: 10/07/14 21:50						
sec-Butylbenzene	49.5	1.0	ug/l	50.0		99	83-118			
Styrene	53.5	1.0	ug/l	50.0		107	87-126			
Tetrachloroethene	48.7	1.0	ug/l	50.0		97	79-126			
Toluene	53.3	1.0	ug/l	50.0		107	82-122			
trans-1,2-Dichloroethene	53.0	1.0	ug/l	50.0		106	83-121			
trans-1,3-Dichloropropene	50.1	1.0	ug/l	50.0		100	82-137			
trans-1,4-Dichloro-2-butene	41.6	1.0	ug/l	50.0		83	73-136			
Trichloroethene	52.5	1.0	ug/l	50.0		105	81-121			
Trichlorofluoromethane	52.8	1.0	ug/l	50.0		106	71-131			
Vinyl acetate	39.4	1.0	ug/l	50.0		79	71-127			
Vinyl chloride	52.0	1.0	ug/l	50.0		104	66-124			
Surr: 1,2-Dichloroethane-d4	*48.6*		*ug/l*	*50.0*		*97*	*86-126*			
Surr: 4-Bromofluorobenzene	*48.2*		*ug/l*	*50.0*		*96*	*80-112*			
Surr: Dibromofluoromethane	*47.7*		*ug/l*	*50.0*		*95*	*89-120*			
Surr: Toluene-d8	*49.7*		*ug/l*	*50.0*		*99*	*91-111*			
Matrix Spike (W4J0299-MS1)	**Source: 4J01059-01**			Analyzed: 10/08/14 12:13						
1,1,1,2-Tetrachloroethane	53.1	1.0	ug/l	50.0	ND	106	80-119			
1,1,1-Trichloroethane	52.0	1.0	ug/l	50.0	ND	104	77-132			
1,1,2,2-Tetrachloroethane	54.9	1.0	ug/l	50.0	ND	110	59-119			
1,1,2-Trichloroethane	54.3	1.0	ug/l	50.0	ND	109	77-124			
1,1-Dichloroethane	57.0	1.0	ug/l	50.0	ND	114	83-118			
1,1-Dichloroethene	56.4	1.0	ug/l	50.0	ND	113	64-140			
1,1-Dichloropropene	56.0	1.0	ug/l	50.0	ND	112	78-134			
1,2,3-Trichloropropane	51.4	1.0	ug/l	50.0	ND	103	54-133			
1,2,4-Trichlorobenzene	43.0	1.0	ug/l	50.0	ND	86	57-127			
1,2,4-Trimethylbenzene	49.8	1.0	ug/l	50.0	ND	100	76-120			
1,2-Dibromo-3-chloropropane	46.1	1.0	ug/l	50.0	ND	92	52-131			
1,2-Dibromoethane (EDB)	47.7	1.0	ug/l	50.0	ND	95	78-124			
1,2-Dichloroethane	53.1	1.0	ug/l	50.0	ND	106	70-125			
1,2-Dichloropropane	59.3	1.0	ug/l	50.0	ND	119	77-121			
1,3-Dichloropropane	49.8	1.0	ug/l	50.0	ND	100	79-122			
2,2-Dichloropropane	51.6	1.0	ug/l	50.0	ND	103	59-139			
2-Butanone	55.9	5.0	ug/l	50.0	ND	112	52-134			
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	42.0	5.0	ug/l	50.0	ND	84	54-144			
4-Methyl-2-pentanone	54.9	5.0	ug/l	50.0	ND	110	59-144			
Acetone	46.1	5.0	ug/l	50.0	ND	92	29-151			
Acetonitrile	301	5.0	ug/l	250	ND	120	55-144			
Acrolein	52.0	5.0	ug/l	50.0	ND	104	0.1-178			
Acrylonitrile	56.0	5.0	ug/l	50.0	ND	112	62-129			

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Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0299-MS1)	**Source: 4J01059-01**			Analyzed: 10/08/14 12:13						
Allyl chloride	61.8	1.0	ug/l	50.0	ND	124	62-135			
Benzene	58.9	1.0	ug/l	50.0	ND	118	74-114			MS-05
Bromochloromethane	59.0	1.0	ug/l	50.0	ND	118	74-121			
Bromodichloromethane	51.6	1.0	ug/l	50.0	ND	103	79-132			
Bromoform	49.7	1.0	ug/l	50.0	ND	99	78-133			
Bromomethane	67.1	1.0	ug/l	50.0	ND	134	41-155			
Carbon Disulfide	59.8	1.0	ug/l	50.0	ND	120	72-125			
Carbon tetrachloride	49.3	1.0	ug/l	50.0	ND	99	73-145			
Chlorobenzene	53.4	1.0	ug/l	50.0	ND	107	78-115			
Chloroethane	76.8	1.0	ug/l	50.0	ND	154	69-134			MS-05
Chloroform	54.4	1.0	ug/l	50.0	ND	109	78-123			
Chloromethane	72.0	1.0	ug/l	50.0	ND	144	65-123			MS-05
Chloroprene	60.2	1.0	ug/l	50.0	ND	120	56-139			
cis-1,2-Dichloroethene	58.0	1.0	ug/l	50.0	ND	116	80-123			
cis-1,3-Dichloropropene	49.2	1.0	ug/l	50.0	ND	98	74-127			
Dibromochloromethane	46.9	1.0	ug/l	50.0	ND	94	79-132			
Dibromomethane	50.2	1.0	ug/l	50.0	ND	100	74-124			
Dichlorodifluoromethane (Freon 12)	51.1	1.0	ug/l	50.0	ND	102	72-124			
Ethyl methacrylate	39.7	1.0	ug/l	50.0	ND	79	60-134			
Ethylbenzene	56.2	1.0	ug/l	50.0	ND	112	75-123			
Hexachlorobutadiene	37.2	1.0	ug/l	50.0	ND	74	68-119			
Iodomethane	56.3	1.0	ug/l	50.0	ND	113	58-147			
Isobutanol	272	5.0	ug/l	250	ND	109	51-147			
m,p-Xylene	59.1	1.0	ug/l	50.0	ND	118	76-124			
m-Dichlorobenzene	50.4	1.0	ug/l	50.0	ND	101	74-113			
Methacrylonitrile	296	5.0	ug/l	250	ND	119	65-134			
Methyl methacrylate	57.3	1.0	ug/l	50.0	ND	115	61-135			
Methylene chloride	63.1	1.0	ug/l	50.0	ND	126	75-118			MS-05
Naphthalene	36.4	1.0	ug/l	50.0	ND	73	48-143			
o-Dichlorobenzene	51.1	1.0	ug/l	50.0	ND	102	73-115			
o-Xylene	54.0	1.0	ug/l	50.0	ND	108	76-123			
p-Dichlorobenzene	45.6	1.0	ug/l	50.0	ND	91	74-117			
Propionitrile	271	5.0	ug/l	250	ND	108	62-133			
sec-Butylbenzene	52.6	1.0	ug/l	50.0	ND	105	75-125			
Styrene	56.0	1.0	ug/l	50.0	ND	112	73-124			
Tetrachloroethene	47.1	1.0	ug/l	50.0	ND	94	80-129			
Toluene	57.1	1.0	ug/l	50.0	ND	114	79-123			
trans-1,2-Dichloroethene	53.6	1.0	ug/l	50.0	ND	107	80-123			
trans-1,3-Dichloropropene	53.4	1.0	ug/l	50.0	ND	107	76-130			

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike (W4J0299-MS1)	**Source: 4J01059-01**			Analyzed: 10/07/14 08:12						
trans-1,4-Dichloro-2-butene	44.1	1.0	ug/l	50.0	ND	88	64-129			
Trichloroethene	52.1	1.0	ug/l	50.0	ND	104	79-126			
Trichlorofluoromethane	54.6	1.0	ug/l	50.0	ND	109	73-139			
Vinyl acetate	38.7	1.0	ug/l	50.0	ND	77	28-134			
Vinyl chloride	77.4	1.0	ug/l	50.0	ND	155	73-131			MS-05
Surr: 1,2-Dichloroethane-d4	*57.6*		*ug/l*	*50.0*		*115*	*86-126*			
Surr: 4-Bromofluorobenzene	*47.8*		*ug/l*	*50.0*		*96*	*80-112*			
Surr: Dibromofluoromethane	*50.0*		*ug/l*	*50.0*		*100*	*89-120*			
Surr: Toluene-d8	*49.4*		*ug/l*	*50.0*		*99*	*91-111*			
Matrix Spike Dup (W4J0299-MSD1)	**Source: 4J01059-01**			Analyzed: 10/08/14 12:41						
1,1,1,2-Tetrachloroethane	47.5	1.0	ug/l	50.0	ND	95	80-119	11	25	
1,1,1-Trichloroethane	54.0	1.0	ug/l	50.0	ND	108	77-132	4	25	
1,1,2,2-Tetrachloroethane	49.3	1.0	ug/l	50.0	ND	99	59-119	11	25	
1,1,2-Trichloroethane	50.8	1.0	ug/l	50.0	ND	102	77-124	7	25	
1,1-Dichloroethane	57.7	1.0	ug/l	50.0	ND	115	83-118	1	25	
1,1-Dichloroethene	61.4	1.0	ug/l	50.0	ND	123	64-140	9	25	
1,1-Dichloropropene	58.7	1.0	ug/l	50.0	ND	117	78-134	5	25	
1,2,3-Trichloropropane	46.3	1.0	ug/l	50.0	ND	93	54-133	10	25	
1,2,4-Trichlorobenzene	46.6	1.0	ug/l	50.0	ND	93	57-127	8	25	
1,2,4-Trimethylbenzene	50.1	1.0	ug/l	50.0	ND	100	76-120	0.5	25	
1,2-Dibromo-3-chloropropane	44.0	1.0	ug/l	50.0	ND	88	52-131	5	25	
1,2-Dibromoethane (EDB)	45.0	1.0	ug/l	50.0	ND	90	78-124	6	25	
1,2-Dichloroethane	51.7	1.0	ug/l	50.0	ND	103	70-125	3	25	
1,2-Dichloropropane	56.7	1.0	ug/l	50.0	ND	113	77-121	5	25	
1,3-Dichloropropane	50.2	1.0	ug/l	50.0	ND	100	79-122	0.7	25	
2,2-Dichloropropane	54.5	1.0	ug/l	50.0	ND	109	59-139	5	25	
2-Butanone	58.6	5.0	ug/l	50.0	ND	117	52-134	5	25	
2-Chloroethyl vinyl ether	ND	5.0	ug/l	50.0	ND	NR	0.1-167			MS-05
2-Hexanone	40.1	5.0	ug/l	50.0	ND	80	54-144	5	25	
4-Methyl-2-pentanone	52.2	5.0	ug/l	50.0	ND	104	59-144	5	25	
Acetone	44.4	5.0	ug/l	50.0	ND	89	29-151	4	25	
Acetonitrile	240	5.0	ug/l	250	ND	96	55-144	22	25	
Acrolein	51.4	5.0	ug/l	50.0	ND	103	0.1-178	1	25	
Acrylonitrile	50.0	5.0	ug/l	50.0	ND	100	62-129	11	25	
Allyl chloride	54.2	1.0	ug/l	50.0	ND	108	62-135	13	25	
Benzene	55.3	1.0	ug/l	50.0	ND	111	74-114	6	25	
Bromochloromethane	56.8	1.0	ug/l	50.0	ND	114	74-121	4	25	
Bromodichloromethane	51.5	1.0	ug/l	50.0	ND	103	79-132	0.3	25	
Bromoform	41.4	1.0	ug/l	50.0	ND	83	78-133	18	25	
Bromomethane	74.6	1.0	ug/l	50.0	ND	149	41-155	11	25	

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0299-MSD1)	**Source: 4J01059-01**			Analyzed: 10/08/14 12:41						
Carbon Disulfide	63.4	1.0	ug/l	50.0	ND	127	72-125	6	25	MS-05
Carbon tetrachloride	53.4	1.0	ug/l	50.0	ND	107	73-145	8	25	
Chlorobenzene	48.9	1.0	ug/l	50.0	ND	98	78-115	9	25	
Chloroethane	85.9	1.0	ug/l	50.0	ND	172	69-134	11	25	MS-05
Chloroform	53.2	1.0	ug/l	50.0	ND	106	78-123	2	25	
Chloromethane	74.5	1.0	ug/l	50.0	ND	149	65-123	3	25	MS-05
Chloroprene	55.1	1.0	ug/l	50.0	ND	110	56-139	9	25	
cis-1,2-Dichloroethene	58.8	1.0	ug/l	50.0	ND	118	80-123	1	25	
cis-1,3-Dichloropropene	49.2	1.0	ug/l	50.0	ND	98	74-127	0.2	25	
Dibromochloromethane	46.0	1.0	ug/l	50.0	ND	92	79-132	2	25	
Dibromomethane	47.3	1.0	ug/l	50.0	ND	95	74-124	6	25	
Dichlorodifluoromethane (Freon 12)	56.1	1.0	ug/l	50.0	ND	112	72-124	9	25	
Ethyl methacrylate	39.1	1.0	ug/l	50.0	ND	78	60-134	1	25	
Ethylbenzene	52.3	1.0	ug/l	50.0	ND	105	75-123	7	25	
Hexachlorobutadiene	43.5	1.0	ug/l	50.0	ND	87	68-119	16	25	
Iodomethane	52.9	1.0	ug/l	50.0	ND	106	58-147	6	25	
Isobutanol	271	5.0	ug/l	250	ND	108	51-147	0.6	25	
m,p-Xylene	55.0	1.0	ug/l	50.0	ND	110	76-124	7	25	
m-Dichlorobenzene	48.0	1.0	ug/l	50.0	ND	96	74-113	5	25	
Methacrylonitrile	290	5.0	ug/l	250	ND	116	65-134	2	25	
Methyl methacrylate	60.2	1.0	ug/l	50.0	ND	120	61-135	5	25	
Methylene chloride	63.3	1.0	ug/l	50.0	ND	127	75-118	0.3	25	MS-05
Naphthalene	49.7	1.0	ug/l	50.0	ND	99	48-143	31	25	MS-05
o-Dichlorobenzene	47.6	1.0	ug/l	50.0	ND	95	73-115	7	25	
o-Xylene	50.2	1.0	ug/l	50.0	ND	100	76-123	7	25	
p-Dichlorobenzene	44.2	1.0	ug/l	50.0	ND	88	74-117	3	25	
Propionitrile	271	5.0	ug/l	250	ND	108	62-133	0.06	25	
sec-Butylbenzene	52.5	1.0	ug/l	50.0	ND	105	75-125	0.2	25	
Styrene	51.8	1.0	ug/l	50.0	ND	104	73-124	8	25	
Tetrachloroethene	48.8	1.0	ug/l	50.0	ND	98	80-129	4	25	
Toluene	55.7	1.0	ug/l	50.0	ND	111	79-123	2	25	
trans-1,2-Dichloroethene	57.8	1.0	ug/l	50.0	ND	116	80-123	7	25	
trans-1,3-Dichloropropene	52.6	1.0	ug/l	50.0	ND	105	76-130	1	25	
trans-1,4-Dichloro-2-butene	39.0	1.0	ug/l	50.0	ND	78	64-129	12	25	
Trichloroethene	50.2	1.0	ug/l	50.0	ND	100	79-126	4	25	
Trichlorofluoromethane	60.4	1.0	ug/l	50.0	ND	121	73-139	10	25	
Vinyl acetate	38.5	1.0	ug/l	50.0	ND	77	28-134	0.7	25	
Vinyl chloride	89.8	1.0	ug/l	50.0	ND	180	73-131	15	25	MS-05
Surr: 1,2-Dichloroethane-d4	*57.4*		*ug/l*	*50.0*		*115*	*86-126*			

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Batch W4J0299 - EPA 8260B

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Dup (W4J0299-MSD1)	**Source: 4J01059-01**			Analyzed: 10/08/14 12:41						
Surr: 4-Bromofluorobenzene	*49.9*		*ug/l*	*50.0*		*100*	*80-112*			
Surr: Dibromofluoromethane	*52.9*		*ug/l*	*50.0*		*106*	*89-120*			
Surr: Toluene-d8	*52.0*		*ug/l*	*50.0*		*104*	*91-111*			

EPA 1613B m - Quality Control

Batch 3783563 - EPA 1613B m

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (3783563-BLK)				Analyzed: 10/14/14 00:00						
2,3,7,8-Tetra CDD	ND	4.2	pg/L			NR	-			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*132*		*pg/L*	*200*		*66*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*128*		*pg/L*	*200*		*64*	*24-164*			*S_MAXX*
LCS (3783563-LCS)				Analyzed: 10/14/14 00:00						
2,3,7,8-Tetra CDD	176	4.2	pg/L	200		88	67-158			S_MAXX
Surr: 37CL4 2378 Tetra CDD	*100*		*pg/L*	*200*		*50*	*40-130*			*S_MAXX*
Surr: C13-2378 TetraCDD	*100*		*pg/L*	*200*		*50*	*24-164*			*S_MAXX*

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria CA, 92233

Date Received: 10/01/14 10:15
Date Reported: 11/07/14 13:31

Notes and Definitions

S_MAXX	Analysis subcontracted to Maxxam Analytics, INC. NELAC #02106A
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
O-04	This analysis was performed outside the EPA recommended holding time.
MS-05	The spike recovery and/or RPD were outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
M-05	Due to the nature of matrix interferences, sample was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
*	The recommended holding time for this analysis is only 15 minutes. The sample was analyzed as soon as it was possible but it was received and analyzed past holding time.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reportable
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Sub	Subcontracted analysis, original report available upon request
MDL	Method Detection Limit
MDA	Minimum Detectable Activity
MRL	Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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CHAIN OF CUSTODY RECORD

4J0107G

STANDARD

Page 1 Of 2

Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964
14859 East Clark Avenue : Industry : CA 91745
Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CLIENT NAME: CalEnergy Operating Corporation

PROJECT: DVC 5 Year

ADDRESS: 7030 Gentry Road, Calipatria, CA 92233

PHONE: 760-348-4241
FAX:
EMAIL: antonio.campos@calenergy.com

PROJECT MANAGER: Stella Minaev

SAMPLER: Katherine West

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	Cyanide, Total - ASTM D7511	Dioxin 2378TCDD - EPA 1613B	EPA 8081A/8082 -Pesticides & PCB	EPA 8151A - Chlorinated Herbicides	EPA 8260B - VOC	EPA 8270C - Semivolatile Organics	EPA 300.0 - Fluoride	EPA 7470 - Mercury	EPA 6010 Metals, CAM	EPA 300.0 Nitrate-NO3	COMMENTS
	09/30/14	8:55 AM	GW	DVC Monitoring Well GW09A	17	X	X	X	X	X	X	X	X	X	X	client will resample for NO3. thx
	09/30/14	7:50 AM	GW	DVC Monitoring Well GW10A	17	X	X	X	X	X	X	X	X	X	X	
	09/30/14	9:45 AM	GW	DVC Monitoring Well GW11	17	X	X	X	X	X	X	X	X	X	X	

ANALYSES REQUESTED

SPECIAL HANDLING

- [ ] Same Day Rush 150%
- [ ] 24 Hour Rush 100%
- [ ] 48-72 Hour Rush 75%
- [ ] 4 - 5 Day Rush 30%
- [ ] Rush Extractions 50%
- [x] 10 - 15 Business Days
- [ ] QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	9-30-14 12:00	10/1/14 1015
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature: 1.4 °C

Received On Ice	(Y) / N
Preserved	(Y) / N
Evidence Seals Present	Y / (N)
Container Attacked	Y / (N)
Preserved at Lab	Y / (N)

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION

Please send invoices to payables@calenergy.com

P.O# 210007

COC version 042707

Weck Laboratories, Inc.
Analytical Laboratory Services - Since 1964

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Tel 626-336-2139 ♦ Fax 626-336-2634 ♦ www.wecklabs.com

CHAIN OF CUSTODY RECORD

4J01076

STANDARD

Page 2 Of 2

CLIENT NAME: CalEnergy Operating Corporation	PROJECT: DVC 5 Year Source Test
ADDRESS: 7030 Gentry Road, Calipatria, CA 92233	PHONE: 760-348-4241 FAX: EMAIL: antonio.campos@calenergy.com
PROJECT MANAGER Stella Minaev	SAMPLER: Katherine West/Antonio Campos

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	SM 4500H B - pH	EPA 9030B/9034 - Sulfide, Total	EPA 6010B - Tin	SM2540C - Total Dissolved Solids						
	09/30/14	8:55 AM	GW	DVC Monitoring Well GW09A	SEE PAGE 1 OF 2	X	X	X	X						
	09/30/14	7:50 AM	GW	DVC Monitoring Well GW10A	SEE PAGE 1 OF 2	X	X	X	X						
	09/30/14	9:45 AM	GW	DVC Monitoring Well GW11	SEE PAGE 1 OF 2	X	X	X	X						

ANALYSES REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ 10 - 15 Business Days
- ☐ QA/QC Data Package

Charges will apply for weekends/holidays

Method of Shipment: Next Day

COMMENTS: Under Ice

RELINQUISHED BY	DATE / TIME	RECEIVED BY
K. West	9-30-14 12:00	10/1/14 10:15
RELINQUISHED BY	DATE / TIME	RECEIVED BY
RELINQUISHED BY	DATE / TIME	RECEIVED BY

SAMPLE CONDITION:

Actual Temperature	1.4 °C
Received On Ice	(Y) / N
Preserved	(Y) / N
Evidence Seals Present	Y / (N)
Container Attacked	Y / (N)
Preserved at Lab	Y / (N)

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS
Client agrees to Terms & Conditions at: www.wecklabs.com

SPECIAL REQUIREMENTS / BILLING INFORMATION
Please send invoices to payables@calenergy.com P.O# 210007

COC version 042707

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Your Project #: 4J01076
Your C.O.C. #: na

Attention:Kim G Tu

Weck Laboratories Inc
14859 East Clark Ave
Industry, CA
USA 91745

Report Date: 2014/10/1
Report #: R319060
Version: 1 - Fina

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4I4439
Received: 2014/10/03, 12:19

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
2,3,7,8-TCDD in Water (1613B)	3	2014/10/07	2014/10/14	BRL SOP-00410	EPA 1613B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Ivana Vukovic
17 Oct 2014 12:22:39 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ivana Vukovic, Env Project Manager
Email: IVukovic@maxxam.ca
Phone# (905) 817-5700

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Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XV8844							
Sampling Date		2014/09/30 08:55							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J01076-01	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.6 U	1.6	4.1	N/A	1.00	1.60	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.60	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	62	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	61	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable

Maxxam ID		XV8845							
Sampling Date		2014/09/30 07:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J01076-02	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	2.0 U	2.0	4.4	N/A	1.00	2.00	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	2.00	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	61	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	62	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817 5700 Toll Free: 800 563 6266 Fax: (905) 817 5777 www.maxxam.ca

Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		XV8846							
Sampling Date		2014/09/30 09:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	Units	4J01076-03	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.5 U	1.5	4.7	N/A	1.00	1.50	N/A	3783563
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	1.50	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	64	N/A	N/A	N/A	N/A	N/A	N/A	3783563
C13-2378 TetraCDD *	%	63	N/A	N/A	N/A	N/A	N/A	N/A	3783563

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable

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Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

TEST SUMMARY

Maxxam ID: XV8844
Sample ID: 4J01076-01
Matrix: Water

Collected: 2014/09/30
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

Maxxam ID: XV8845
Sample ID: 4J01076-02
Matrix: Water

Collected: 2014/09/30
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

Maxxam ID: XV8846
Sample ID: 4J01076-03
Matrix: Water

Collected: 2014/09/30
Shipped:
Received: 2014/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
2,3,7,8-TCDD in Water (1613B)	HRMS/MS	3783563	2014/10/07	2014/10/14	Vica Cioranic

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Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.2°C

Results relate only to the items tested.

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Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	Units	QC Limits
3783563	VCI	Spiked Blank	2,3,7,8-Tetra CDD	2014/10/15		88	%	67 - 158
			37CL4 2378 Tetra CDD	2014/10/15		50	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		50	%	24 - 164
3783563	VCI	Method Blank	2,3,7,8-Tetra CDD	2014/10/15	2.3 U, EDL=2.3		pg/L	
			37CL4 2378 Tetra CDD	2014/10/15		66	%	40 - 130
			C13-2378 TetraCDD	2014/10/15		64	%	24 - 164

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Maxxam Job #: B4I4439
Report Date: 2014/10/16

Weck Laboratories Inc
Client Project #: 4J01076

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Kay Shaw

Kay Shaw, C. Chem, Sr Scientific Specialist, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

SUBCONTRACT ORDER

Subcontract Laboratory:
Maxxam Analytics, Inc - Burlington
7070 Mississauga Road Suite #240
Mississauga-Ontario, CANADA L5N 7G2
Phone :(800) 668-0639
Fax: (905) 817-5775

Turn Around Time: Normal
Project Manager: Kim G Tu
Sampler Employed by:

Sample ID: 4J01076-01 **Sample ID:** DVC Monitoring Well GW09A **Matrix:** Water **Date Sampled:** 09/30/14 **Time Sampled:**08:55
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD w St	09/30/15 08:55	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J01076-02 **Sample ID:** DVC Monitoring Well GW10A **Matrix:** Water **Date Sampled:** 09/30/14 **Time Sampled:**07:50
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD w St	09/30/15 07:50	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

Sample ID: 4J01076-03 **Sample ID:** DVC Monitoring Well GW11 **Matrix:** Water **Date Sampled:** 09/30/14 **Time Sampled:**09:45
Sample comment: **Sampled By:**Katherine West

Analysis	Expires	Comments
Dioxin 1613 2378TCDD w St	09/30/15 09:45	
Containers Supplied:		
1-L Amber Glass-Dioxin (		

3-Oct-14 12:19
Ivana Vukovic
B4I4439
M_P ENV-809

Remarks / Special Comments:

Sample Condition:
Temperature:
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By	Date / Time	Received By	Date / Time
[signature]	10/02/14 13:30	[signature]	
Relinquished by	Date / Time	Received By	Date / Time
		SHRUTI PATEL	2014/10/03 12:19

5.4/5.0/5.1

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-37851

March 5, 2015

Antonio Campos
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233

CASE NARRATIVE Revised
Work Order # 14-08103-OR

SAMPLE RECEIPT

This work order contains twelve liquid samples received 08/20/2014. All samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
W01	14-08103-04	W305	14-08103-10
W09A	14-08103-05	W306	14-08103-11
W10A	14-08103-06	W307	14-08103-12
W11	14-08103-07	W308	14-08103-13
W12	14-08103-08	W309	14-08103-14
W302	14-08103-09	W11-DUPLICATE	14-08103-15

ANALYTICAL METHODS

Gross Alpha/Beta was performed using EPA Method 900.0 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

GROSS ALPHA & BETA

Samples were prepared by evaporation of representative volumetric aliquots acidified with HNO_3. Reduced samples were then transferred to steel planchets for final evaporation to dryness and flaming. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Samples demonstrated acceptable results for all Gross Alpha and Beta analyses. Due to high total solids, all sample results demonstrated slightly high detection limits. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

ANALYTICAL RESULTS CONTINUED

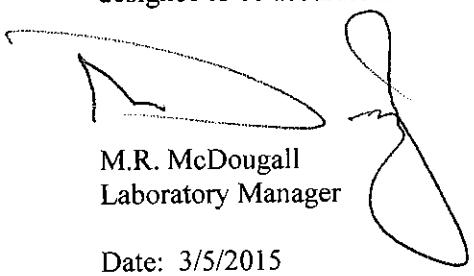
GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known aliquot of each sample to a standard geometry container. Samples were counted on High Purity Germanium (HPGe) gamma ray detectors.

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. Thorium-232 was reported from Thallium-208 assuming secular equilibrium. Gross Gamma results were calculated from Gamma activity. Due to the non-positive nature of these samples, Cesium-137 was reported as Gross Gamma to demonstrate the method sensitivity. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Cobalt-60 and Cesium-137 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.



M.R. McDougall
Laboratory Manager

Date: 3/5/2015

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-01	LCS	KNOWN	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	2.70E+02	1.16E+01			pCi/l
14-08103-01	LCS	SPIKE	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	3.00E+02	7.86E+00	3.37E+01	5.01E-01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-1.30E-02	8.46E-02	8.46E-02	2.21E-01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-3.12E+00	3.18E+01	3.18E+01	7.60E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-3.88E+01	3.59E+01	3.61E+01	9.62E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-3.08E+01	3.49E+01	3.51E+01	9.31E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	4.67E+01	5.48E+01	5.50E+01	1.09E+02	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-4.83E+01	3.78E+01	3.82E+01	1.06E+02	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	1.86E+01	2.19E+01	2.20E+01	4.12E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-5.23E+00	1.23E+01	1.23E+01	3.33E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	2.40E+01	3.46E+01	3.47E+01	7.13E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	2.17E+00	1.31E+01	1.31E+01	2.95E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	1.83E+01	1.93E+01	1.94E+01	3.78E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-7.87E+00	2.11E+01	2.12E+01	5.04E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	1.22E+01	1.77E+01	1.77E+01	3.65E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/29/2014	14-08103	Gross Alpha	EPA 900.0 Modified	-6.92E+01	4.44E+01	4.50E+01	1.26E+02	pCi/l
14-08103-01	LCS	KNOWN	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	3.02E+02	9.06E+00			pCi/l
14-08103-01	LCS	SPIKE	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	2.82E+02	6.32E+00	3.95E+01	9.17E-01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	2.36E-02	2.90E-01	2.90E-01	6.18E-01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	5.11E+01	3.47E+01	3.54E+01	6.87E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	3.78E+01	3.69E+01	3.73E+01	7.49E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	2.65E+01	3.13E+01	3.15E+01	6.39E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	9.53E+01	5.93E+01	6.07E+01	1.16E+02	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	4.04E+01	3.49E+01	3.54E+01	7.02E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	-2.14E+01	3.77E+01	3.78E+01	8.23E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	1.16E+01	1.96E+01	1.96E+01	4.06E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	5.99E+00	3.61E+01	3.61E+01	7.62E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	-1.79E+00	1.51E+01	1.51E+01	3.23E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	8.75E+01	2.11E+01	2.43E+01	3.66E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	-9.05E+00	1.84E+01	1.85E+01	4.01E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	3.53E+01	1.84E+01	1.90E+01	3.54E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/29/2014	14-08103	Gross Beta	EPA 900.0 Modified	-2.76E+01	3.87E+01	3.89E+01	8.51E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	**14-08103-Revised**
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-01	LCS	KNOWN	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	1.95E+05	7.82E+03			pCi/l
14-08103-01	LCS	KNOWN	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.24E+05	4.97E+03			pCi/l
14-08103-01	LCS	SPIKE	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	1.69E+05	1.21E+04	1.55E+04	1.56E+03	pCi/l
14-08103-01	LCS	SPIKE	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.22E+05	1.04E+04	1.21E+04	1.84E+03	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Actinium-228	EPA 901.1 Modified	4.81E+00	1.70E+01	1.70E+01	3.15E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Silver-108m	EPA 901.1 Modified	-3.75E+00	5.17E+00	5.18E+00	6.67E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Americium-241	EPA 901.1 Modified	-1.60E+01	5.73E+00	5.79E+00	8.93E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Barium-133	EPA 901.1 Modified	-1.12E+00	5.45E+00	5.45E+00	8.62E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-7.22E+00	3.53E+01	3.53E+01	5.92E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-5.35E+00	4.00E+01	4.00E+01	6.74E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.08E+01	9.98E+00	9.99E+00	1.78E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cerium-144	EPA 901.1 Modified	5.88E+00	1.63E+01	1.63E+01	2.90E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	-7.70E-01	4.78E+00	4.78E+00	8.30E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.34E+00	4.96E+00	4.96E+00	8.65E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Europium-152	EPA 901.1 Modified	-2.70E+01	3.75E+01	3.76E+01	1.35E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Europium-154	EPA 901.1 Modified	1.13E+00	1.53E+01	1.53E+01	6.99E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Europium-155	EPA 901.1 Modified	3.15E+00	7.61E+00	7.61E+00	9.37E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Gross Gamma	EPA 901.1 Modified	1.34E+00	4.96E+00	4.96E+00	8.65E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Potassium-40	EPA 901.1 Modified	3.43E+01	4.94E+01	4.94E+01	9.38E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Sodium-22	EPA 901.1 Modified	4.02E-01	5.43E+00	5.43E+00	9.62E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Niobium-94	EPA 901.1 Modified	-1.75E+00	4.40E+00	4.40E+00	7.35E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Lead-212	EPA 901.1 Modified	1.01E+01	6.45E+00	6.47E+00	1.12E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Lead-214	EPA 901.1 Modified	-1.48E+00	8.93E+00	8.93E+00	1.49E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Promethium-144	EPA 901.1 Modified	4.32E+00	5.04E+00	5.05E+00	7.28E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Radium-226	EPA 901.1 Modified	1.08E+01	9.98E+00	9.99E+00	1.78E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Radium-228	EPA 901.1 Modified	4.81E+00	1.70E+01	1.70E+01	3.15E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-5.02E-01	4.33E+00	4.33E+00	7.26E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	1.23E+01	4.28E+01	4.28E+01	7.37E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Antimony-125	EPA 901.1 Modified	1.78E+00	1.16E+01	1.16E+01	1.99E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	14-08103-Revised
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Tin-113	EPA 901.1 Modified	-5.32E+00	5.28E+00	5.29E+00	8.43E+00	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Thorium-228	EPA 901.1 Modified	4.81E+00	1.70E+01	1.70E+01	3.15E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Thorium-232	EPA 901.1 Modified	5.63E+00	1.40E+01	1.40E+01	2.44E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.51E+02	5.19E+01	5.25E+01	9.52E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Thallium-208	EPA 901.1 Modified	5.63E+00	1.40E+01	1.40E+01	2.44E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Uranium-235	EPA 901.1 Modified	7.83E+00	2.06E+01	2.06E+01	3.45E+01	pCi/l
14-08103-02	MBL	BLANK	08/20/14 00:00	8/20/2014	8/26/2014	14-08103	Zinc-65	EPA 901.1 Modified	-1.03E+00	9.41E+00	9.41E+00	1.62E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Final Report of Analysis

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CalEnergy Operating Corp
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Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Actinium-228	EPA 901.1 Modified	9.26E+00	1.18E+01	1.18E+01	2.33E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Silver-108m	EPA 901.1 Modified	2.00E+00	3.11E+00	3.11E+00	5.00E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Americium-241	EPA 901.1 Modified	-3.23E+00	3.31E+00	3.31E+00	1.07E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Barium-133	EPA 901.1 Modified	-1.37E+00	3.34E+00	3.34E+00	6.29E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Beryllium-7	EPA 901.1 Modified	2.40E+01	3.34E+01	3.35E+01	6.28E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-3.72E+01	2.53E+01	2.53E+01	4.07E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Bismuth-214	EPA 901.1 Modified	8.51E+00	7.15E+00	7.17E+00	1.38E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Cerium-144	EPA 901.1 Modified	-1.24E+00	1.65E+01	1.65E+01	3.16E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	3.90E-01	3.12E+00	3.12E+00	5.93E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	-1.93E+00	3.35E+00	3.35E+00	5.93E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Europium-152	EPA 901.1 Modified	1.31E+01	2.26E+01	2.26E+01	1.58E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Europium-154	EPA 901.1 Modified	5.86E+00	9.18E+00	9.19E+00	7.96E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Europium-155	EPA 901.1 Modified	-8.94E+00	8.61E+00	8.62E+00	1.19E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Gross Gamma	EPA 901.1 Modified	-1.93E+00	3.35E+00	3.35E+00	5.93E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Potassium-40	EPA 901.1 Modified	8.54E+01	4.28E+01	4.30E+01	9.17E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Sodium-22	EPA 901.1 Modified	2.10E+00	3.29E+00	3.30E+00	6.67E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Niobium-94	EPA 901.1 Modified	-1.02E+00	3.03E+00	3.03E+00	5.45E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Lead-212	EPA 901.1 Modified	1.05E+01	4.57E+00	4.60E+00	9.20E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Lead-214	EPA 901.1 Modified	6.52E+00	5.64E+00	5.65E+00	1.13E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Promethium-144	EPA 901.1 Modified	2.98E+00	3.50E+00	3.50E+00	5.84E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Radium-226	EPA 901.1 Modified	8.51E+00	7.15E+00	7.17E+00	1.38E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Radium-228	EPA 901.1 Modified	9.26E+00	1.18E+01	1.18E+01	2.33E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-2.51E+00	3.94E+00	3.94E+00	6.78E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-9.49E-01	3.20E+01	3.20E+01	5.84E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Antimony-125	EPA 901.1 Modified	-4.88E+00	8.45E+00	8.46E+00	1.47E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Tin-113	EPA 901.1 Modified	1.98E+00	3.41E+00	3.41E+00	6.85E+00	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Thorium-228	EPA 901.1 Modified	9.26E+00	1.18E+01	1.18E+01	2.33E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.67E+01	9.97E+00	1.00E+01	1.97E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Thorium-234	EPA 901.1 Modified	3.70E+02	7.30E+01	7.54E+01	1.38E+02	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.67E+01	9.97E+00	1.00E+01	1.97E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Uranium-235	EPA 901.1 Modified	1.28E+01	1.68E+01	1.68E+01	3.24E+01	pCi/l
14-08103-03	DUP	W01	08/07/14 08:47	8/20/2014	8/26/2014	14-08103	Zinc-65	EPA 901.1 Modified	-1.64E+00	7.66E+00	7.66E+00	1.35E+01	pCi/l

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Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	14-08103-Revised
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	1.13E+01	1.22E+01	1.22E+01	2.42E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	2.14E+00	3.80E+00	3.80E+00	5.04E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-2.95E+01	7.12E+00	7.28E+00	1.10E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-5.32E+00	4.34E+00	4.35E+00	6.85E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-2.36E+01	3.23E+01	3.24E+01	5.61E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-1.34E+01	2.88E+01	2.88E+01	5.09E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	3.72E+01	1.17E+01	1.18E+01	1.79E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	1.14E+01	1.68E+01	1.68E+01	3.27E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	3.15E+00	3.18E+00	3.19E+00	6.39E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	3.40E-01	3.43E+00	3.43E+00	6.37E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	-2.62E-01	2.39E+01	2.39E+01	1.75E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	-4.38E+00	9.21E+00	9.22E+00	8.84E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-2.90E+00	7.18E+00	7.18E+00	1.20E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	3.40E-01	3.43E+00	3.43E+00	6.37E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	9.75E+01	4.27E+01	4.30E+01	9.24E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	-1.57E+00	3.31E+00	3.31E+00	5.91E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	1.92E+00	3.30E+00	3.30E+00	5.89E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	4.18E+00	4.70E+00	4.70E+00	9.17E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	2.64E+01	7.29E+00	7.41E+00	1.48E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	-1.80E+00	3.38E+00	3.38E+00	5.84E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	3.72E+01	1.17E+01	1.18E+01	1.79E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	1.13E+01	1.22E+01	1.22E+01	2.42E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	1.29E+00	4.25E+00	4.25E+00	7.88E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	1.60E+01	3.18E+01	3.18E+01	6.00E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	9.38E+00	9.28E+00	9.29E+00	1.74E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	-2.18E+00	3.47E+00	3.47E+00	6.57E+00	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	1.13E+01	1.22E+01	1.22E+01	2.42E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	7.82E+00	9.69E+00	9.70E+00	1.85E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	3.66E+02	7.52E+01	7.75E+01	1.42E+02	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	7.82E+00	9.69E+00	9.70E+00	1.85E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	2.85E+01	1.85E+01	1.86E+01	3.54E+01	pCi/l
14-08103-04	DO	W01	08/07/14 08:47	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-3.03E+00	5.30E+00	5.31E+00	1.34E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Actinium-228	EPA 901.1 Modified	1.65E+01	1.18E+01	1.19E+01	2.38E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Silver-108m	EPA 901.1 Modified	-2.03E+00	3.33E+00	3.34E+00	4.24E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Americium-241	EPA 901.1 Modified	-4.47E+00	3.12E+00	3.13E+00	6.01E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Barium-133	EPA 901.1 Modified	-3.69E+00	3.49E+00	3.50E+00	6.18E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-1.85E+01	3.09E+01	3.09E+01	5.91E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Bismuth-212	EPA 901.1 Modified	2.12E+01	2.62E+01	2.62E+01	4.98E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.42E+01	7.17E+00	7.21E+00	1.40E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Cerium-144	EPA 901.1 Modified	-4.66E+00	1.64E+01	1.64E+01	3.09E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	2.29E+00	3.07E+00	3.07E+00	5.46E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	3.63E+00	3.30E+00	3.30E+00	6.41E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Europium-152	EPA 901.1 Modified	-3.55E+00	2.00E+01	2.00E+01	1.38E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Europium-154	EPA 901.1 Modified	1.19E+00	8.54E+00	8.54E+00	7.00E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Europium-155	EPA 901.1 Modified	1.03E-01	7.20E+00	7.20E+00	9.69E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Gross Gamma	EPA 901.1 Modified	3.63E+00	3.30E+00	3.30E+00	6.41E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Potassium-40	EPA 901.1 Modified	5.55E+01	4.34E+01	4.35E+01	9.72E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Sodium-22	EPA 901.1 Modified	4.33E-01	3.10E+00	3.10E+00	5.94E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Niobium-94	EPA 901.1 Modified	1.59E+00	2.98E+00	2.98E+00	5.70E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Lead-212	EPA 901.1 Modified	1.06E+01	4.60E+00	4.63E+00	9.16E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Lead-214	EPA 901.1 Modified	1.49E+01	5.97E+00	6.01E+00	1.22E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Promethium-144	EPA 901.1 Modified	-5.24E-01	3.57E+00	3.57E+00	5.52E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Radium-226	EPA 901.1 Modified	1.42E+01	7.17E+00	7.21E+00	1.40E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Radium-228	EPA 901.1 Modified	1.65E+01	1.18E+01	1.19E+01	2.38E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-4.47E+00	4.92E+00	4.92E+00	9.12E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-9.19E-02	2.96E+01	2.96E+01	5.41E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Antimony-125	EPA 901.1 Modified	-2.31E+00	6.78E+00	6.79E+00	1.29E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Tin-113	EPA 901.1 Modified	4.64E+00	3.93E+00	3.93E+00	7.95E+00	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Thorium-228	EPA 901.1 Modified	1.65E+01	1.18E+01	1.19E+01	2.38E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Thorium-232	EPA 901.1 Modified	6.56E+00	9.28E+00	9.29E+00	1.75E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Thorium-234	EPA 901.1 Modified	7.91E+01	3.18E+01	3.18E+01	6.76E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Thallium-208	EPA 901.1 Modified	6.56E+00	9.28E+00	9.29E+00	1.75E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Uranium-235	EPA 901.1 Modified	1.02E+01	1.57E+01	1.57E+01	3.01E+01	pCi/l
14-08103-05	TRG	W09A	07/31/14 10:55	8/20/2014	8/26/2014	14-08103	Zinc-65	EPA 901.1 Modified	-3.17E+00	7.92E+00	7.92E+00	1.38E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	
Antonio Campos	
CalEnergy Operating Corp	
7030 Gentry Road	
Calipatria, CA 92233	

Work Order Details:	
SDG:	14-08103-Revised
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Actinium-228	EPA 901.1 Modified	9.41E+00	1.43E+01	1.43E+01	2.82E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Silver-108m	EPA 901.1 Modified	-1.78E+00	3.80E+00	3.80E+00	5.51E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Americium-241	EPA 901.1 Modified	-1.74E+01	5.39E+00	5.46E+00	8.49E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Barium-133	EPA 901.1 Modified	-4.99E+00	4.57E+00	4.58E+00	7.68E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-6.80E+00	3.84E+01	3.84E+01	6.85E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-3.45E+00	2.82E+01	2.82E+01	5.21E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.09E+01	8.03E+00	8.05E+00	1.58E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Cerium-144	EPA 901.1 Modified	-8.75E+00	1.85E+01	1.85E+01	3.24E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Cobalt-60	EPA 901.1 Modified	9.78E-01	4.67E+00	4.67E+00	8.42E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.71E+00	4.13E+00	4.13E+00	7.80E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Europium-152	EPA 901.1 Modified	-1.04E+01	3.05E+01	3.06E+01	1.63E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Europium-154	EPA 901.1 Modified	1.06E+00	1.20E+01	1.20E+01	8.32E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Europium-155	EPA 901.1 Modified	-9.53E+00	6.70E+00	6.72E+00	9.55E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Gross Gamma	EPA 901.1 Modified	1.71E+00	4.13E+00	4.13E+00	7.80E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Potassium-40	EPA 901.1 Modified	3.70E+01	4.52E+01	4.52E+01	8.89E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Sodium-22	EPA 901.1 Modified	3.81E-01	4.30E+00	4.30E+00	7.85E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Niobium-94	EPA 901.1 Modified	9.95E-01	3.38E+00	3.38E+00	6.35E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Lead-212	EPA 901.1 Modified	1.32E+01	5.76E+00	5.80E+00	1.10E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Lead-214	EPA 901.1 Modified	5.20E+00	7.28E+00	7.28E+00	1.36E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Promethium-144	EPA 901.1 Modified	1.30E+00	3.86E+00	3.86E+00	6.84E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Radium-226	EPA 901.1 Modified	1.09E+01	8.03E+00	8.05E+00	1.58E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Radium-228	EPA 901.1 Modified	9.41E+00	1.43E+01	1.43E+01	2.82E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-2.93E+00	5.30E+00	5.30E+00	9.20E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	4.66E+01	3.58E+01	3.59E+01	7.03E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Antimony-125	EPA 901.1 Modified	-5.51E+00	9.40E+00	9.41E+00	1.65E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Tin-113	EPA 901.1 Modified	1.82E-01	4.79E+00	4.79E+00	8.73E+00	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Thorium-228	EPA 901.1 Modified	9.41E+00	1.43E+01	1.43E+01	2.82E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Thorium-232	EPA 901.1 Modified	6.79E+00	1.07E+01	1.07E+01	2.05E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.71E+02	5.03E+01	5.10E+01	1.00E+02	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Thallium-208	EPA 901.1 Modified	6.79E+00	1.07E+01	1.07E+01	2.05E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Uranium-235	EPA 901.1 Modified	6.87E+00	1.87E+01	1.87E+01	3.38E+01	pCi/l
14-08103-06	TRG	W10A	07/31/14 09:05	8/20/2014	8/26/2014	14-08103	Zinc-65	EPA 901.1 Modified	-6.36E-01	7.95E+00	7.95E+00	1.50E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	**14-08103-Revised**
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	8.77E+00	1.16E+01	1.16E+01	2.24E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	-1.52E+00	3.25E+00	3.25E+00	3.99E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-8.62E+00	3.53E+00	3.56E+00	6.42E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-2.49E+00	3.29E+00	3.30E+00	6.06E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-4.40E+00	2.64E+01	2.64E+01	5.13E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	2.14E+00	2.45E+01	2.45E+01	4.52E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	9.08E+00	8.41E+00	8.42E+00	1.85E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-1.19E+01	1.45E+01	1.45E+01	2.70E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	2.46E+00	3.22E+00	3.23E+00	6.39E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	4.71E+00	2.88E+00	2.89E+00	4.44E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	-8.78E+00	1.86E+01	1.86E+01	1.39E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	2.16E+00	9.25E+00	9.25E+00	6.97E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-8.15E-01	7.04E+00	7.04E+00	9.14E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	4.71E+00	2.88E+00	2.89E+00	4.44E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	1.07E+02	4.15E+01	4.19E+01	8.97E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	7.77E-01	3.33E+00	3.33E+00	6.39E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	-1.06E-01	3.08E+00	3.08E+00	5.26E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	1.34E+01	4.76E+00	4.81E+00	9.46E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	6.15E+00	5.53E+00	5.53E+00	1.11E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	7.86E+00	3.40E+00	3.42E+00	5.00E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	9.08E+00	8.41E+00	8.42E+00	1.85E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	8.77E+00	1.16E+01	1.16E+01	2.24E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-1.62E+00	3.63E+00	3.63E+00	6.97E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-2.03E+00	2.71E+01	2.71E+01	4.94E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	3.68E+00	6.56E+00	6.56E+00	1.31E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	-1.98E+00	3.29E+00	3.29E+00	6.21E+00	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	8.77E+00	1.18E+01	1.16E+01	2.24E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.57E+01	9.18E+00	9.21E+00	1.80E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	5.62E+01	3.21E+01	3.22E+01	6.83E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.57E+01	9.18E+00	9.21E+00	1.80E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	6.15E+00	1.53E+01	1.53E+01	2.95E+01	pCi/l
14-08103-07	TRG	W11	07/31/14 12:00	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	5.74E-01	7.09E+00	7.09E+00	1.31E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	4.55E+00	1.09E+01	1.09E+01	2.09E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	-8.52E-01	2.99E+00	2.99E+00	4.25E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-3.41E+01	7.36E+00	7.59E+00	9.50E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-1.51E+00	2.06E+00	2.06E+00	5.41E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	2.10E+00	2.83E+01	2.83E+01	5.16E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	1.05E+01	2.26E+01	2.26E+01	4.31E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	9.29E+00	6.62E+00	6.64E+00	1.28E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-2.59E+00	1.44E+01	1.44E+01	2.73E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	1.53E+00	3.01E+00	3.01E+00	5.85E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	2.11E+00	3.19E+00	3.19E+00	6.09E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	-6.45E+00	1.89E+01	1.89E+01	1.39E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	2.05E+00	7.65E+00	7.65E+00	7.12E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-8.58E+00	7.31E+00	7.33E+00	1.03E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	2.11E+00	3.19E+00	3.19E+00	6.09E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	4.39E+01	4.46E+01	4.47E+01	8.99E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	7.35E-01	2.74E+00	2.74E+00	5.44E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	4.40E-01	2.84E+00	2.84E+00	5.06E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	1.05E+01	4.21E+00	4.25E+00	8.49E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	4.35E+00	4.74E+00	4.75E+00	9.56E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	6.55E-01	3.08E+00	3.08E+00	4.67E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	9.29E+00	6.62E+00	6.64E+00	1.28E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	4.55E+00	1.09E+01	1.09E+01	2.09E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	1.62E+00	3.86E+00	3.86E+00	7.20E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	2.18E+00	2.71E+01	2.71E+01	4.93E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	1.28E+00	7.24E+00	7.24E+00	1.33E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	-7.49E-01	2.99E+00	2.99E+00	5.79E+00	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	4.55E+00	1.09E+01	1.09E+01	2.09E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.62E+01	9.26E+00	9.29E+00	1.82E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	3.67E+02	6.81E+01	7.07E+01	1.27E+02	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.62E+01	9.26E+00	9.29E+00	1.82E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	2.61E+01	1.57E+01	1.57E+01	2.99E+01	pCi/l
14-08103-08	TRG	W12	08/07/14 08:19	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-5.87E-01	6.17E+00	6.17E+00	1.15E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	**14-08103-Revised**
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	6.46E+00	1.18E+01	1.19E+01	2.24E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	1.27E+00	3.08E+00	3.08E+00	3.99E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-3.56E+00	2.49E+00	2.50E+00	6.10E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-3.84E+00	2.68E+00	2.66E+00	6.39E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	1.87E+01	2.47E+01	2.47E+01	4.93E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-1.30E+01	2.39E+01	2.40E+01	4.21E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	8.66E+00	1.06E+01	1.06E+01	1.77E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-2.09E+01	1.50E+01	1.51E+01	2.74E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	5.50E-02	3.01E+00	3.01E+00	5.60E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	2.25E+00	3.18E+00	3.18E+00	6.08E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	-1.38E+01	1.97E+01	1.98E+01	1.38E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	-4.71E-01	8.48E+00	8.48E+00	6.84E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-3.93E+00	7.08E+00	7.08E+00	9.48E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	2.25E+00	3.18E+00	3.18E+00	6.08E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	9.56E+01	3.85E+01	3.88E+01	8.43E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	-1.69E-01	3.04E+00	3.04E+00	5.76E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	-3.42E-01	2.63E+00	2.63E+00	4.82E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	1.03E+01	4.63E+00	4.66E+00	9.20E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	1.79E+01	6.42E+00	6.49E+00	1.30E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	3.20E+00	3.12E+00	3.13E+00	4.88E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	8.68E+00	1.06E+01	1.06E+01	1.77E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	6.46E+00	1.18E+01	1.19E+01	2.24E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-2.30E+00	3.13E+00	3.13E+00	5.81E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	1.43E+01	2.84E+01	2.84E+01	5.35E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	-3.18E+00	6.53E+00	6.53E+00	1.25E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	1.26E+00	3.17E+00	3.17E+00	6.27E+00	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	6.46E+00	1.18E+01	1.19E+01	2.24E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.17E+01	9.37E+00	9.39E+00	1.80E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.77E+02	7.51E+01	7.56E+01	1.23E+02	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.17E+01	9.37E+00	9.39E+00	1.80E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	7.41E+00	1.51E+01	1.51E+01	2.90E+01	pCi/l
14-08103-09	TRG	W302	08/07/14 09:36	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-1.69E+00	6.28E+00	6.29E+00	1.15E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	14-08103-Revised
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	1.68E+01	1.08E+01	1.09E+01	2.21E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	8.87E-01	3.18E+00	3.18E+00	4.19E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-4.08E+00	2.92E+00	2.93E+00	9.38E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-1.32E+00	2.84E+00	2.84E+00	5.38E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-1.72E+01	2.73E+01	2.73E+01	4.78E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	-7.89E-01	2.41E+01	2.41E+01	4.40E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	6.38E+00	6.49E+00	6.50E+00	1.23E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-2.74E+00	1.48E+01	1.48E+01	2.81E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	2.50E-01	2.62E+00	2.62E+00	5.04E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.38E+00	2.87E+00	2.88E+00	5.49E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	3.16E-01	2.02E+01	2.02E+01	1.36E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	-2.36E+00	7.31E+00	7.32E+00	6.89E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-3.25E+00	7.41E+00	7.41E+00	1.02E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	1.38E+00	2.87E+00	2.88E+00	5.49E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	4.52E+01	3.57E+01	3.57E+01	7.34E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	-8.46E-01	2.63E+00	2.63E+00	4.88E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	3.22E+00	3.10E+00	3.10E+00	5.41E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	5.42E+00	4.05E+00	4.06E+00	8.06E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	3.77E+00	4.72E+00	4.72E+00	9.50E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	2.71E-01	3.15E+00	3.15E+00	4.87E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	6.38E+00	6.49E+00	6.50E+00	1.23E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	1.68E+01	1.08E+01	1.09E+01	2.21E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-1.67E+00	3.84E+00	3.84E+00	6.78E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-2.05E+01	2.74E+01	2.74E+01	4.64E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	-3.57E-01	7.15E+00	7.15E+00	1.30E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	2.67E+00	3.00E+00	3.00E+00	6.07E+00	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	1.68E+01	1.08E+01	1.09E+01	2.21E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	7.18E+00	8.71E+00	8.72E+00	1.67E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	3.63E+02	6.69E+01	6.94E+01	1.25E+02	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	7.18E+00	8.71E+00	8.72E+00	1.67E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	4.46E+00	1.52E+01	1.52E+01	2.93E+01	pCi/l
14-08103-10	TRG	W305	08/07/14 10:27	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-9.15E-01	2.42E+00	2.42E+00	1.03E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	1.34E+01	1.09E+01	1.09E+01	2.16E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	2.97E+00	2.22E+00	2.23E+00	4.84E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-9.58E+00	3.11E+00	3.15E+00	5.73E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-2.63E+00	3.25E+00	3.25E+00	6.02E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	1.85E+01	2.30E+01	2.30E+01	5.27E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	2.25E+01	2.26E+01	2.27E+01	4.45E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	4.64E+00	6.86E+00	6.87E+00	1.28E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	2.69E+00	1.56E+01	1.56E+01	2.98E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	1.67E+00	3.08E+00	3.08E+00	6.02E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	-5.61E-01	3.27E+00	3.27E+00	5.89E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	7.66E+00	1.95E+01	1.95E+01	1.40E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	2.06E+00	8.63E+00	8.63E+00	7.08E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-3.50E+00	7.15E+00	7.15E+00	9.47E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	-5.61E-01	3.27E+00	3.27E+00	5.89E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	8.51E+01	3.75E+01	3.78E+01	8.14E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	7.40E-01	3.11E+00	3.11E+00	5.94E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	-1.37E+00	3.07E+00	3.07E+00	5.38E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	9.57E+00	4.58E+00	4.61E+00	9.05E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	6.09E+00	5.39E+00	5.40E+00	1.08E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	1.39E+00	3.18E+00	3.18E+00	5.56E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	4.64E+00	6.86E+00	6.87E+00	1.28E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	1.34E+01	1.09E+01	1.09E+01	2.16E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	2.49E+00	3.63E+00	3.64E+00	7.31E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-3.95E+00	2.98E+01	2.98E+01	5.37E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	-3.05E+00	6.44E+00	6.44E+00	1.22E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	2.23E+00	3.31E+00	3.31E+00	6.63E+00	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	1.34E+01	1.09E+01	1.09E+01	2.16E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.17E+01	9.26E+00	9.28E+00	1.79E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.06E+02	7.97E+01	7.99E+01	1.32E+02	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.17E+01	9.26E+00	9.28E+00	1.79E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	9.44E+00	1.57E+01	1.57E+01	3.02E+01	pCi/l
14-08103-11	TRG	W306	07/31/14 10:15	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-3.01E+00	7.03E+00	7.03E+00	1.21E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:

Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	**14-08103-Revised**
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	-1.89E-01	1.29E+01	1.29E+01	2.43E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	5.30E+00	3.92E+00	3.93E+00	5.77E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-1.66E+01	5.38E+00	5.44E+00	8.23E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	-1.67E+00	4.60E+00	4.60E+00	8.03E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	2.29E+01	3.14E+01	3.14E+01	6.01E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	6.45E+00	3.01E+01	3.01E+01	5.56E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.10E+00	7.64E+00	7.64E+00	1.41E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-4.05E+00	1.76E+01	1.76E+01	3.12E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	2.17E+00	4.34E+00	4.34E+00	7.90E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	1.94E+00	3.93E+00	3.93E+00	7.54E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	-4.40E+00	2.18E+01	2.18E+01	1.57E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	-8.64E+00	1.28E+01	1.27E+01	7.97E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-8.99E-01	7.00E+00	7.00E+00	9.79E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	1.94E+00	3.93E+00	3.93E+00	7.54E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	7.44E+01	4.61E+01	4.63E+01	9.81E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	-3.09E+00	4.52E+00	4.52E+00	7.37E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	-7.85E-01	3.40E+00	3.40E+00	6.22E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	9.54E+00	5.63E+00	5.65E+00	1.06E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	9.59E+00	7.40E+00	7.42E+00	1.41E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	-6.55E-01	3.91E+00	3.91E+00	5.97E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	1.10E+00	7.64E+00	7.64E+00	1.41E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	-1.89E-01	1.29E+01	1.29E+01	2.43E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	2.73E+00	4.01E+00	4.01E+00	7.67E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	1.13E+00	3.36E+01	3.36E+01	6.21E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	-7.11E+00	9.34E+00	9.35E+00	1.63E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	6.37E-02	4.34E+00	4.34E+00	7.89E+00	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	-1.89E-01	1.29E+01	1.29E+01	2.43E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	9.05E+00	1.10E+01	1.10E+01	2.12E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.74E+02	4.98E+01	5.06E+01	9.95E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	9.05E+00	1.10E+01	1.10E+01	2.12E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	2.99E+00	1.83E+01	1.83E+01	3.29E+01	pCi/l
14-08103-12	TRG	W307	08/15/14 09:22	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	-9.07E+00	6.88E+00	6.90E+00	1.04E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Actinium-228	EPA 901.1 Modified	9.50E+00	1.94E+01	1.94E+01	3.49E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Silver-108m	EPA 901.1 Modified	-3.69E+00	5.78E+00	5.78E+00	7.67E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Americium-241	EPA 901.1 Modified	-2.13E+01	6.38E+00	6.47E+00	9.64E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Barium-133	EPA 901.1 Modified	3.81E+00	6.23E+00	6.24E+00	9.71E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Beryllium-7	EPA 901.1 Modified	1.73E+01	4.66E+01	4.66E+01	8.03E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Bismuth-212	EPA 901.1 Modified	3.84E+01	4.45E+01	4.45E+01	7.98E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Bismuth-214	EPA 901.1 Modified	4.42E+00	1.05E+01	1.06E+01	1.84E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Cerium-144	EPA 901.1 Modified	-1.39E+01	1.81E+01	1.81E+01	3.11E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Cobalt-60	EPA 901.1 Modified	-2.42E+00	5.92E+00	5.92E+00	9.91E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Cesium-137	EPA 901.1 Modified	4.34E+00	5.36E+00	5.37E+00	9.69E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-152	EPA 901.1 Modified	2.66E+01	4.13E+01	4.14E+01	1.53E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-154	EPA 901.1 Modified	2.54E+00	1.50E+01	1.50E+01	7.88E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Europium-155	EPA 901.1 Modified	-6.18E+00	8.18E+00	8.18E+00	1.05E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Gross Gamma	EPA 901.1 Modified	4.34E+00	5.36E+00	5.37E+00	9.69E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Potassium-40	EPA 901.1 Modified	4.53E+01	5.44E+01	5.44E+01	1.05E+02	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Sodium-22	EPA 901.1 Modified	9.08E-01	5.37E+00	5.37E+00	9.65E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Niobium-94	EPA 901.1 Modified	1.16E-01	5.41E+00	5.41E+00	8.78E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Lead-212	EPA 901.1 Modified	1.23E+01	7.21E+00	7.23E+00	1.25E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Lead-214	EPA 901.1 Modified	8.04E+00	9.78E+00	9.78E+00	1.70E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Promethium-144	EPA 901.1 Modified	3.75E+00	5.45E+00	5.45E+00	7.90E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Radium-226	EPA 901.1 Modified	4.42E+00	1.05E+01	1.06E+01	1.84E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Radium-228	EPA 901.1 Modified	9.50E+00	1.94E+01	1.94E+01	3.49E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	5.03E-01	5.64E+00	5.64E+00	9.58E+00	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-3.69E+01	4.81E+01	4.81E+01	7.70E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Antimony-125	EPA 901.1 Modified	2.27E+00	1.38E+01	1.38E+01	2.34E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Tin-113	EPA 901.1 Modified	-1.80E+00	6.21E+00	6.21E+00	1.03E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-228	EPA 901.1 Modified	9.50E+00	1.94E+01	1.94E+01	3.49E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-232	EPA 901.1 Modified	-2.41E-01	1.22E+01	1.22E+01	2.52E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Thorium-234	EPA 901.1 Modified	2.16E+02	5.76E+01	5.86E+01	1.06E+02	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Thallium-208	EPA 901.1 Modified	-2.41E-01	1.22E+01	1.22E+01	2.52E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Uranium-235	EPA 901.1 Modified	6.63E+00	2.27E+01	2.27E+01	3.80E+01	pCi/l
14-08103-13	TRG	W308	08/15/14 10:15	8/20/2014	8/27/2014	14-08103	Zinc-65	EPA 901.1 Modified	2.29E+00	1.11E+01	1.11E+01	1.98E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Antonio Campos
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:

SDG:	14-08103-Revised
Purchase Order:	205378
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Actinium-228	EPA 901.1 Modified	7.80E-01	1.12E+01	1.12E+01	2.09E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Silver-108m	EPA 901.1 Modified	-1.09E+00	3.18E+00	3.18E+00	4.28E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Americium-241	EPA 901.1 Modified	-3.18E+01	7.24E+00	7.42E+00	9.59E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Barium-133	EPA 901.1 Modified	-2.15E+00	2.97E+00	2.97E+00	5.52E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Beryllium-7	EPA 901.1 Modified	-1.00E+00	2.75E+01	2.75E+01	5.00E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Bismuth-212	EPA 901.1 Modified	4.30E+00	2.42E+01	2.42E+01	4.50E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.17E+01	8.89E+00	8.91E+00	1.73E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Cerium-144	EPA 901.1 Modified	-5.03E+00	1.45E+01	1.45E+01	2.73E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Cobalt-60	EPA 901.1 Modified	-2.23E+00	2.96E+00	2.97E+00	5.19E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Cesium-137	EPA 901.1 Modified	2.07E+00	2.99E+00	2.99E+00	5.76E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Europium-152	EPA 901.1 Modified	1.45E-01	2.01E+01	2.01E+01	1.42E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Europium-154	EPA 901.1 Modified	6.80E+00	8.89E+00	8.89E+00	7.12E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Europium-155	EPA 901.1 Modified	-6.35E-01	7.52E+00	7.52E+00	1.03E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Gross Gamma	EPA 901.1 Modified	2.07E+00	2.99E+00	2.99E+00	5.76E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Potassium-40	EPA 901.1 Modified	5.57E+01	5.32E+01	5.33E+01	8.59E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Sodium-22	EPA 901.1 Modified	2.43E+00	3.18E+00	3.18E+00	6.43E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Niobium-94	EPA 901.1 Modified	2.35E+00	2.64E+00	2.65E+00	5.30E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Lead-212	EPA 901.1 Modified	8.78E+00	3.91E+00	3.94E+00	7.91E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Lead-214	EPA 901.1 Modified	4.58E+00	4.99E+00	4.99E+00	1.00E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Promethium-144	EPA 901.1 Modified	2.18E+00	3.08E+00	3.09E+00	5.15E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Radium-226	EPA 901.1 Modified	1.17E+01	8.89E+00	8.91E+00	1.73E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Radium-228	EPA 901.1 Modified	7.80E-01	1.12E+01	1.12E+01	2.09E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	-8.66E-01	3.34E+00	3.34E+00	5.98E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	-7.32E+00	2.77E+01	2.77E+01	5.00E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Antimony-125	EPA 901.1 Modified	7.32E-02	7.41E+00	7.41E+00	1.35E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Tin-113	EPA 901.1 Modified	3.63E+00	3.02E+00	3.02E+00	6.15E+00	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Thorium-228	EPA 901.1 Modified	7.80E-01	1.12E+01	1.12E+01	2.09E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.23E+01	9.21E+00	9.23E+00	1.79E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Thorium-234	EPA 901.1 Modified	3.39E+02	6.63E+01	6.85E+01	1.25E+02	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.23E+01	9.21E+00	9.23E+00	1.79E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Uranium-235	EPA 901.1 Modified	-4.87E-02	1.53E+01	1.53E+01	2.91E+01	pCi/l
14-08103-14	TRG	W309	08/15/14 08:40	8/20/2014	8/28/2014	14-08103	Zinc-65	EPA 901.1 Modified	-4.43E+00	6.86E+00	6.87E+00	1.19E+01	pCi/l

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Final Report of Analysis

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CalEnergy Operating Corp
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Calipatria, CA 92233

Work Order Details:
SDG: 14-08103-Revised
Purchase Order: 205378
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Actinium-228	EPA 901.1 Modified	1.27E+01	1.09E+01	1.09E+01	2.19E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Silver-108m	EPA 901.1 Modified	-8.40E-01	1.99E+00	1.99E+00	3.81E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Americium-241	EPA 901.1 Modified	-8.24E+00	3.19E+00	3.22E+00	6.07E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Barium-133	EPA 901.1 Modified	-5.10E+00	3.60E+00	3.61E+00	6.18E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Beryllium-7	EPA 901.1 Modified	2.79E+00	2.64E+01	2.64E+01	5.20E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Bismuth-212	EPA 901.1 Modified	2.77E+01	2.84E+01	2.84E+01	4.66E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Bismuth-214	EPA 901.1 Modified	1.17E+01	1.07E+01	1.07E+01	1.81E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Cerium-144	EPA 901.1 Modified	4.16E+00	1.55E+01	1.55E+01	2.98E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Cobalt-60	EPA 901.1 Modified	-3.00E-01	3.18E+00	3.18E+00	5.96E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Cesium-137	EPA 901.1 Modified	3.62E+00	3.25E+00	3.26E+00	6.34E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Europium-152	EPA 901.1 Modified	-5.67E+00	2.11E+01	2.11E+01	1.44E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Europium-154	EPA 901.1 Modified	3.74E+00	9.16E+00	9.16E+00	7.27E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Europium-155	EPA 901.1 Modified	-6.88E+00	7.20E+00	7.20E+00	9.78E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Gross Gamma	EPA 901.1 Modified	3.62E+00	3.25E+00	3.26E+00	6.34E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Potassium-40	EPA 901.1 Modified	1.11E+02	4.23E+01	4.26E+01	9.13E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Sodium-22	EPA 901.1 Modified	1.35E+00	3.30E+00	3.30E+00	6.46E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Niobium-94	EPA 901.1 Modified	7.92E-01	3.07E+00	3.07E+00	5.70E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Lead-212	EPA 901.1 Modified	1.11E+01	4.64E+00	4.67E+00	9.18E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Lead-214	EPA 901.1 Modified	1.55E+01	6.14E+00	6.19E+00	1.25E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Promethium-144	EPA 901.1 Modified	3.58E-01	3.42E+00	3.42E+00	5.44E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Radium-226	EPA 901.1 Modified	1.17E+01	1.07E+01	1.07E+01	1.81E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Radium-228	EPA 901.1 Modified	1.27E+01	1.09E+01	1.09E+01	2.19E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Ruthenium-103	EPA 901.1 Modified	4.11E-01	3.67E+00	3.67E+00	7.24E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Ruthenium-106	EPA 901.1 Modified	1.45E+01	2.91E+01	2.91E+01	5.45E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Antimony-125	EPA 901.1 Modified	4.00E+00	6.36E+00	6.36E+00	1.27E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Tin-113	EPA 901.1 Modified	-4.00E-01	3.48E+00	3.48E+00	6.73E+00	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Thorium-228	EPA 901.1 Modified	1.27E+01	1.09E+01	1.09E+01	2.19E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Thorium-232	EPA 901.1 Modified	1.38E+01	9.53E+00	9.56E+00	1.85E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Thorium-234	EPA 901.1 Modified	1.08E+02	3.37E+01	3.42E+01	7.20E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Thallium-208	EPA 901.1 Modified	1.38E+01	9.53E+00	9.56E+00	1.85E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Uranium-235	EPA 901.1 Modified	6.68E+00	1.53E+01	1.53E+01	2.94E+01	pCi/l
14-08103-15	TRG	W11-DUPLICATE	07/31/14 12:05	8/20/2014	8/28/2014	14-08103	Zinc-65	EPA 901.1 Modified	-8.03E-01	3.85E+00	3.85E+00	1.27E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Chain of Custody Record

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: 3rd Qtr 2014 DVC Monitoring Wells	Project Number:
Send Report To: CalEnergy Operating Co	Sampler (Print Name): Katie West
Address: c/o Antonio Campos	Sampler (Print Name): Antonio Campos
7030 Gentry Rd.	Shipment Method: Next Day
Capitol Calipatria, CA 92233	Airbill Number:
Phone: 760-348-4241	Laboratory Receiving:
Fax: 760-348-4222	

Page 1 of 1

14-08103

Purchase Order #: 205378

Field Sample ID		Sample Date	Sample Time	Sample Matrix	Number of Containers	Analysis Requested: Gross Alpha	Gross Beta	Gamma Spectroscopy	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
W01	4	8/7/14	0847	L	1	X	X	X		
W09A	5	7/31/14	1055	L	1	X	X	X		
W10A	6	7/31/14	0905	L	1	X	X	X		
W11	7	7/31/14	1140	L	1	X	X	X	REC'D AUG 20 2014	
W12	8	8/7/14	0819	L	1	X	X	X		
W302	9	8/7/14	0936	L	1	X	X	X		
W305	10	8/7/14	1027	L	1	X	X	X		
W306	11	7/31/14	1015	L	1	X	X	X		
W307	12	8/15/14	0922	L	1	X	X	X		
W308	13	8/15/14	1018	L	1	X	X	X		
W309	14	8/15/14	0840	L	1	X	X	X		
W11_Duplicate	15	7/31/14	1205	L	1	X	X	X		

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	Kristen Coulston	8/20/14	1100
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other _____	Received Containers Intact?	
		Temperature?	

Attachment C

E.1.b.1. Velocity and direction of groundwater flow

E.1.c. Map showing locations of observation stations, monitoring points and background monitoring points.

N

SCALE IN FEET
0 50 100 200

Direction of Flow
8.179 **Degrees NNE**

W305
W309
W307
Z7
SW2
DVC OFFICES
SW1
PROCESS WATER WELL
CELL 3
Processing Area D
W308
W306
W10A
Z3
Closed Cells 1 & 2
Processing Area A
Processing Area B
Processing Area C
W09A
CELL 1
Z4
Z2
W11
CELL 2
Z5
Z6
W12
W302
W01

DVC MONOFILL FACILITY
MONITORING WELL LOCATIONS

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CAL ENERGY OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

REV	DATE	DESCRIPTION	BY	APRV

REVISION RECORD

ISSUE	DATE	REV	DESCRIPTION

ISSUE RECORD

last printed: Thursday, January 24, 2013 4:20:56 PM

ENGINEERING MGR:
PROJECT MGR: K CAMPBELL
PROJECT ENG:
DRAWN BY: J HULA
DRAWN DATE: 9/9/2010

DESERT VALLEY COMPANY
MONOFILL FACILITY
GROUND WATER
MONITORING WELL PLAN

W:\Drafting-W\2 Groundwater Monitoring Wells\18-0901-DY-02_12.DWG

PROJECT NUMBER

DRAWING NUMBER
18-1003-GA-22_0
SHEET NUMBER
020

DVC Groundwater Flow Rate
5- Year COC Report

The average linear velocity of groundwater flow (v) is a function of hydraulic conductivity (K), hydraulic gradient (i), and effective porosity (n_e):

$$v = - Ki/n_e$$

v	=	-	K	*	i	/	n_e
m/s			m/s				
3.49E-08			1.00E-06		0.01536		0.44

3.61 ft/y

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient -- Magnitude and Direction

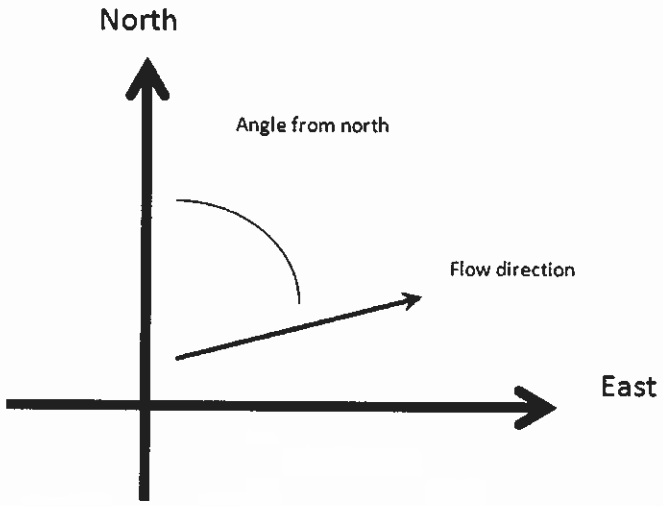
Gradient Calculation from fitting a plane to as many as thirty points

$a\,x_1 + b\,y_1 + c = h_1$
$a\,x_2 + b\,y_2 + c = h_2$
$a\,x_3 + b\,y_3 + c = h_3$
. . .
$a\,x_{30} + b\,y_{30} + c = h_{30}$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

$i = 1,2,3, \ldots , 30$
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant



Inputs

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back

Site Name: DVC - 5 Year COC
Date: Sept.- Oct. 2014 | Current Date
Calculation basis: Head
Coordinates: ft

I.D.	x-coordinate	y-coordinate	head ft
1) W01	8635.7	8646.5	-181.55
2) W09A	9130.0	9191.7	-181.21
3) W10A	9262.5	9019.6	-180.24
4) W11	8901.1	9127.4	-182.26
5) W12	8714.4	9077.5	-182.13
6) W302	8691.3	7795.5	-159.48
7) W305	9927.9	7900.2	-170.86
8) W306	9320.7	7045.1	-149.10
9) W307	9349.9	8585.3	-169.11
10) W308	9425.5	8249.9	-169.02
11) W309	9780.6	7986.7	-168.83
12)			
13)			
14)			
15)			
16)			
17)			

18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				
28)				
29)				
30)				

Results

Number of Points Used in Calculation	11
Max. Difference Between Head Values	10.11
Gradient Magnitude (i)	0.01536
Flow direction as degrees from North (positive y axis)	8.179
Coefficient of Determination (R^2)	0.883

WCMS

Last updated on Thursday, January 10, 2013

Attachment D

California Registered Professional Engineer Review Certifications

REVIEW OF MONITORING REPORT BY PROFESSIONAL ENGINEER

Waste Discharge Requirements and Monitoring for
Desert Valley Company Class II Solid Waste Management Facility,
Northwest of Westmorland, Imperial County
Permit Dated September 12, 2003

Regional Board WDID No. 7A 13 2197 001
Board Order No. R7-2003-0075
Facility Name: Desert Valley Co. WMF

Iris Environmental has reviewed the report and its attachments, prepared by Desert Valley Company, titled "Desert Valley Company Class II Solid Waste Management Facility, 5-Year Constituents of Concern Report (COC) and 2014 Annual Summary Report, Regional Board WDID No. 7A 13 2197 001, Board Order No. R7-2003-0075." This report was prepared as required by monitoring and reporting program R7-2003-0075.

Based on Iris Environmental's inquiry of the person or persons who generated this report, the information is, to the best of Iris Environmental's knowledge, true, complete, and complies with Order No. R7-2003-0075.

March 12, 2015

Bita Tabatabai, P.E.
Principal
Iris Environmental
Irvine, California

DESERT VALLEY COMPANY

7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

February 28, 2018

Mr. Doug Wylie
California Regional Water Quality Control Board
73-720 Fred Waring Drive, Suite 100
Palm Desert, California 92260

SUBJECT: Desert Valley Company Class II Solid Waste Management Facility
2017 Annual Summary Report
Regional Board WDID No. 7A 13 2197 001
Board Order No. R7-2016-0016

Dear Mr. Wylie,

In accordance with conditions E.2. of Part I of the Monitoring and Reporting Program No. R7-2016-0016, please find the 2017 Annual Summary Report. This annual summary report has received the appropriate technical review and approval by a California Registered Professional Engineer. Please see Attachment "D" of the report.

"I declare under the penalty of law that I have personally examined and am familiar with the information submitted in the document, and the based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Should you have any questions or suggestions concerning these reports, please contact Anetha Lue at (760) 348-4200 or by email at Anetha.Lue@calenergy.com.

Sincerely,

3/12/18

Leslie Sarion
General Manager

Enclosure
Attachments

Cc: Jeff Lamoure, I.C. Public Health Department
Richard Cabanilla, I. C. Development and Planning Services
Anetha Lue
Jon Trujillo
Yanqiu Wu

Cc: Sam Rubin
Osvaldo Flores
Clare Steedman, Terraphase Engineering
Environmental File

Attachment A

Summary of Conditions and Responses

Annual Summary Report

Part I.

E.2.a. Graphical Presentation of Analytical Data

- Graphical presentation of monitoring and background monitoring wells for all samples taken within the previous five calendar years. (Attachment B). CalEnergy is submitting the graphical presentation for calendar years 2013 through 2017 (Attachment B).

F.2.b. Tabular Summary of analytical data obtained during the previous two (2) monitoring and reporting periods

- Tabular data for the Groundwater Monitoring Wells (Attachment C)
- As required, complete analytical monitoring data reports obtained over the last two years have been submitted via GeoTracker as part of the quarterly Monitoring Detection reports.

G.2.c. Discussion of compliance record

- There were no compliance issues to report in 2017. The monitoring and background wells were in compliance. No violations were identified since the last report was submitted and no correction plans are in place at this time.

H.2.d. Written summary of ground water analysis indicating any changes made since the previous annual report.

- No changes were made since the previous annual report.

I.2.e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to Title 27, Section 20365.

- All run-on/ run-off control features in use at Desert Valley Company e.g. Leachate Collection and Recycling System (LCRS), site grading, flood diversion berms and wall performed as designed throughout 2017. On January 2018 the Desert Valley Company monofill entered discharger Level 2 Exceedance Response Action status (ERA) for Iron after exceeding the annual Numerical Action Limit in 2017. A Level 2 ERA Action Plan has been submitted to the SWRCB detailing advanced BMP(s) selected for implementation in 2018. Level 2 Technical Report describing outcome of implemented action plan will be submitted in 2019.

E.2.f. Evaluation of the effectiveness of the leachate monitoring / control facilities, pursuant to Title 27 Section 20340.

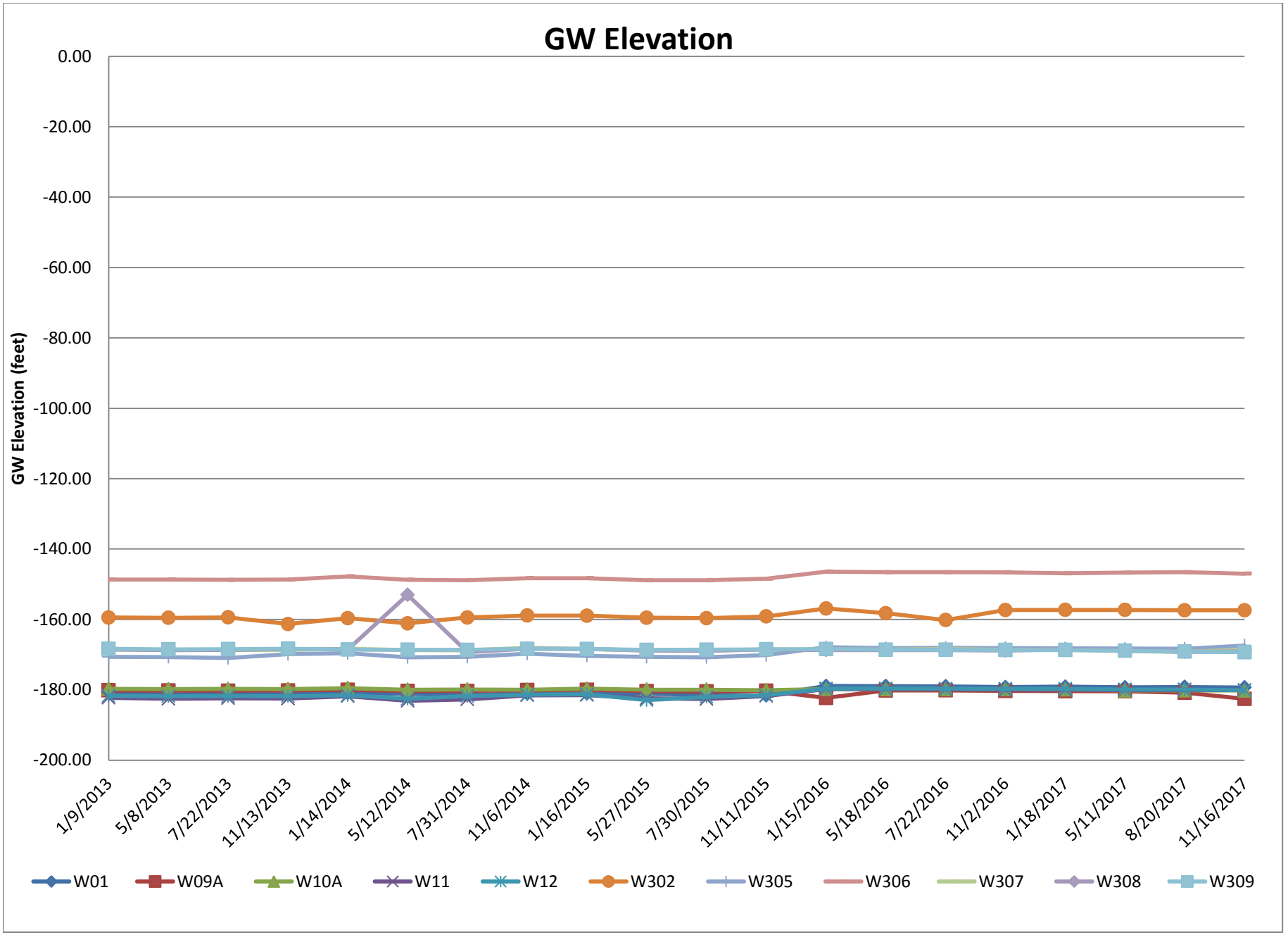
- Leachate and leak detection systems are inspected weekly by running their respective pumps and recording the readings of the total flow meters. The volume of recovered water is recorded and logged in the facility database.
- Desert Valley Company believes that the leachate monitoring and control systems are effective in ensuring timely removal of liquids captured.
- No malfunctions of the Leachate Collection and Removal Systems were recorded in 2017.

E.2.g. Map showing the area that has been filled with geothermal material in the last year.

- See Attachment "D" for site map.
- Cell 3 opened July 2005. The material being placed into the cell is being deposited into the northeast corner of the cell (Processing Area D).

Attachment B

Graphical Presentation
Groundwater Monitoring Wells (5-Years)


GW Elevation
GW Elevation (feet)
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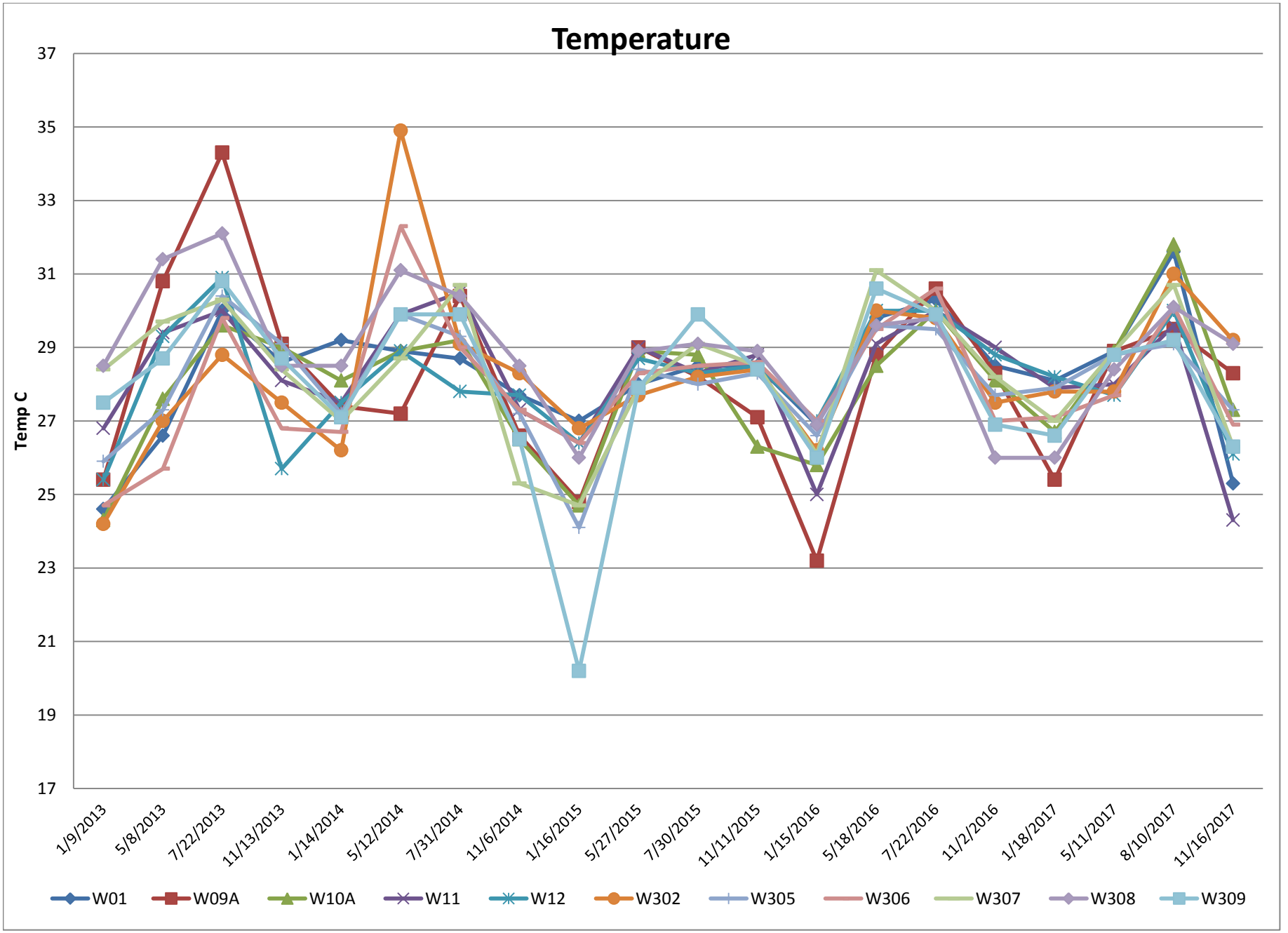
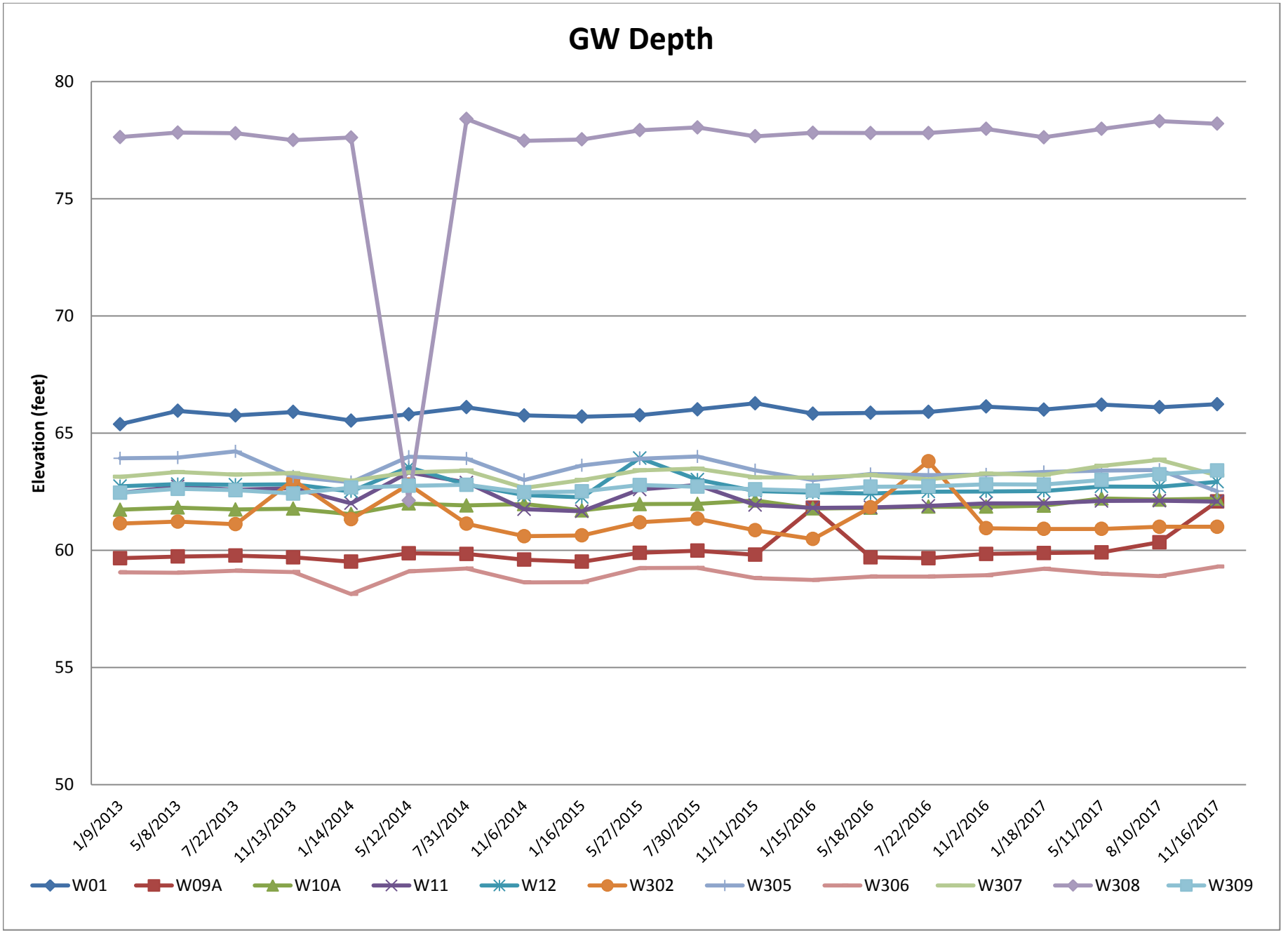
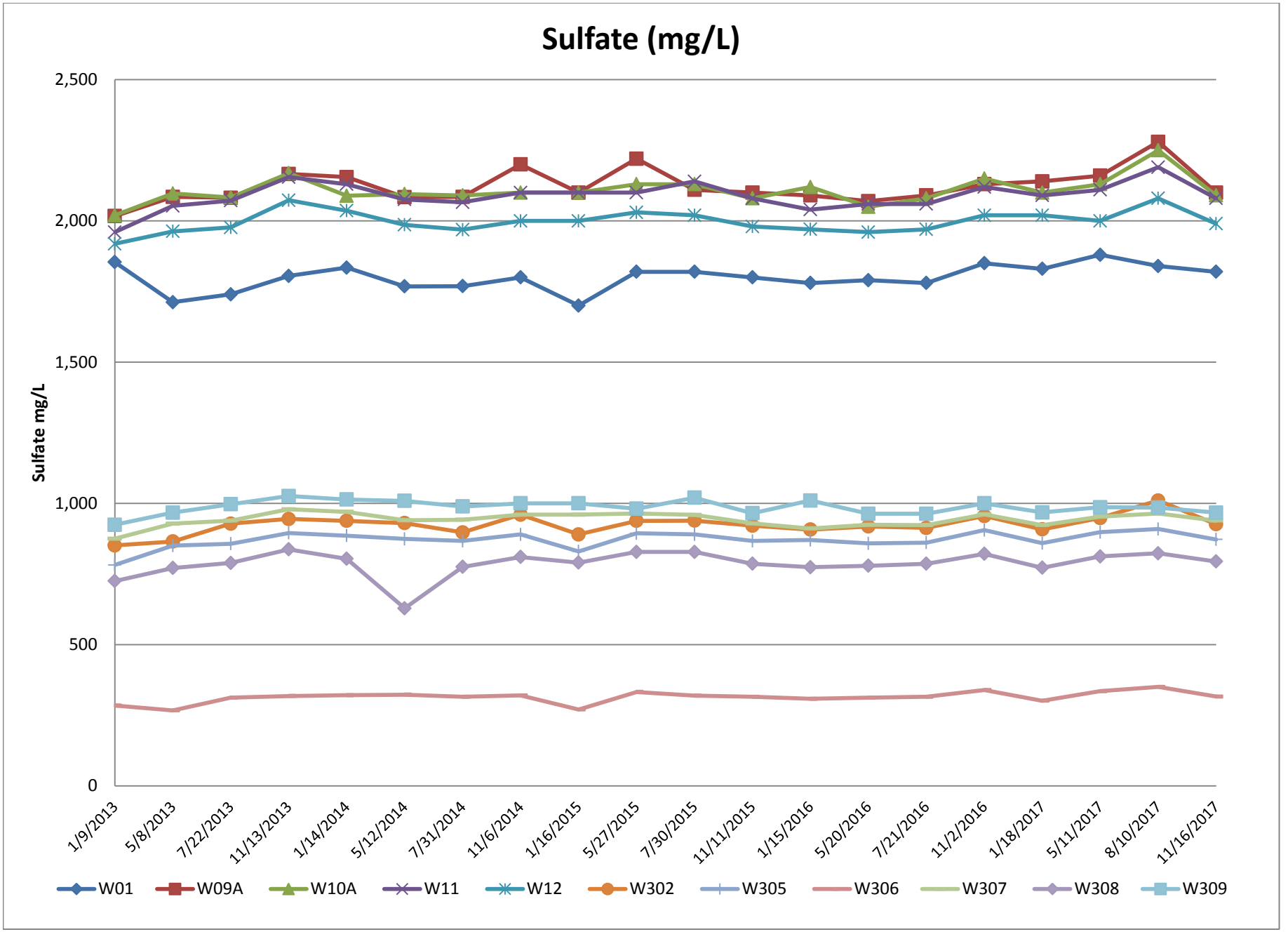
-40.00
-60.00
-80.00
-100.00
-120.00
-140.00
-160.00
-180.00
-200.00
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/18/2016
7/22/2016
11/2/2016
1/18/2017
5/11/2017
8/20/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Temperature
Temp C
37
35
33
31
29
27
25
23
21
19
17
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/18/2016
7/22/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


GW Depth
Elevation (feet)
80
75
70
65
60
55
50
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/18/2016
7/22/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Sulfate (mg/L)
Sulfate mg/L
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2,000
1,500
1,000
500
0
1/9/2013
5/8/2013
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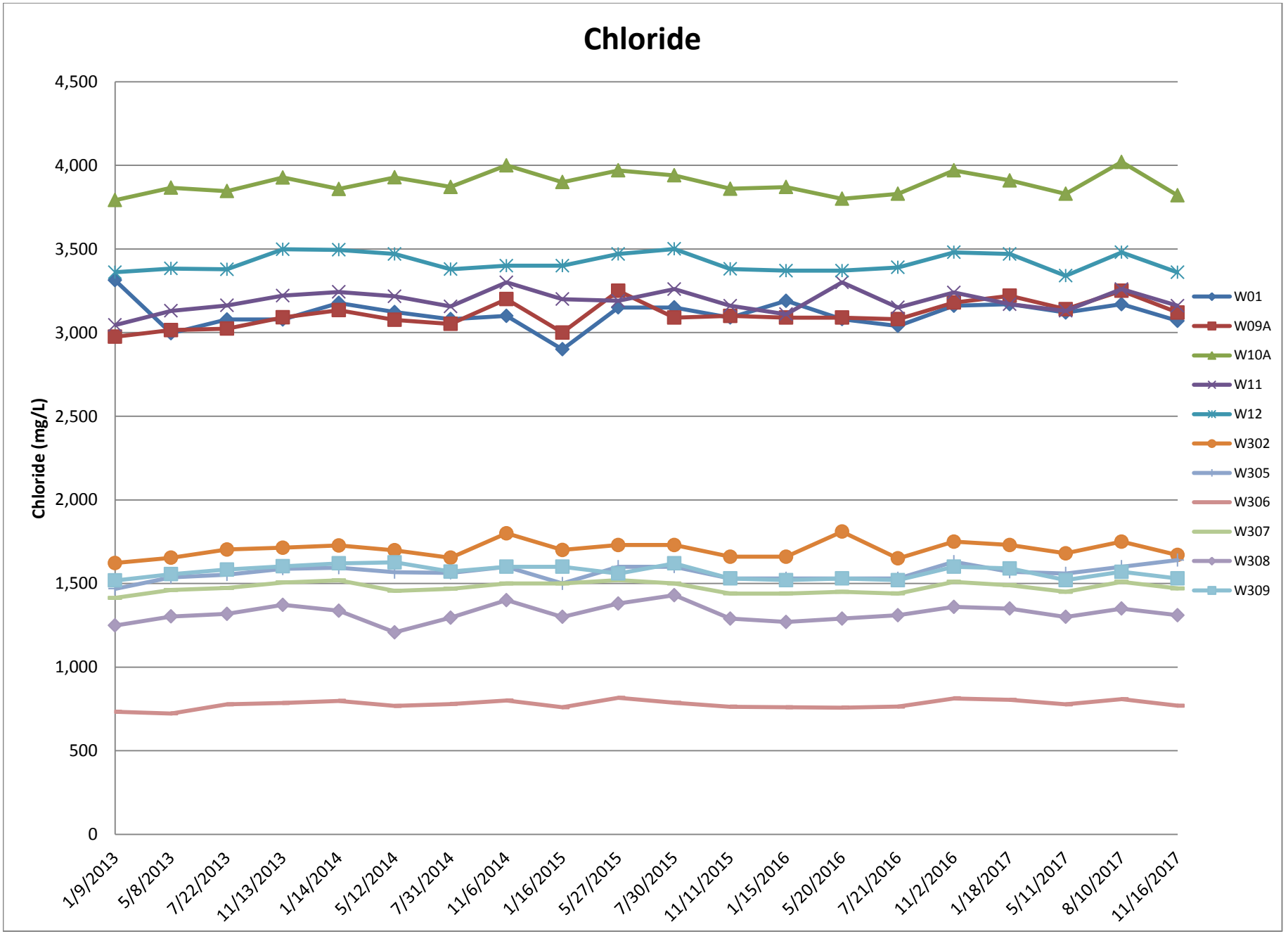
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Chloride
Chloride (mg/L)
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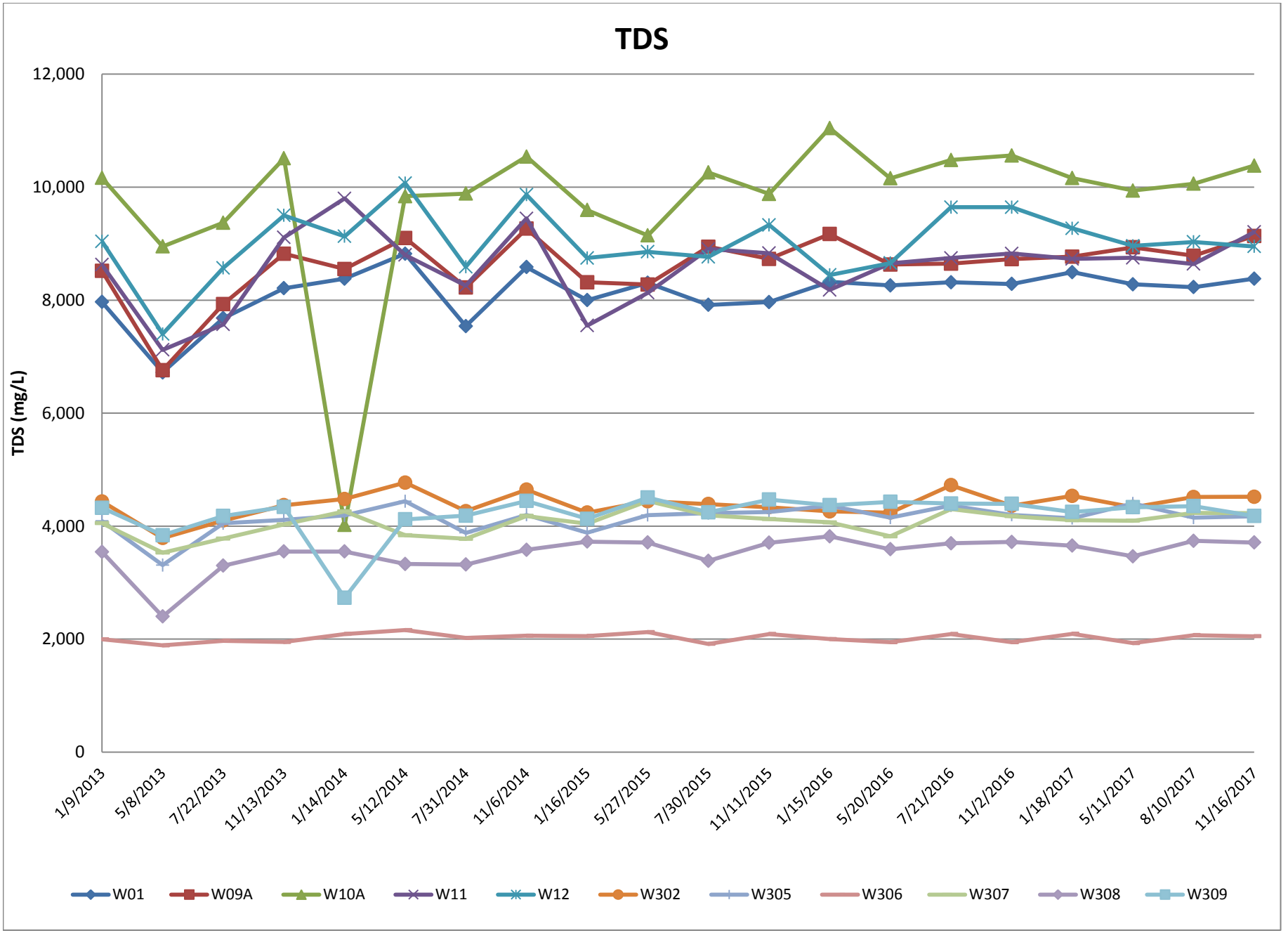
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


TDS
TDS (mg/L)
12,000
10,000
8,000
6,000
4,000
2,000
0
1/9/2013
5/8/2013
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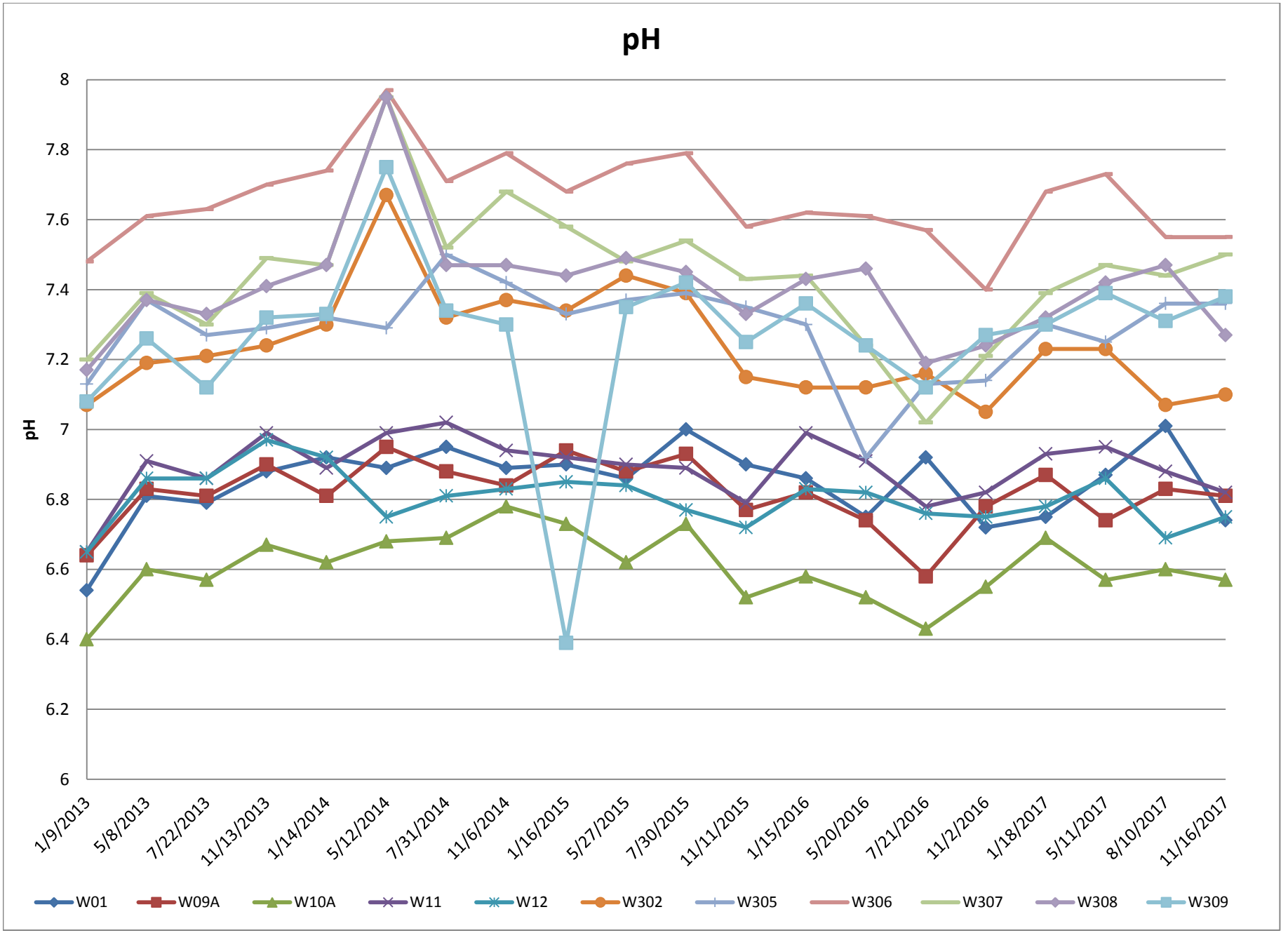
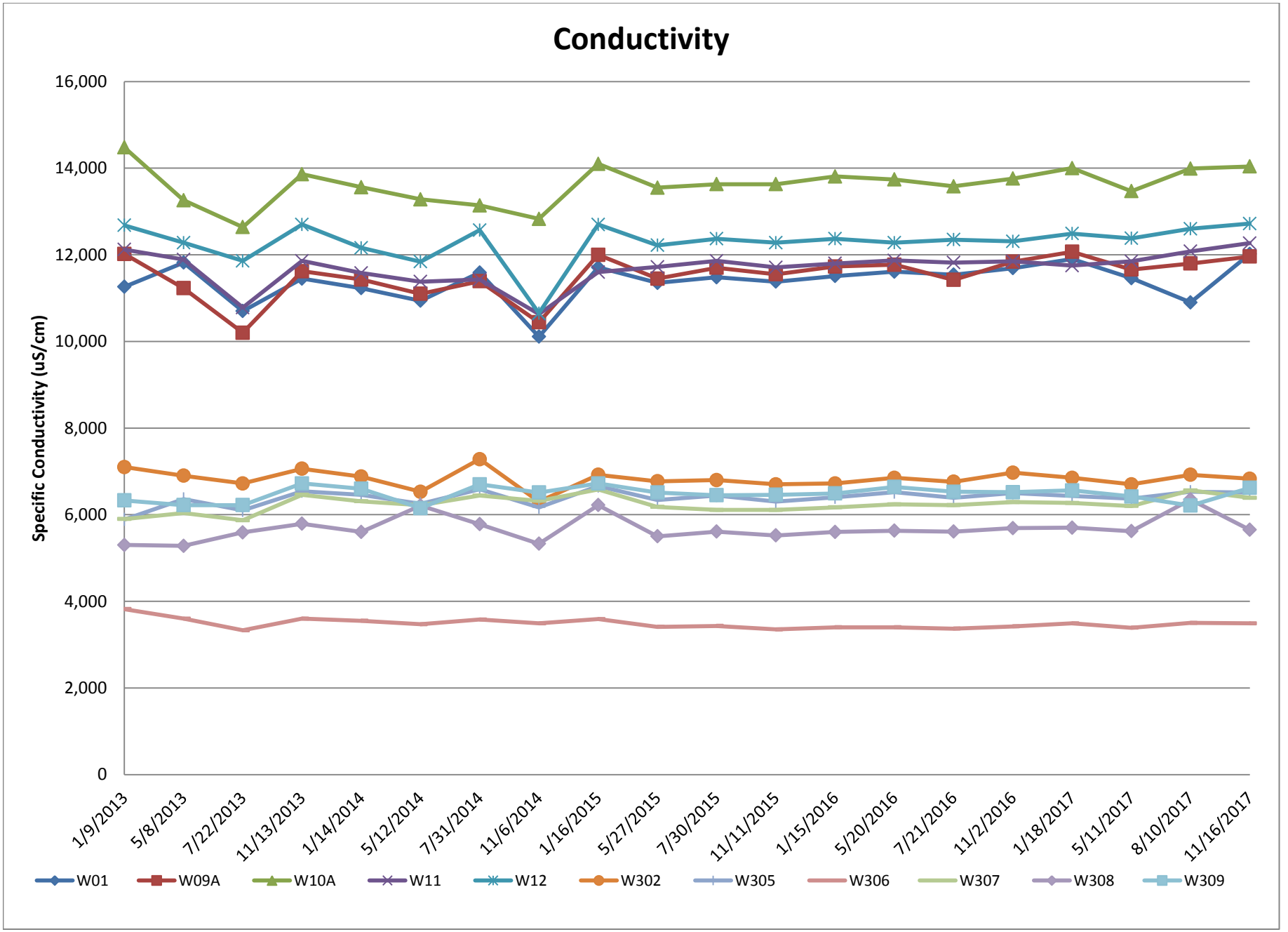
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


pH
8
7.8
7.6
7.4
7.2
7
6.8
6.6
6.4
6.2
6
pH
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Conductivity
Specific Conductivity (uS/cm)
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14,000
12,000
10,000
8,000
6,000
4,000
2,000
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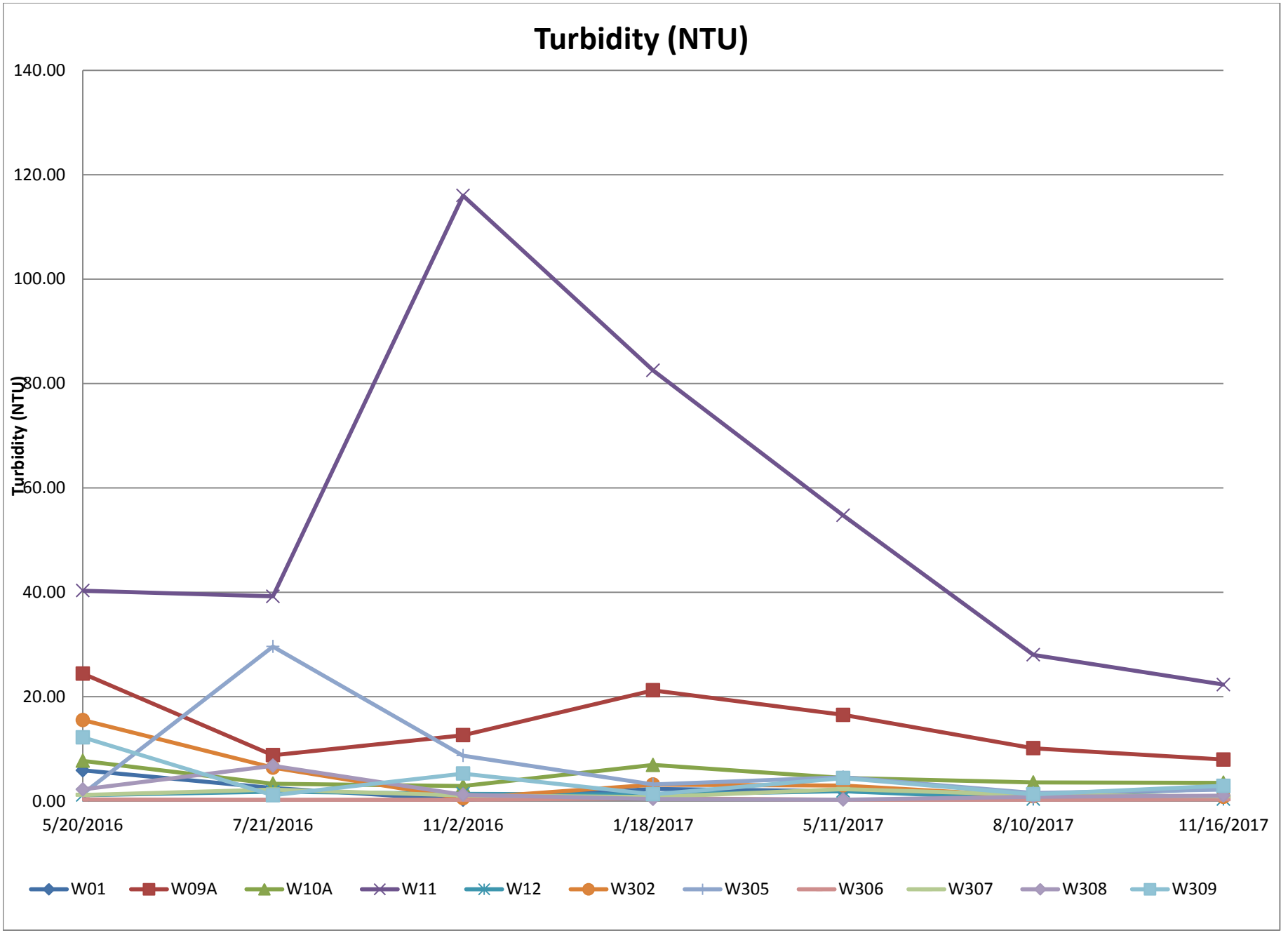
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Turbidity (NTU)
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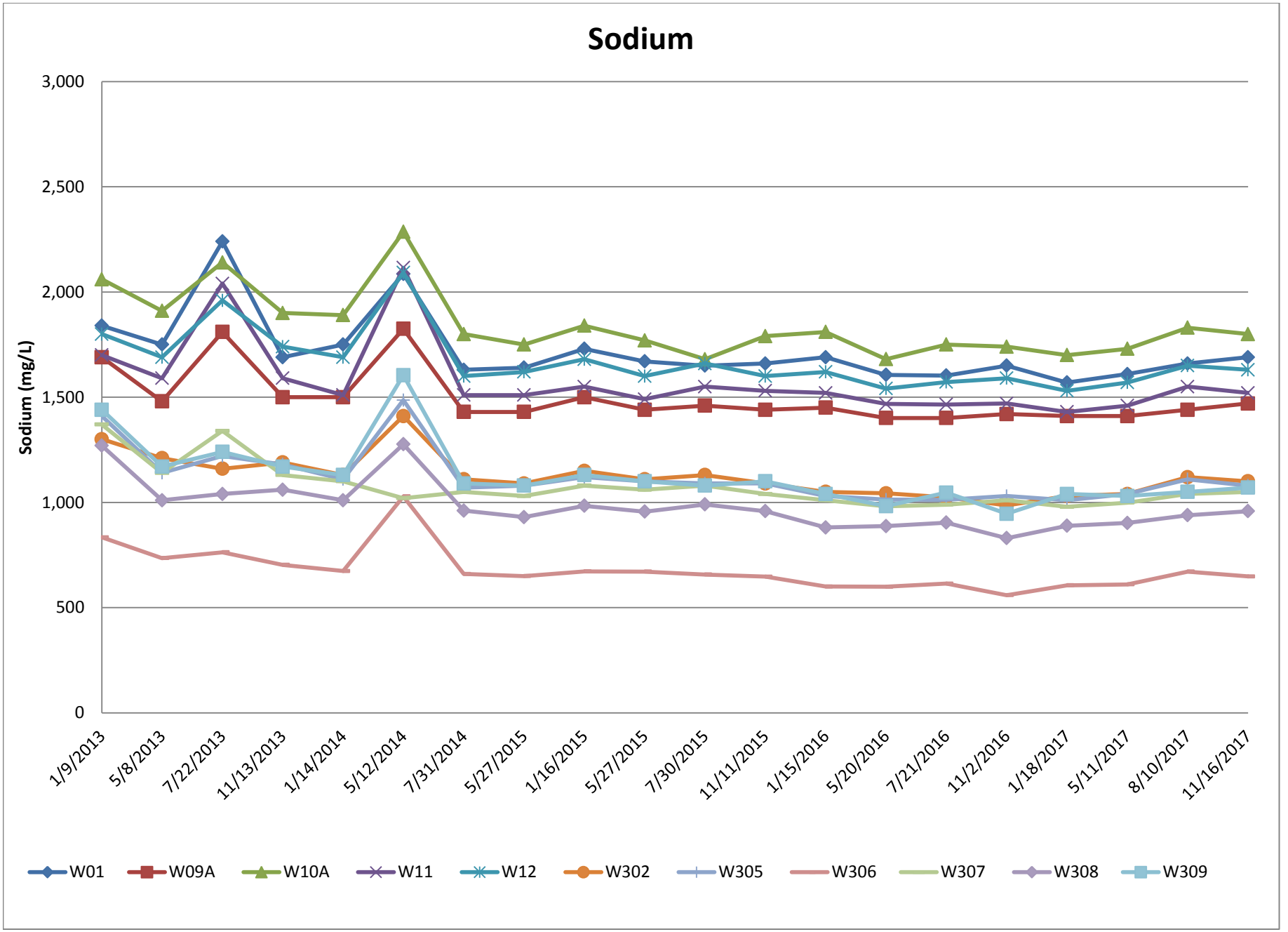
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Turbidity (NTU)
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Sodium
Sodium (mg/L)
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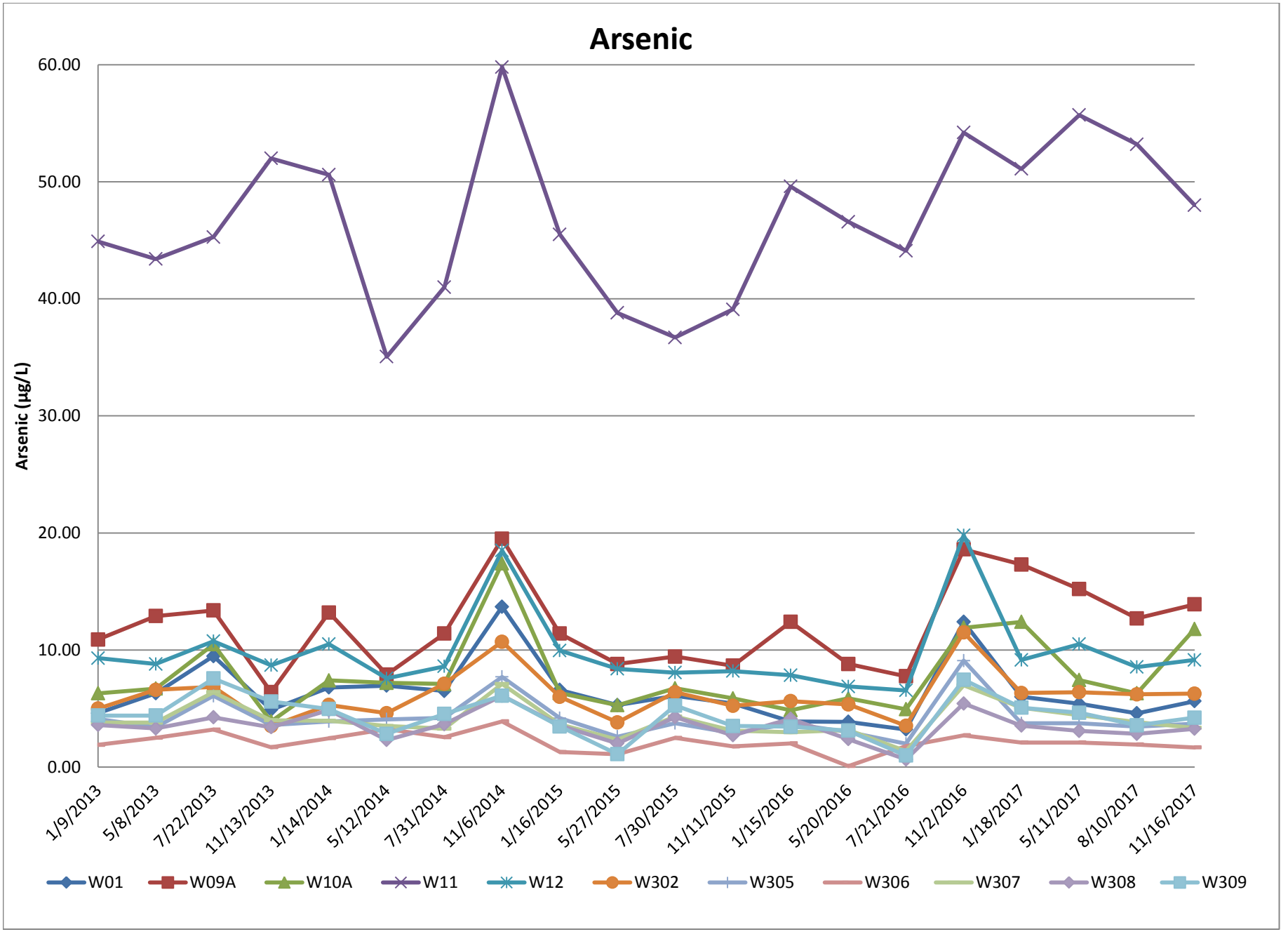
2,000
1,500
1,000
500
0
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
5/27/2015
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Arsenic
Arsenic (µg/L)
60.00
50.00
40.00
30.00
20.00
10.00
0.00
1/9/2013
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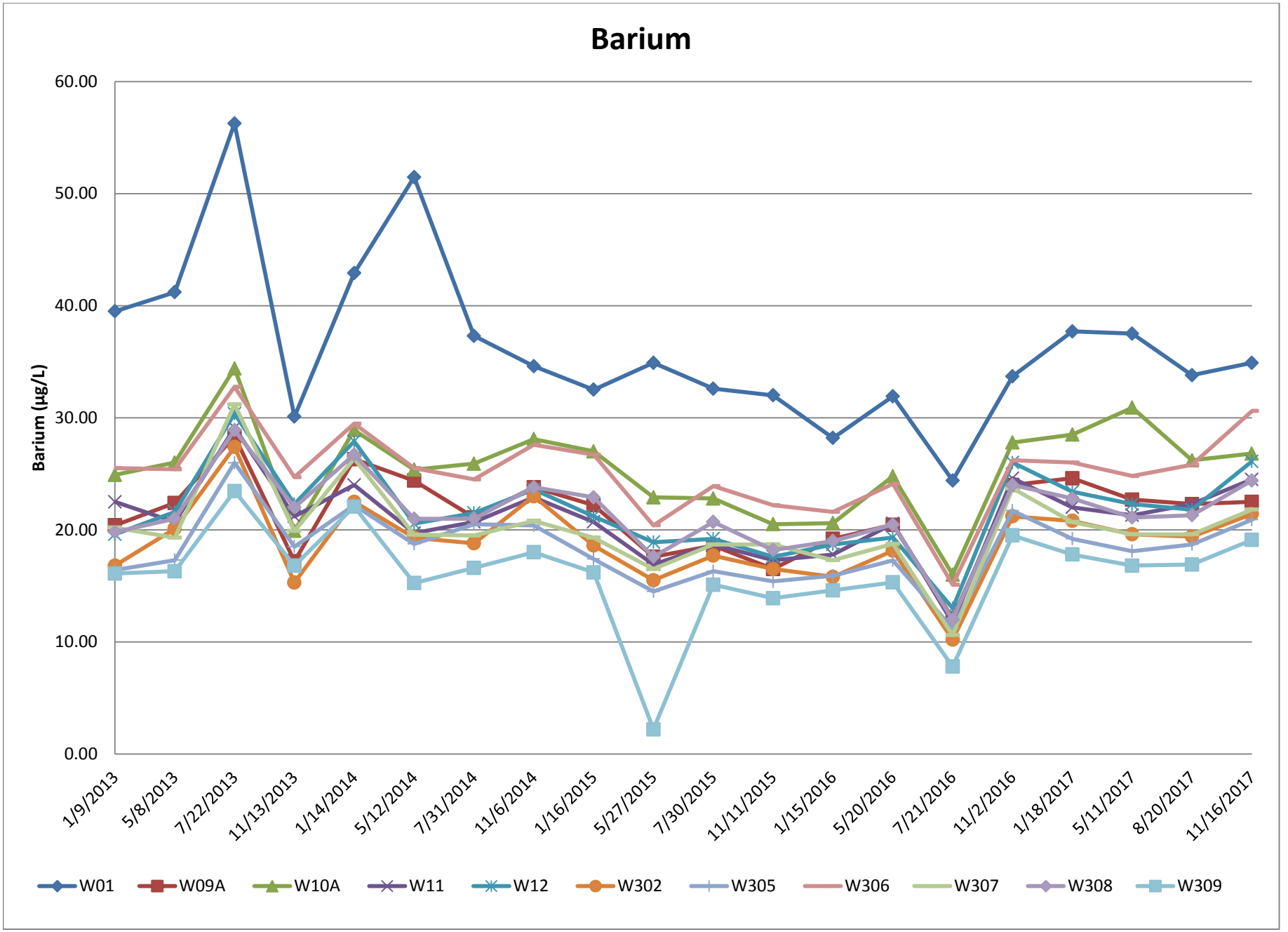
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Barium
Barium (µg/L)
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50.00
40.00
30.00
20.00
10.00
0.00
1/9/2013
5/8/2013
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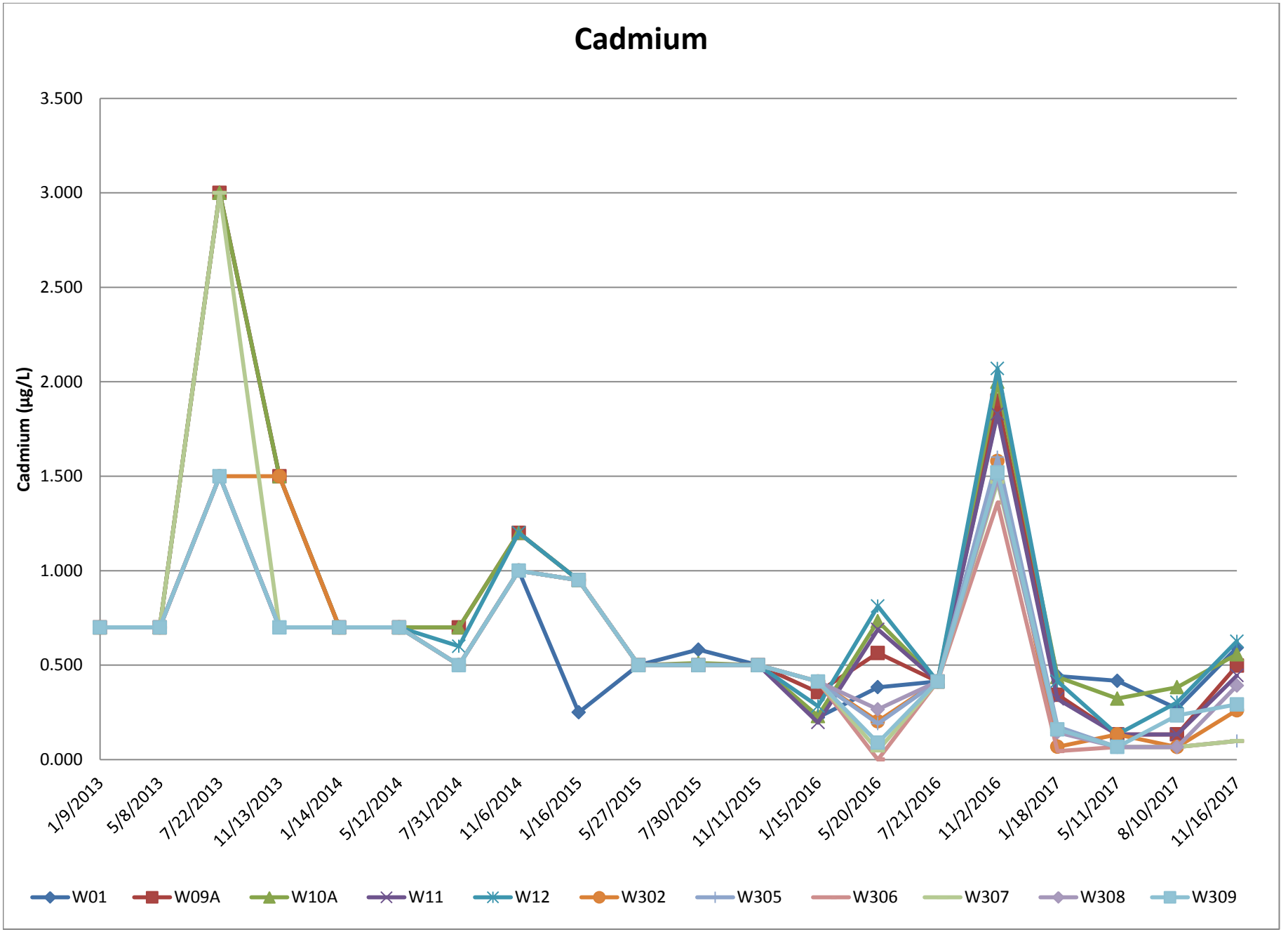
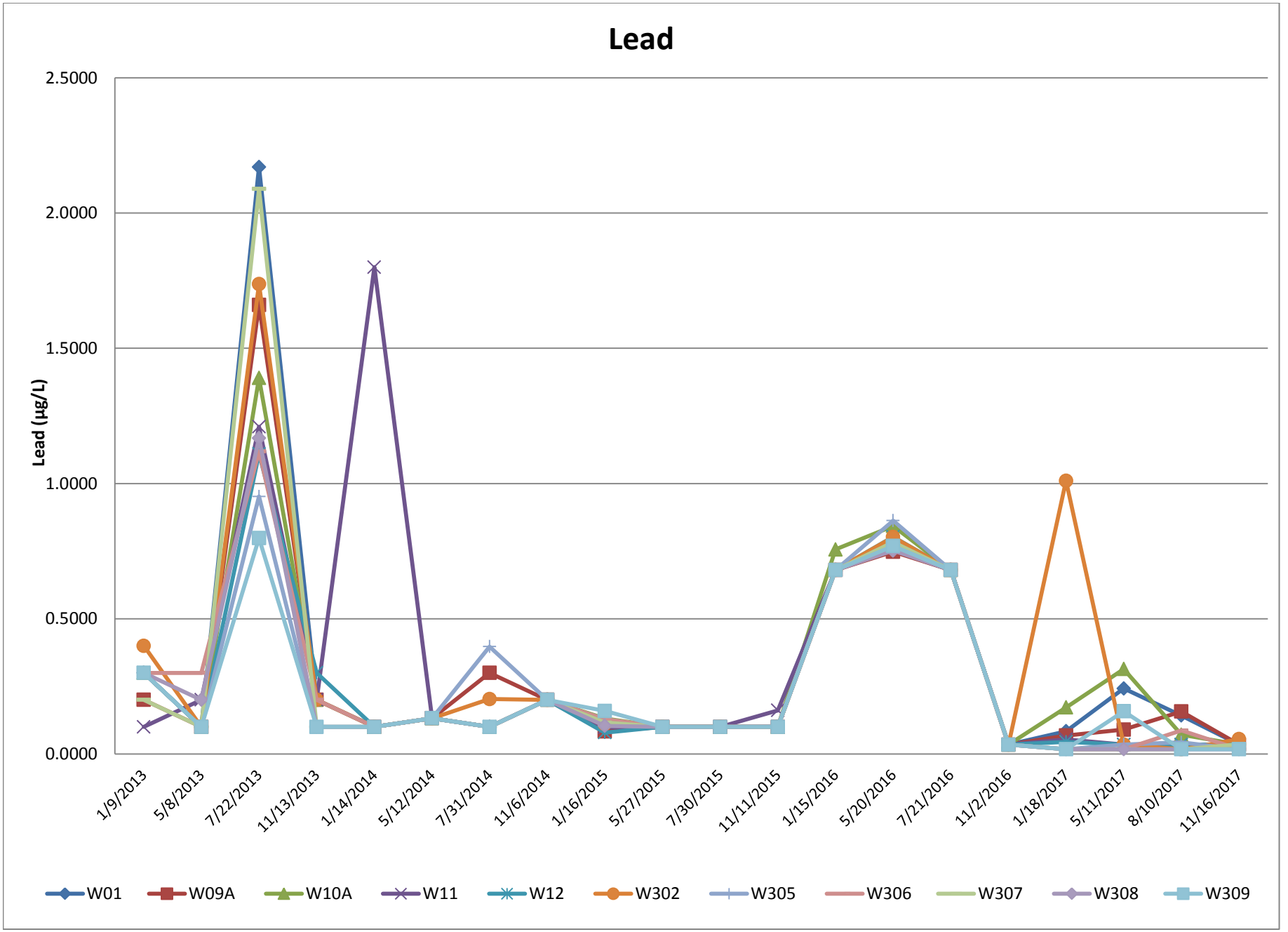
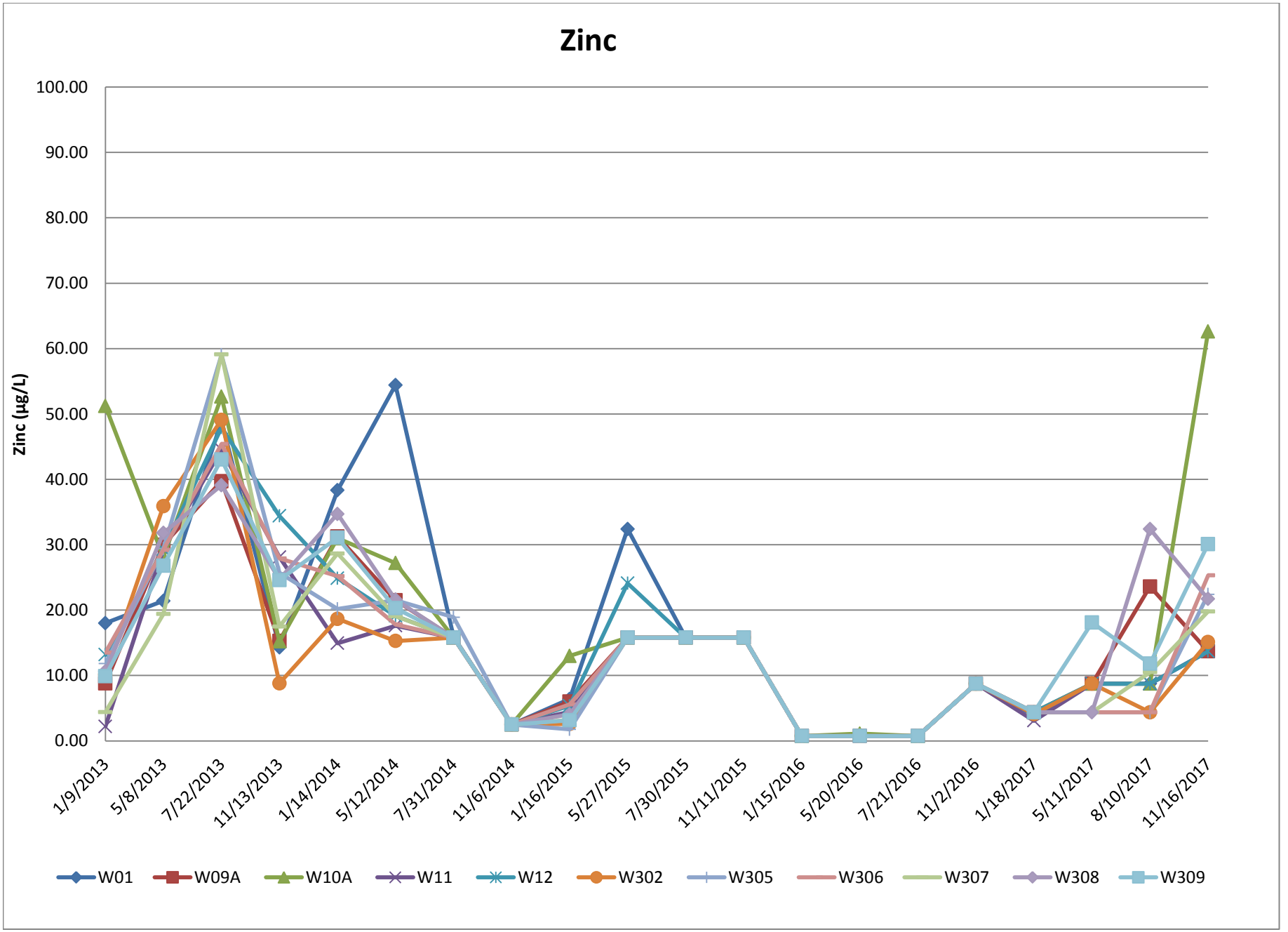
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/20/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Cadmium
Cadmium (µg/L)
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Lead
Lead (µg/L)
2.5000
2.0000
1.5000
1.0000
0.5000
0.0000
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309


Zinc
Zinc (µg/L)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
1/9/2013
5/8/2013
7/22/2013
11/13/2013
1/14/2014
5/12/2014
7/31/2014
11/6/2014
1/16/2015
5/27/2015
7/30/2015
11/11/2015
1/15/2016
5/20/2016
7/21/2016
11/2/2016
1/18/2017
5/11/2017
8/10/2017
11/16/2017
W01
W09A
W10A
W11
W12
W302
W305
W306
W307
W308
W309

Attachment C

Tabulated Analytical Results
Groundwater Monitoring Wells

W01						
Constituents	**Units**	**1/18/2016**	**5/18/2016**	**7/22/2016**	**11/4/2016**	**Method**
pH		6.86	6.75	6.92	6.72	SM 4500-H+ B
Temperature	°C	26.9	29.8	30.3	28.5	EPA 170.1
Depth of Water from top of casing	ft	65.83	65.86	65.90	66.13	AS_100v01
Groundwater Elevation	ft	-178.93	-178.96	-179.00	-179.23	
Specific Conductivity	µS/cm	11,510	11,610	11,540	11,690	SM 2510 B
TDS	mg/L	8,235	8,260	8,315	8,285	SM 2540 C
Chloride	mg/L	3,190	3,080	3,040	3,160	EPA 300.0
Sodium	mg/L	1,690	1,610	1,600	1,650	EPA 200.7
Sulfate	mg/L	1,780	1,790	1,780	1,850	EPA 300.0
Arsenic	mg/L	0.00389	0.00387	0.00321	0.0124	EPA 200.8
Barium	mg/L	0.0282	0.0319	0.0244	0.0337	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00184	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	$<6.94x10^{-5}$	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			2.50	0.21	EPA 180.1

W09A						
Constituents	**Units**	**1/15/2016**	**5/18/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		6.82	6.74	6.58	6.78	SM 4500-H+ B
Temperature	°C	23.2	28.8	30.6	28.3	EPA 170.1
Depth of Water from top of casing	ft	61.81	59.70	59.66	59.84	AS_100v01
Groundwater Elevation	ft	-182.31	-180.20	-180.16	-180.34	
Specific Conductivity	µS/cm	11,730	11,770	11,420	11,840	SM 2510 B
TDS	mg/L	9,170	8,630	8,645	8,725	SM 2540 C
Chloride	mg/L	3,090	3,090	3,080	3,180	EPA 300.0
Sodium	mg/L	1,450	1,400	1,400	1,420	EPA 200.7
Sulfate	mg/L	2,090	2,070	2,090	2,130	EPA 300.0
Arsenic	mg/L	0.0124	0.00881	0.00776	0.0186	EPA 200.8
Barium	mg/L	0.0192	0.0205	0.0121	0.0240	EPA 200.8
Cadmium	mg/L	<0.000413	0.000564	<0.000413	0.00190	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			8.78	12.6	EPA 180.1

W10A						
Constituents	**Units**	**1/18/2016**	**5/18/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		6.58	6.52	6.43	6.55	SM 4500-H+ B
Temperature	°C	25.8	28.5	30.0	28.1	EPA 170.1
Depth of Water from top of casing	ft	61.78	61.81	61.86	61.86	AS_100v01
Groundwater Elevation	ft	-179.78	-179.81	-179.86	-179.86	
Specific Conductivity	µS/cm	13,810	13,740	13,580	13,760	SM 2510 B
TDS	mg/L	11,040	10,160	10,480	10,560	SM 2540 C
Chloride	mg/L	3,870	3,800	3,830	3,970	EPA 300.0
Sodium	mg/L	1,810	1,680	1,750	1,740	EPA 200.7
Sulfate	mg/L	2,120	2,050	2,080	2,150	EPA 300.0
Arsenic	mg/L	0.00486	0.00587	0.00494	0.0119	EPA 200.8
Barium	mg/L	0.0206	0.0248	0.0160	0.0278	EPA 200.8
Cadmium	mg/L	<0.000413	0.000733	<0.000413	0.00200	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			3.31	2.88	EPA 180.1

W11						
Constituents	**Units**	**1/15/2016**	**5/18/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		6.99	6.91	6.78	6.82	SM 4500-H+ B
Temperature	°C	25.0	29.1	30.0	29	EPA 170.1
Depth of Water from top of casing	ft	61.81	61.83	61.89	62.00	AS_100v01
Groundwater Elevation	ft	-179.81	-179.83	-179.89	-180.00	
Specific Conductivity	µS/cm	11,800	11,870	11,820	11,850	SM 2510 B
TDS	mg/L	8,180	8,650	8,745	8,825	SM 2540 C
Chloride	mg/L	3,110	3,300	3,150	3,240	EPA 300.0
Sodium	mg/L	1,520	1,470	1,470	1,470	EPA 200.7
Sulfate	mg/L	2,040	2,060	2,060	2,120	EPA 300.0
Arsenic	mg/L	0.0496	0.0466	0.0441	0.0542	EPA 200.8
Barium	mg/L	0.0178	0.0206	0.0117	0.0246	EPA 200.8
Cadmium	mg/L	<0.000413	0.000689	<0.000413	0.00183	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			39.2	116	EPA 180.1

W12						
Constituents	**Units**	**1/20/2016**	**5/18/2016**	**7/22/2016**	**11/2/2016**	**Method**
pH		6.83	6.82	6.76	6.75	SM 4500-H+ B
Temperature	°C	27.0	30.0	30.0	28.8	EPA 170.1
Depth of Water from top of casing	ft	62.46	62.42	62.50	62.51	AS_100v01
Groundwater Elevation	ft	-179.66	-179.62	-179.70	-179.71	
Specific Conductivity	µS/cm	12,370	12,280	12,350	12,310	SM 2510 B
TDS	mg/L	8,445	8,655	9,645	9,645	SM 2540 C
Chloride	mg/L	3,370	3,370	3,390	3,480	EPA 300.0
Sodium	mg/L	1,620	1,540	1,570	1,590	EPA 200.7
Sulfate	mg/L	1,970	1,960	1,970	2,020	EPA 300.0
Arsenic	mg/L	0.00785	0.00689	0.00655	0.01980	EPA 200.8
Barium	mg/L	0.0187	0.0193	0.0130	0.0260	EPA 200.8
Cadmium	mg/L	<0.000413	0.000812	<0.000413	0.00207	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			1.78	1.38	EPA 180.1

W302						
Constituents	**Units**	**1/20/2016**	**5/18/2016**	**7/22/2016**	**11/4/2016**	**Method**
pH		7.12	7.12	7.16	7.05	SM 4500-H+ B
Temperature	°C	26.2	30.0	29.8	27.5	EPA 170.1
Depth of Water from top of casing	ft	60.48	61.83	63.80	60.94	AS_100v01
Groundwater Elevation	ft	-156.88	-158.23	-160.20	-157.34	
Specific Conductivity	µS/cm	6,720	6,850	6,760	6,970	SM 2510 B
TDS	mg/L	4,260	4,240	4,725	4,630	SM 2540 C
Chloride	mg/L	1,660	1,810	1,650	1,750	EPA 300.0
Sodium	mg/L	1,050	1,040	1,020	986	EPA 200.7
Sulfate	mg/L	907	918	913	955	EPA 300.0
Arsenic	mg/L	0.00563	0.00535	0.00353	0.0115	EPA 200.8
Barium	mg/L	0.0158	0.0181	0.0102	0.0212	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00158	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			6.40	0.51	EPA 180.1

W305						
Constituents	**Units**	**1/18/2015**	**5/17/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		7.30	6.92	7.13	7.14	SM 4500-H+ B
Temperature	°C	26.6	29.6	29.5	27.7	EPA 170.1
Depth of Water from top of casing	ft	63.00	63.25	63.21	63.23	AS_100v01
Groundwater Elevation	ft	-167.90	-168.15	-168.11	-168.13	
Specific Conductivity	µS/cm	6,400	6,520	6,390	6,500	SM 2510 B
TDS	mg/L	4,360	4,150	4,365	4,200	SM 2540 C
Chloride	mg/L	1,530	1,530	1,530	1,630	EPA 300.0
Sodium	mg/L	1,030	1,010	1,010	1,030	EPA 200.7
Sulfate	mg/L	870	858	861	905	EPA 300.0
Arsenic	mg/L	0.00370	0.00299	0.00199	0.00909	EPA 200.8
Barium	mg/L	0.0159	0.0173	0.0112	0.0217	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00160	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			29.6	8.68	EPA 180.1

W306						
Constituents	**Units**	**1/20/2016**	**5/19/2016**	**7/22/2016**	**11/4/2016**	**Method**
pH		7.62	7.61	7.57	7.40	SM 4500-H+ B
Temperature	°C	27.0	29.5	30.6	27.0	EPA 170.1
Depth of Water from top of casing	ft	58.73	58.88	58.88	58.93	AS_100v01
Groundwater Elevation	ft	-146.43	-146.58	-146.58	-146.63	
Specific Conductivity	µS/cm	3,400	3,400	3,370	3,420	SM 2510 B
TDS	mg/L	2,000	1,945	2,090	1,945	SM 2540 C
Chloride	mg/L	760	758	765	813	EPA 300.0
Sodium	mg/L	600	599	614	559	EPA 200.7
Sulfate	mg/L	308	312	315	339	EPA 300.0
Arsenic	mg/L	0.00202	<0.00178	<0.00178	0.00271	EPA 200.8
Barium	mg/L	0.0216	0.0241	0.0151	0.0262	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00136	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			0.24	0.27	EPA 180.1

GW307						
Constituents	**Units**	**1/18/2016**	**5/17/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		7.44	7.24	7.02	7.21	SM 4500-H+ B
Temperature	°C	26.1	31.1	30.0	28.2	EPA 170.1
Depth of Water from top of casing	ft	63.10	63.21	63.02	63.27	AS_100v01
Groundwater Elevation	ft	-168.50	-168.61	-168.42	-168.67	
Specific Conductivity	µS/cm	6,170	6,240	6,220	6,290	SM 2510 B
TDS	mg/L	4,065	3,820	4,300	4,175	SM 2540 C
Chloride	mg/L	1,440	1,450	1,440	1,510	EPA 300.0
Sodium	mg/L	1,010	981	989	1,010	EPA 200.7
Sulfate	mg/L	911	924	923	961	EPA 300.0
Arsenic	mg/L	0.00297	0.00317	<0.00178	0.00698	EPA 200.8
Barium	mg/L	0.0173	0.0188	0.0106	0.0237	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00147	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			2.19	1.06	EPA 180.1

GW308						
Constituents	**Units**	**1/18/2016**	**5/19/2016**	**7/22/2016**	**11/4/2016**	**Method**
pH		7.43	7.46	7.19	7.24	SM 4500-H+ B
Temperature	°C	26.9	29.6	29.8	26.0	EPA 170.1
Depth of Water from top of casing	ft	77.81	77.80	77.80	77.98	AS_100v01
Groundwater Elevation	ft	-168.71	-168.70	-168.70	-168.88	
Specific Conductivity	µS/cm	5,600	5,630	5,610	5,690	SM 2510 B
TDS	mg/L	3,820	3,590	3,695	3,720	SM 2540 C
Chloride	mg/L	1,270	1,290	1,310	1,360	EPA 300.0
Sodium	mg/L	881	887	904	830	EPA 200.7
Sulfate	mg/L	774	779	786	821	EPA 300.0
Arsenic	mg/L	0.00412	0.00238	<0.00178	0.00543	EPA 200.8
Barium	mg/L	0.0190	0.0205	0.0120	0.0240	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00149	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			6.75	1.21	EPA 180.1

GW309						
Constituents	**Units**	**1/18/2016**	**5/17/2016**	**7/21/2016**	**11/2/2016**	**Method**
pH		7.36	7.24	7.12	7.27	SM 4500-H+ B
Temperature	°C	26.0	30.6	29.9	26.9	EPA 170.1
Depth of Water from top of casing	ft	62.54	62.71	62.73	62.81	AS_100v01
Groundwater Elevation	ft	-168.44	-168.61	-168.63	-168.71	
Specific Conductivity	µS/cm	6,490	6,640	6,530	6,520	SM 2510 B
TDS	mg/L	4,370	4,430	4,400	4,395	SM 2540 C
Chloride	mg/L	1,520	1,530	1,520	1,600	EPA 300.0
Sodium	mg/L	1,040	982	1,050	946	EPA 200.7
Sulfate	mg/L	1,010	963	963	1,000	EPA 300.0
Arsenic	mg/L	0.00345	0.00311	<0.00178	0.00746	EPA 200.8
Barium	mg/L	0.0146	0.0153	0.00780	0.0195	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00152	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			1.10	5.25	EPA 180.1

DUPLICATE QC SAMPLE

Constituents	Units	W11 1/15/2016	W305 5/17/2016	W305 7/21/2016	W305 11/2/2016	Method
pH		6.99	6.92	7.15	7.14	SM 4500-H+ B
Temperature	°C	25.0	29.6	29.6	27.7	EPA 170.1
Depth of Water from top of casing	ft	61.81	63.25	63.21	63.23	AS_100v01
Groundwater Elevation	ft	-179.81	-168.15	-168.11	-168.13	
Specific Conductivity	µS/cm	11,690	6,540	6,430	6,510	SM 2510 B
TDS	mg/L	8,205	4,180	4,405	4,185	SM 2540 C
Chloride	mg/L	3,100	1,540	1,530	1,610	EPA 300.0
Sodium	mg/L	1,500	1,040	1,050	970	EPA 200.7
Sulfate	mg/L	2,040	858	862	900	EPA 300.0
Arsenic	mg/L	0.0485	0.00249	<0.00178	0.00787	EPA 200.8
Barium	mg/L	0.0179	0.0178	0.00923	0.0223	EPA 200.8
Cadmium	mg/L	<0.000413	<0.000413	<0.000413	0.00155	EPA 200.8
Lead	mg/L	<0.00136	<0.00136	<0.00136	<6.94x10-5	EPA 200.8
Zinc	mg/L	<0.00151	<0.00151	<0.00151	<0.0175	EPA 200.8
Turbidity	NTU			29.4	8.61	EPA 180.1

DVC Ground Water Monitoring Wells 95% Upper Confidence Level Historical Data

Constituents	Units	GW01	GW09A	GW10A	GW11	GW12	GW302	GW305	GW306	GW307	GW308	GW309
pH		7.19	7.17	7.01	7.23	7.15	7.69	7.77	8.17	7.85	7.81	7.80
Temperature	°C	31.2	32.6	31.6	31.3	31.3	31.4	31.4	31.8	31.8	33.7	32.7
Depth from top	ft	66.88	61.92	62.49	64.14	63.97	63.15	64.63	60.39	63.88	85.04	63.46
Groundwater Elevation	ft	-178.05	-177.31	-178.11	-178.95	-178.93	-156.39	-168.01	-146.04	-153.06	-160.77	-166.93
Specific Conductivity	µS/cm	12,970	13,140	15,891	13,421	14,210	8,332	7,512	4,978	6,909	6,463	7,481
TDS	mg/L	8,598	9,743	11,922	9,545	9,888	5,101	5,160	3,028	4,647	4,874	5,140
Chloride	mg/L	3,522	3,437	4,428	3,595	3,858	2,101	2,140	1,056	1,648	1,589	1,864
Sodium	mg/L	2,061	1,792	2,244	2,070	2,057	1,388	1,456	1,000	3,916	1,250	1,563
Sulfate	mg/L	1,951	2,404	2,331	2,366	2,251	1,080	1,097	489	1,055	1,014	1,124
Arsenic	mg/L	0.0129	0.0174	0.0198	0.0602	0.0141	0.0101	0.0064	0.0051	0.0066	0.0064	0.0138
Barium	mg/L	0.0694	0.0431	0.0801	0.141	0.0341	0.0305	0.0580	0.0363	0.0772	0.0526	0.0442
Cadmium	mg/L	0.00241	0.00205	0.00209	0.00171	0.00362	0.00171	0.00167	0.00165	0.00197	0.00234	0.00175
Lead	mg/L	0.00643	0.00250	0.00393	0.00618	0.00424	0.0124	0.00303	0.00304	0.00389	0.00383	0.00250
Zinc	mg/L	0.0635	0.0412	0.160	0.0490	0.104	0.0653	0.0485	0.0780	0.0437	0.0509	0.0410
Turbidity	NTU	*	*	*	*	*	*	*	*	*	*	*

* Two data points collected insufficient data calculated to provide a proper historical data set

DVC Radiological Analysis pCi/L 1st Quarter 2016

W01				W09A			
Date	1/18/2016	CSU	MDA	Date	1/15/2016	CSU	MDA
Gross alpha	3.47	20.4	49.9	Gross alpha	17.3	28.0	58.7
Gross beta	53.2	30.2	56.1	Gross beta	9.15	28.4	59.9

DVC Radiological Analysis pCi/L 1st Quarter 2016

W10A				W11			
Date	1/18/2016	CSU	MDA	Date	1/15/2016	CSU	MDA
Gross alpha	22.8	23.6	41.9	Gross alpha	-3.65	39.8	94.1
Gross beta	8.51	39.1	82.4	Gross beta	59.5	31.8	58.5

DVC Radiological Analysis pCi/L 1st Quarter 2016

W12				W302			
Date	1/20/2016	CSU	MDA	Date	1/20/2016	CSU	MDA
Gross alpha	-7.37	42.1	100	Gross alpha	0.00	13.4	32.8
Gross beta	18.8	33.9	70.1	Gross beta	26.9	17.3	33.2

DVC Radiological Analysis pCi/L 1st Quarter 2016

W305				W306			
Date	1/18/2016	CSU	MDA	Date	1/20/2016	CSU	MDA
Gross alpha	3.60	19.3	43.8	Gross alpha	-3.59	8.62	21.8
Gross beta	30.8	17.6	33.0	Gross beta	6.43	8.30	16.9

DVC Radiological Analysis pCi/L 1st Quarter 2016

W307				W308			
Date	1/18/2016	CSU	MDA	Date	1/18/2016	CSU	MDA
Gross alpha	-6.49	15.6	39.5	Gross alpha	11.3	13.9	27.4
Gross beta	12.4	14.4	29.1	Gross beta	44.2	18.3	32.0

DVC Radiological Analysis pCi/L 1st Quarter 2016

W309				W11 Duplicate			
Date	1/18/2016	CSU	MDA	Date	1/15/2016	CSU	MDA
Gross alpha	9.16	14.8	31.1	Gross alpha	11.2	28.3	63.1
Gross beta	18.2	14.0	27.4	Gross beta	12.9	32.5	68.0

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W01				W09A			
Date	5/18/2016	CSU	MDA	Date	5/18/2016	CSU	MDA
Gross alpha	21.2	28.6	57.9	Gross alpha	0.00	30.7	72.0
Gross beta	55.5	36.0	69.1	Gross beta	19.8	35.4	73.2

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W10A				W11			
Date	5/18/2016	CSU	MDA	Date	5/18/2016	CSU	MDA
Gross alpha	30.4	33.3	64.6	Gross alpha	9.26	33.7	75.1
Gross beta	60.0	38.0	73.0	Gross beta	25.9	38.0	78.1

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W12				W302			
Date	5/18/2016	CSU	MDA	Date	5/18/2016	CSU	MDA
Gross alpha	15.2	38.3	82.8	Gross alpha	1.73	16.9	39.3
Gross beta	63.0	33.3	61.6	Gross beta	31.8	17.0	31.6

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W305				W306			
Date	5/17/2016	CSU	MDA	Date	5/19/2016	CSU	MDA
Gross alpha	14.8	21.6	44.5	Gross alpha	5.06	13.3	28.8
Gross beta	0.00	31.0	66.2	Gross beta	-5.06	16.2	35.1

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W307				W308			
Date	5/17/2016	CSU	MDA	Date	5/19/2016	CSU	MDA
Gross alpha	32.6	23.1	40.3	Gross alpha	15.1	16.6	32.0
Gross beta	13.6	29.8	62.0	Gross beta	19.3	29.2	60.1

DVC Radiological Analysis pCi/L 2nd Quarter 2016

W309				W305 Duplicate			
Date	5/17/2016	CSU	MDA	Date	5/17/2016	CSU	MDA
Gross alpha	22.4	19.3	34.5	Gross alpha	27.7	21.4	37.8
Gross beta	15.8	27.3	56.6	Gross beta	-8.12	30.6	66.2

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L 3rd Quarter 2016

W01			
Date	7/22/2016	CSU	MDA
Gross alpha	36.0	23.8	33.2
Gross beta	12.3	34.4	72.1

W09A			
Date	7/21/2016	CSU	MDA
Gross alpha	34.7	24.3	38.5
Gross beta	31.3	33.0	66.5

W10A			
Date	7/21/2016	CSU	MDA
Gross alpha	-21.1	31.8	81.8
Gross beta	24.6	31.6	64.4

W11			
Date	7/21/2016	CSU	MDA
Gross alpha	0.00	34.8	80.3
Gross beta	-2.99	37.7	80.8

W12			
Date	7/22/2016	CSU	MDA
Gross alpha	-29.1	33.4	86.5
Gross beta	15.2	36.1	75.2

W302			
Date	7/22/2016	CSU	MDA
Gross alpha	-10.7	20.2	52.2
Gross beta	43.0	32.8	64.4

W305			
Date	7/21/2016	CSU	MDA
Gross alpha	1.93	20.4	47.0
Gross beta	-6.71	29.3	63.4

W306			
Date	7/22/2016	CSU	MDA
Gross alpha	5.97	7.32	14.5
Gross beta	2.36	10.4	22.0

W307			
Date	7/21/2016	CSU	MDA
Gross alpha	-12.4	20.7	53.4
Gross beta	-8.50	29.6	64.2

W308			
Date	7/22/2016	CSU	MDA
Gross alpha	5.81	19.7	44.1
Gross beta	50.7	32.6	62.4

W309			
Date	7/21/2016	CSU	MDA
Gross alpha	0.00	17.0	40.7
Gross beta	42.6	35.2	69.8

W305 Duplicate			
Date	7/21/2016	CSU	MDA
Gross alpha	21.8	17.1	28.5
Gross beta	30.9	28.0	55.4

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis (pCi/L) 4th Quarter 2016

W01				W09A			
Date	11/4/2017	CSU	MDA	Date	11/2/2017	CSU	MDA
Gross alpha	3.28	39.2	89.2	Gross alpha	13.1	22.2	47.0
Gross beta	16.9	33.8	70.1	Gross beta	2.73	33.8	72.0

W10A				W11			
Date	11/2/2017	CSU	MDA	Date	11/2/2017	CSU	MDA
Gross alpha	-19.1	23.4	66.8	Gross alpha	61.3	33.1	39.9
Gross beta	58.0	32.5	60.2	Gross beta	50.8	36.7	71.5

W12				W302			
Date	11/2/2017	CSU	MDA	Date	11/4/2016	CSU	MDA
Gross alpha	45.1	33.2	57.5	Gross alpha	13.8	15.1	29.3
Gross beta	52.7	35.2	67.8	Gross beta	14.5	15.6	31.6

W305				W306			
Date	11/2/2017	CSU	MDA	Date	11/4/2016	CSU	MDA
Gross alpha	16.0	18.8	37.4	Gross alpha	0.666	6.53	15.1
Gross beta	35.8	18.9	35.0	Gross beta	4.39	6.32	13.0

W307				W308			
Date	11/2/2017	CSU	MDA	Date	11/4/2016	CSU	MDA
Gross alpha	0.00	16.2	38.4	Gross alpha	24.8	12.4	16.2
Gross beta	12.90	17.3	35.4	Gross beta	10.9	11.5	23.3

W309				W305 Duplicate			
Date	11/2/2017	CSU	MDA	Date	11/2/2017	CSU	MDA
Gross alpha	15.2	19.8	40.0	Gross alpha	20.4	12.9	17.3
Gross beta	20.7	18.6	37.0	Gross beta	28.5	17.5	33.3

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

W01						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/16/2017**	**Method**
pH		6.75	6.87	7.01	6.74	SM 4500-H+ B
Temperature	°C	28.1	28.9	31.6	25.3	EPA 170.1
Depth of Water from top of casing	ft	66.00	66.21	66.10	66.23	AS_100v01
Groundwater Elevation	ft	-179.10	-179.31	-179.20	-179.33	
Specific Conductivity	µS/cm	11,900	11,460	10,900	12,020	SM 2510 B
TDS	mg/L	8,495	8,280	8,230	8,380	SM 2540 C
Chloride	mg/L	3,170	3,120	3,170	3,070	EPA 300.0
Sulfate	mg/L	1,830	1,880	1,840	1,820	EPA 300.0
Sodium	mg/L	1,570	1,610	1,660	1,690	EPA 200.7
Arsenic	mg/L	0.00600	0.00541	0.00459	0.00563	EPA 200.8
Barium	mg/L	0.0377	0.0375	0.0338	0.0349	EPA 200.8
Cadmium	mg/L	0.000442	0.000417	0.000270	0.000592	EPA 200.8
Lead	mg/L	0.0000842	0.000242	0.000142	<0.0000694*	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	< 0.0175*	ND	EPA 200.8
Turbidity	NTU	2.32	1.90	0.93	2.40	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

W09A						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		6.87	6.74	6.83	6.81	SM 4500-H+ B
Temperature	°C	25.4	28.9	29.5	28.3	EPA 170.1
Depth of Water from top of casing	ft	59.88	59.91	60.34	62.08	AS_100v01
Groundwater Elevation	ft	-180.38	-180.41	-180.84	-182.58	
Specific Conductivity	µS/cm	12,070	11,660	11,800	11,960	SM 2510 B
TDS	mg/L	8,770	8,935	8,785	9,135	SM 2540 C
Chloride	mg/L	3,220	3,140	3,250	3,120	EPA 300.0
Sulfate	mg/L	2,140	2,160	2,280	2,100	EPA 300.0
Sodium	mg/L	1,410	1,410	1,440	1,470	EPA 200.7
Arsenic	mg/L	0.0173	0.0152	0.0127	0.0139	EPA 200.8
Barium	mg/L	0.0246	0.0227	0.0223	0.0225	EPA 200.8
Cadmium	mg/L	0.000343	< 0.000267	< 0.000267*	0.000497	EPA 200.8
Lead	mg/L	0.0000680	0.0000900	0.000157	<0.0000694*	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	0.0236	ND	EPA 200.8
Turbidity	NTU	21.2	16.5	10.1	7.94	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

W10A						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		6.69	6.57	6.60	6.57	SM 4500-H+ B
Temperature	°C	26.7	28.9	31.8	27.3	EPA 170.1
Depth of Water from top of casing	ft	61.90	62.21	62.16	62.2	AS_100v01
Groundwater Elevation	ft	-179.90	-180.21	-180.16	-180.20	
Specific Conductivity	µS/cm	14,000	13,400	13,990	14,040	SM 2510 B
TDS	mg/L	10,160	9,940	10,060	10,380	SM 2540 C
Chloride	mg/L	3,910	3,830	4,020	3,820	EPA 300.0
Sulfate	mg/L	2,100	2,130	2,250	2,090	EPA 300.0
Sodium	mg/L	1,700	1,730	1,830	1,800	EPA 200.7
Arsenic	mg/L	0.0124	0.00743	0.00630	0.0118	EPA 200.8
Barium	mg/L	0.0285	0.0309	0.0262	0.0268	EPA 200.8
Cadmium	mg/L	0.000437	0.000323	0.000383	0.000557	EPA 200.8
Lead	mg/L	0.000172	0.000314	0.0000710	<0.0000694*	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	< 0.0175*	0.0626	EPA 200.8
Turbidity	NTU	6.91	4.42	3.56	3.49	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

W11						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		6.93	6.95	6.88	6.82	SM 4500-H+ B
Temperature	°C	27.9	28.0	29.6	24.3	EPA 170.1
Depth of Water from top of casing	ft	62.00	62.10	62.11	62.08	AS_100v01
Groundwater Elevation	ft	-180.00	-180.10	-180.11	-180.08	
Specific Conductivity	µS/cm	11,750	11,850	12,080	12,270	SM 2510 B
TDS	mg/L	8,730	8,750	8,640	9,205	SM 2540 C
Chloride	mg/L	3,170	3,130	3,260	3,160	EPA 300.0
Sulfate	mg/L	2,090	2,110	2,190	2,080	EPA 300.0
Sodium	mg/L	1,430	1,460	1,550	1,520	EPA 200.7
Arsenic	mg/L	0.0511	0.0557	0.0532	0.0480	EPA 200.8
Barium	mg/L	0.0220	0.0213	0.0223	0.0245	EPA 200.8
Cadmium	mg/L	0.000321	< 0.000267	< 0.000267*	0.0004	EPA 200.8
Lead	mg/L	0.0000547	< 0.0000694	< 0.0000694*	<0.0000694*	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	< 0.0175*	ND	EPA 200.8
Turbidity	NTU	82.5	54.7	28.0	22.30	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

W12						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/16/2017**	**Method**
pH		6.78	6.86	6.69	6.75	SM 4500-H+ B
Temperature	°C	28.2	27.7	30.0	26.1	EPA 170.1
Depth of Water from top of casing	ft	62.53	62.72	62.71	62.92	AS_100v01
Groundwater Elevation	ft	-179.73	-179.92	-179.91	-180.12	
Specific Conductivity	µS/cm	12,490	12,380	12,600	12,720	SM 2510 B
TDS	mg/L	9,270	8,960	9,030	8,950	SM 2540 C
Chloride	mg/L	3,470	3,340	3,480	3,360	EPA 300.0
Sulfate	mg/L	2,020	2,000	2,080	1,990	EPA 300.0
Sodium	mg/L	1,530	1,570	1,650	1,630	EPA 200.7
Arsenic	mg/L	0.00915	0.0105	0.00855	0.00915	EPA 200.8
Barium	mg/L	0.0234	0.0223	0.0218	0.0261	EPA 200.8
Cadmium	mg/L	0.000415	< 0.000267	0.000303	0.000626	EPA 200.8
Lead	mg/L	0.0000450	< 0.0000694	< 0.0000694*	<0.0000694*	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	< 0.0175*	ND	EPA 200.8
Turbidity	NTU	1.24	1.89	0.36	0.35	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment Fin the quarterly report.

W302						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/16/2017**	**Method**
pH		7.23	7.23	7.07	7.1	SM 4500-H+ B
Temperature	°C	27.8	27.8	31.0	29.2	EPA 170.1
Depth of Water from top of casing	ft	60.91	60.91	61.00	61.00	AS_100v01
Groundwater Elevation	ft	-157.31	-157.31	-157.40	-157.40	
Specific Conductivity	µS/cm	6,850	6,700	6,920	6,830	SM 2510 B
TDS	mg/L	4,535	4,335	4,515	4,520	SM 2540 C
Chloride	mg/L	1,730	1,680	1,750	1,670	EPA 300.0
Sulfate	mg/L	908	948	1,010	926	EPA 300.0
Sodium	mg/L	1,030	1,040	1,120	1,100	EPA 200.7
Arsenic	mg/L	0.00633	0.00640	0.00621	0.00627	EPA 200.8
Barium	mg/L	0.0208	0.0196	0.0194	0.0214	EPA 200.8
Cadmium	mg/L	< 0.000133	< 0.000267	< 0.000133*	0.000261	EPA 200.8
Lead	mg/L	0.00101	< 0.0000694	< 0.0000347*	0.000055	EPA 200.8
Zinc	mg/L	< 0.00876	< 0.0175	< 0.00876*	0.0151	EPA 200.8
Turbidity	NTU	3.15	2.97	0.91	0.80	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

W305						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		7.30	7.25	7.36	7.36	SM 4500-H+ B
Temperature	°C	27.9	28.8	29.1	27.3	EPA 170.1
Depth of Water from top of casing	ft	63.34	63.40	63.43	62.52	AS_100v01
Groundwater Elevation	ft	-168.24	-168.30	-168.33	-167.42	
Specific Conductivity	µS/cm	6,430	6,370	6,530	6,510	SM 2510 B
TDS	mg/L	4,140	4,400	4,150	4,175	SM 2540 C
Chloride	mg/L	1,570	1,560	1,600	1,540	EPA 300.0
Sulfate	mg/L	859	898	909	872	EPA 300.0
Sodium	mg/L	1,010	1,040	1,110	1,080	EPA 200.7
Arsenic	mg/L	0.00374	0.00375	0.00346	0.00370	EPA 200.8
Barium	mg/L	0.0192	0.0181	0.0187	0.0209	EPA 200.8
Cadmium	mg/L	0.000174	0.0000470	< 0.000133*	<0.000196*	EPA 200.8
Lead	mg/L	< 0.0000347	0.0000350	0.0000430	<0.0000347*	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	< 0.00876*	0.0224	EPA 200.8
Turbidity	NTU	3.19	4.57	1.56	2.20	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment Fin the quarterly report.

W306						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/16/2017**	**Method**
pH		7.68	7.73	7.55	7.55	SM 4500-H+ B
Temperature	°C	27.1	27.7	30.1	26.9	EPA 170.1
Depth of Water from top of casing	ft	59.21	59.00	58.90	59.3	AS_100v01
Groundwater Elevation	ft	-146.91	-146.70	-146.60	-147.00	
Specific Conductivity	µS/cm	3,490	3,390	3,500	3,490	SM 2510 B
TDS	mg/L	2,095	1,930	2,070	2,050	SM 2540 C
Chloride	mg/L	804	777	808	769	EPA 300.0
Sulfate	mg/L	301	335	350	316	EPA 300.0
Sodium	mg/L	606	610	671	648	EPA 200.7
Arsenic	mg/L	0.00210	0.00210	0.00193	0.00168	EPA 200.8
Barium	mg/L	0.0260	0.0248	0.0258	0.0306	EPA 200.8
Cadmium	mg/L	< 0.000133	< 0.000267	ND	<0.000196*	EPA 200.8
Lead	mg/L	< 0.0000347	< 0.0000694	0.0000870	<0.0000347*	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	< 0.00876*	0.0253	EPA 200.8
Turbidity	NTU	0.50	0.27	0.23	0.30	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment Fin the quarterly report.

GW307						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		7.39	7.47	7.44	7.5	SM 4500-H+ B
Temperature	°C	27.0	28.9	30.7	26.3	EPA 170.1
Depth of Water from top of casing	ft	63.22	63.60	63.86	63.2	AS_100v01
Groundwater Elevation	ft	-168.62	-169.00	-169.26	-168.60	
Specific Conductivity	µS/cm	6,270	6,200	6,560	6,390	SM 2510 B
TDS	mg/L	4,105	4,095	4,235	4,230	SM 2540 C
Chloride	mg/L	1,490	1,450	1,510	1,470	EPA 300.0
Sulfate	mg/L	923	953	964	939	EPA 300.0
Sodium	mg/L	979	999	1,040	1,050	EPA 200.7
Arsenic	mg/L	0.00506	0.00443	0.00385	0.00335	EPA 200.8
Barium	mg/L	0.0207	0.0196	0.0196	0.0218	EPA 200.8
Cadmium	mg/L	0.000158	< 0.000267	< 0.000133*	<0.000196*	EPA 200.8
Lead	mg/L	< 0.0000347	< 0.0000694	< 0.0000347*	0.000036	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	0.0105	0.0198	EPA 200.8
Turbidity	NTU	0.77	2.29	1.19	0.89	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

GW308						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/16/2017**	**Method**
pH		7.32	7.42	7.47	7.27	SM 4500-H+ B
Temperature	°C	26.0	28.4	30.1	29.1	EPA 170.1
Depth of Water from top of casing	ft	77.62	77.98	78.31	78.2	AS_100v01
Groundwater Elevation	ft	-168.52	-168.88	-169.21	-169.10	
Specific Conductivity	µS/cm	5,700	5,620	6,350	5,650	SM 2510 B
TDS	mg/L	3,655	3,465	3,740	3,710	SM 2540 C
Chloride	mg/L	1,350	1,300	1,350	1,310	EPA 300.0
Sulfate	mg/L	772	812	823	794	EPA 300.0
Sodium	mg/L	889	902	939	958	EPA 200.7
Arsenic	mg/L	0.00354	0.00309	0.00284	0.00327	EPA 200.8
Barium	mg/L	0.0228	0.0211	0.0213	0.0244	EPA 200.8
Cadmium	mg/L	0.000144	< 0.000267	ND	0.000391	EPA 200.8
Lead	mg/L	< 0.0000347	< 0.0000694	< 0.0000347*	< 0.0000347*	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	0.0324	0.0217	EPA 200.8
Turbidity	NTU	0.40	0.26	0.81	1.04	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

GW309						
Constituents	**Units**	**1/18/2017**	**5/11/2017**	**8/10/2017**	**11/15/2017**	**Method**
pH		7.30	7.39	7.31	7.38	SM 4500-H+ B
Temperature	°C	26.6	28.8	29.2	26.3	EPA 170.1
Depth of Water from top of casing	ft	62.80	63.00	63.24	63.40	AS_100v01
Groundwater Elevation	ft	-168.70	-168.90	-169.14	-169.30	
Specific Conductivity	µS/cm	6,560	6,420	6,210	6,620	SM 2510 B
TDS	mg/L	4,250	4,335	4,355	4,180	SM 2540 C
Chloride	mg/L	1,590	1,520	1,570	1,530	EPA 300.0
Sulfate	mg/L	968	986	985	967	EPA 300.0
Sodium	mg/L	1,040	1,030	1,050	1,070	EPA 200.7
Arsenic	mg/L	0.00507	0.00464	0.00357	0.00422	EPA 200.8
Barium	mg/L	0.0178	0.0168	0.0169	0.0191	EPA 200.8
Cadmium	mg/L	0.000160	< 0.000267	0.000234	0.000292	EPA 200.8
Lead	mg/L	< 0.0000347	0.000158	< 0.0000347*	< 0.0000347*	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	0.0118	0.0301	EPA 200.8
Turbidity	NTU	1.29	4.38	1.30	2.91	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to complete analytical report in Attachment F in the quarterly report.

DUPLICATE QC SAMPLE						
Constituents	**Units**	**W305**	**W306**	**W309**	**W305**	**Method**
		1/18/2017	**5/11/2017**	**8/10/2017**	**11/15/2017**	
pH		7.30	7.75	7.32	7.37	SM 4500-H+ B
Temperature	°C	27.9	27.8	29.5	27.3	EPA 170.1
Depth of Water from top of casing	ft	63.34	63.40	63.24	62.52	AS_100v01
Groundwater Elevation	ft	-168.24	-151.10	-169.14	-167.42	
Specific Conductivity	µS/cm	6,420	3,380	6,270	6,500	SM 2510 B
TDS	mg/L	4,195	1,920	4,520	4,145	SM 2540 C
Chloride	mg/L	1,580	771	1,570	1,540	EPA 300.0
Sulfate	mg/L	861	333	985	874	EPA 300.0
Sodium	mg/L	1,030	609	1,060	1,090	EPA 200.7
Arsenic	mg/L	0.00389	0.00189	0.00350	0.00382	EPA 200.8
Barium	mg/L	0.0193	0.0250	0.0168	0.0221	EPA 200.8
Cadmium	mg/L	< 0.000133	< 0.000267	ND	<0.000196*	EPA 200.8
Lead	mg/L	< 0.0000347	< 0.0000694	0.0000520	0.000039	EPA 200.8
Zinc	mg/L	< 0.00876	<0.0175	0.0193	0.0378	EPA 200.8
Turbidity	NTU	3.33	0.39	1.03	2.24	EPA 180.1

DVC Ground Water Monitoring Wells 95% Upper Confidence Interval Historical Data

Constituents	Units	W01	W09A	W10A	W11	W12	W302	W305	W306	W307	W308	W309
pH		7.18	7.15	6.99	7.22	7.14	7.67	7.75	8.14	7.84	7.79	7.78
Temperature	°C	31.3	32.4	31.7	31.3	31.2	31.5	31.3	31.7	31.7	33.5	32.4
Groundwater Elevation	ft	-178.04	-177.40	-178.15	-178.86	-178.88	-156.24	-167.74	-145.94	-153.89	-161.21	-166.95
Specific Conductivity	µS/cm	12,946	13,100	15,790	13,363	14,139	8,267	7,467	4,911	6,889	6,457	7,433
TDS	mg/L	8,668	9,757	11,859	9,553	9,875	5,076	5,123	2,984	4,629	4,809	5,095
Chloride	mg/L	3,507	3,427	4,402	3,579	3,842	2,085	2,115	1,044	1,639	1,576	1,852
Sulfate	mg/L	1,956	2,398	2,327	2,357	2,242	1,077	1,090	482	1,050	1,003	1,116
Sodium	mg/L	2,043	1,773	2,221	2,046	2,037	1,376	1,439	984	3,760	1,233	1,538
Arsenic	mg/L	0.0126	0.0179	0.0195	0.0607	0.0141	0.0100	0.0063	0.0050	0.0065	0.0062	0.0133
Barium	mg/L	0.0678	0.0420	0.0773	0.1350	0.0336	0.0300	0.0561	0.0360	0.0741	0.0510	0.0428
Cadmium	mg/L	0.0023	0.0020	0.0020	0.0016	0.0035	0.0017	0.0016	0.0016	0.0019	0.0022	0.0017
Lead	mg/L	0.0062	0.0024	0.0037	0.0059	0.0041	0.0118	0.0029	0.0029	0.0037	0.0036	0.0024
Zinc	mg/L	0.0614	0.0406	0.1536	0.0477	0.0996	0.0627	0.0469	0.0750	0.0423	0.0499	0.0403
Turbidity	NTU	5.17	31.9	9.54	191	3.66	10.8	48.1	0.67	3.88	10.9	9.31

DVC Radiological Analysis pCi/L 1st Quarter 2017

W01				W09A			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	0.00	39.3	91.5	Gross alpha	7.56	37.8	85.9
Gross beta	37.1	33.8	67.2	Gross beta	13.7	29.4	61.3

DVC Radiological Analysis pCi/L 1st Quarter 2017

W10A				W11			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	0.00	53.9	128	Gross alpha	19.5	38.4	82.8
Gross beta	56.4	65.2	132	Gross beta	125	59.2	105

DVC Radiological Analysis pCi/L 1st Quarter 2017

W12				W302			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	-51.2	44.6	122	Gross alpha	3.85	22.0	49.6
Gross beta	43.7	33.3	65.0	Gross beta	21.7	17.2	33.8

DVC Radiological Analysis pCi/L 1st Quarter 2017

W305				W306			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	3.62	19.4	44.0	Gross alpha	-11.9	8.82	26.3
Gross beta	15.0	16.9	34.2	Gross beta	-1.91	8.65	18.7

DVC Radiological Analysis pCi/L 1st Quarter 2017

W307				W308			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	7.13	14.0	30.2	Gross alpha	-7.05	19.6	47.9
Gross beta	7.84	16.9	35.3	Gross beta	-7.43	18.8	40.6

DVC Radiological Analysis pCi/L 1st Quarter 2017

W309				W305 Duplicate			
Date	1/18/2017	CSU	MDA	Date	1/18/2017	CSU	MDA
Gross alpha	11.2	20.0	42.3	Gross alpha	33.8	22.2	35.9
Gross beta	29.4	17.3	32.7	Gross beta	34.8	19.7	36.9

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis (pCi/L)- 2nd Quarter 2017

W01				W09A			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	16.8	33.0	71.2	Gross alpha	-20.0	34.2	91.0
Gross beta	14.1	38.2	80.0	Gross beta	14.3	35.1	73.3

W10A				W11			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	38.4	30.4	47.2	Gross alpha	-6.58	71.8	170
Gross beta	30.6	29.6	58.9	Gross beta	147	67.8	122

W12				W302			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	20.0	28.4	57.7	Gross alpha	8.57	22.3	48.7
Gross beta	-6.03	28.3	61.5	Gross beta	-0.486	19.9	42.4

W305				W306			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	2.01	19.7	45.8	Gross alpha	0.909	8.91	20.7
Gross beta	5.75	18.2	38.3	Gross beta	1.36	7.23	15.3

W307				W308			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	-12.1	20.2	52.0	Gross alpha	10.1	12.4	24.5
Gross beta	3.81	17.5	37.0	Gross beta	19.0	11.9	22.5

W309				W306 Duplicate			
Date	5/11/2017	CSU	MDA	Date	5/11/2017	CSU	MDA
Gross alpha	20.7	19.2	35.1	Gross alpha	-7.42	9.65	25.2
Gross beta	7.63	20.5	42.8	Gross beta	4.51	6.94	14.3

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L 3rd Quarter 2017

W01			
Date	8/10/2017	CSU	MDA
Gross alpha	42.1	36.3	68.2
Gross beta	75.4	37.8	69.7

W09A			
Date	8/10/2017	CSU	MDA
Gross alpha	0.00	42.0	97.8
Gross beta	195	77.6	136

W10A			
Date	8/10/2017	CSU	MDA
Gross alpha	82.1	58.7	105
Gross beta	100	63.0	120

W11			
Date	8/10/2017	CSU	MDA
Gross alpha	224	86.9	110
Gross beta	129	75.7	141

W12			
Date	8/10/2017	CSU	MDA
Gross alpha	69.5	45.8	79.0
Gross beta	114	69.9	134

W302			
Date	8/10/2017	CSU	MDA
Gross alpha	28.0	29.1	56.8
Gross beta	63.1	35.2	66.0

W305			
Date	8/10/2017	CSU	MDA
Gross alpha	53.3	22.9	32.0
Gross beta	26.2	18.1	34.6

W306			
Date	8/10/2017	CSU	MDA
Gross alpha	6.84	13.7	29.0
Gross beta	12.1	18.0	37.0

W307			
Date	8/10/2017	CSU	MDA
Gross alpha	12.8	23.0	48.6
Gross beta	29.0	31.8	64.3

W308			
Date	8/10/2017	CSU	MDA
Gross alpha	17.5	14.4	26.3
Gross beta	16.3	14.8	29.4

W309			
Date	8/10/2017	CSU	MDA
Gross alpha	30.3	29.0	55.9
Gross beta	20.8	28.8	58.9

W309 Duplicate			
Date	8/10/2017	CSU	MDA
Gross alpha	39.1	29.2	52.3
Gross beta	-1.56	28.9	61.8

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

DVC Radiological Analysis pCi/L 4th Quarter 2017

W01			
Date	11/16/2017	CSU	MDA
Gross alpha	-41.6	34.9	101
Gross beta	21.9	33.9	69.8

W09A			
Date	11/15/2017	CSU	MDA
Gross alpha	101	49.4	68.4
Gross beta	1380	208	86.8

W10A			
Date	11/15/2017	CSU	MDA
Gross alpha	55.0	74.1	150
Gross beta	13.1	67.2	142

W11			
Date	11/15/2017	CSU	MDA
Gross alpha	-48.8	67.9	185
Gross beta	-9.17	68.9	148

W12			
Date	11/16/2017	CSU	MDA
Gross alpha	0.00	32.1	78.2
Gross beta	3.79	35.5	75.3

W302			
Date	11/16/2017	CSU	MDA
Gross alpha	13.9	39.5	88.4
Gross beta	-4.12	39.7	85.2

W305			
Date	11/15/2017	CSU	MDA
Gross alpha	10.6	20.9	44.7
Gross beta	38.0	17.7	31.7

W306			
Date	11/16/2017	CSU	MDA
Gross alpha	10.40	12.7	25.1
Gross beta	8.18	12.0	24.7

W307			
Date	11/15/2017	CSU	MDA
Gross alpha	-12.0	20.1	51.7
Gross beta	7.12	16.6	34.8

W308			
Date	11/16/2017	CSU	MDA
Gross alpha	29.8	23.8	44.7
Gross beta	250	43.9	37.1

W309			
Date	11/15/2017	CSU	MDA
Gross alpha	1.81	21.5	49.1
Gross beta	7.46	17.7	37.0

W305 Duplicate			
Date	11/15/2017	CSU	MDA
Gross alpha	-14.3	24.4	60.6
Gross beta	11.8	17.9	36.8

MDA = Minimal Detected Activity

CSU = Combined Standard Uncertainty (2-sigma)

Attachment D

Site Map
Area Filled With Geothermal Material

N

SCALE IN FEET
0 50 100 200

W305

W309

W307

Z7

DVC OFFICES

SW1

PROCESS
WATER WELL

W308

W10A

Z3

W09A

CELL 1

Closed
Cells 1 & 2

Z4

Processing
Area D

CELL 3

Processing
Area A

Processing
Area B

Processing
Area C

SW2

W306

NOTES:
1. SURVEY PERFORMED BY TRI-STATE SURVEYING, LTD.
2. PVC ELEVATION IS THE TOP OF PVC SAMPLING PIPE INSIDE MONITORING WELL CASING PIPE.

Z2

W11

CELL 2

Z5

Z6

W12

W01

W302

DVC MONOFILL FACILITY
MONITORING WELL LOCATIONS

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7030 GENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

REV	DATE	DESCRIPTION	BY	APRV

REVISION RECORD

ISSUE	DATE	REV	DESCRIPTION

ISSUE RECORD

ENGINEERING MGR:
PROJECT MGR: K CAMPBELL
PROJECT ENG:
DRAWN BY: J HULA
DRAWN DATE: 9/9/2010

DESERT VALLEY COMPANY
MONOFILL FACILITY
GROUND WATER
MONITORING WELL PLAN

PROJECT NUMBER

DRAWING NUMBER
18-1003-GA-22_0
SHEET NUMBER
020

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Attachment E

California Registered Professional Engineer Review

terraphase engineering

REVIEW OF MONITORING REPORT BY PROFESSIONAL ENGINEER

Waste Discharge Requirements (WDR) and Monitoring for
Desert Valley Monofill Class II Solid Waste Management Facility
Northwest of Westmorland – Imperial County
Permit Dated June 30, 2016

Regional Board WDID No. 7A132197001
Board Order R7-2016-0016
Facility Name: Desert Valley Monofill

Terraphase Engineering (Terraphase) has reviewed the report, prepared by the Desert Valley Company, title *Desert Valley Company Class II Solid Waste Management Facility, 2017 Annual Summary Report, Regional Board WDID No. 7A132197001, Board Order No. R7-2016-0016*. This report was prepared as required by Monitoring and Reporting Program (MRP) R7-2016-0016.

Based on Terraphase's inquiry of the person or persons who generated this report, the information, is to the best of Terraphase's knowledge, true, complete, and complies with Order No. R7-2016-0016.

March 8, 2018

Julie C. Harriman, PE (Civil, 83894)
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December 2016

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Level 1 Exceedance Response Action Evaluation and Report (Level 1 ERA)

Level 1 Exceedance Response Action Evaluation and Report (Level 1 ERA)

Prepared for:

Cal Energy Operating Company
3301 West Highway 86
Brawley, CA
WDID #7 13I005191

December 2016

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Level 1 Exceedance Response Action Evaluation and Report (Level 1 ERA)

1.0 LEVEL 1 EXCEEDANCE RESPONSE ACTION EVALUATION AND REPORT (LEVEL 1 ERA)

1.1 Introduction

This site-specific Exceedance Response Action (ERA) Level 1 Evaluation and Report (Level 1 ERA) has been prepared to comply with the requirements of the State (California) Water Resources Control Board's (SWRCB's) National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 for Discharges of Storm Water Associated with Industrial Activities (IGP) effective July 1, 2015.

A discharger's baseline status for any given parameter changes to Level 1 status if sampling results indicate a Numeric Action Level (NAL) exceedance for that same parameter. An NAL exceedance can be either of the following:

1. Instantaneous maximum NAL exceedance: Occurs when two or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value identified in Table 2 of the IGP; and
2. Annual NAL exceedance: Occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL identified in Table 2 of the IGP.

This Level 1 ERA has been organized to comply with Section XII of the IGP.

1.2 Level 1 ERA Performance Standards

The Level 1 ERA consists of two steps, the Level 1 ERA Evaluation and the Level 1 ERA Report. The level 1 ERA evaluation must be completed by October 1, 2016 and the Level 1 Report must be completed by January 1, 2017.

The purpose of this Level 1 ERA is to:

1. Complete an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s) and drainage areas;
2. Identifying corresponding Best Management Practices (BMPs) in the Storm Water Pollution Prevention Plan (SWPPP) and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances; and
3. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation.

A copy of the Level 1 ERA shall be prepared by a Qualified Industrial Storm Water Practitioner (QISP), maintained at the facility and submitted electronically to the Storm Water Multiple Application and Report Tracking System (SMARTS).

A facility may return to baseline status once a Level 1 ERA has been completed, all identified additional BMPs have been implemented, and results from four consecutive Qualified Storm

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Events (QSE) that were sampled subsequent to the BMP implementation indicate no additional NAL exceedances for that parameter and no other NALs are exceeded.

1.3 Limitations/Disclaimers

This report describes the results of Yorke Engineering, LLC's (Yorke's) Level 1 ERA evaluation and report to assist the discharger with ensuring that all potential pollutant sources that could be causing or contributing to the NAL exceedance(s) are fully characterized, that the current BMPs are adequately described, that employees responsible for implementing BMPs are appropriately trained, and that internal procedures are in place to track that BMPs are being implemented as designed in the SWPPP.

While performing this evaluation, Yorke assessed the presence of such problems within the limits of the established scope of work as described in our proposal.

As with any evaluation, there is a certain degree of dependence upon oral information provided by facility or site representatives, which is not readily verifiable through visual observations or supported by any available written documentation. Yorke shall not be held responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed by facility or site representatives at the time this evaluation was performed.

This report and all field data and notes were gathered and/or prepared by Yorke in accordance with the agreed upon scope of work and generally accepted engineering and scientific practice in effect at the time of Yorke's evaluation of the facility.

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2.0 LEVEL 1 ERA EVALUATION

Yorke performed an initial Level 1 ERA evaluation of the Cal Energy facility in September, 2016, and re-visited the facility in December 2016. Key observations are presented in the sections below.

2.1 Data Review

Prior to the September site visit, Yorke reviewed the facility's June 1, 2015, Storm Water Pollution Prevention Plan (SWPPP) and its 2015-2016 sampling results, along with storm water sampling data from prior years.

As indicated in the facility's 2015 – 2016 Annual Report, only a single Qualifying Storm Event (QSE) occurred during the 2015-2016 sampling year. As there were no other results to contribute to the annual average calculations, the single value for that storm event of 30 mg/l iron thus also comprises the average value. This value considerably exceeded the Annual Average Numeric Action Level (AANAL) of 1 mg/l for iron.

Yorke also examined previously reported storm water sampling results.

Table 2-1: Historical Summary of TSS and Iron Results

TSS (mg/L)	Iron (mg/L)	Date
100	**30.00**	1/6/20126
584	0.24	3/2/2015
1156	0.06	1/28/2013
NS	NS	12/14/2012
43.9	0.02	7/16/2012
180	0.12	2/21/2011
7370	0.22	12/23/2010
6210	0.59	10/21/2010
5900	0.50	10/4/2010
11800	0.20	3/8/2010
8700	<0.05	1/22/2010
8820	0.65	1/20/2010
18500	0.10	1/19/2010
550	**1.97**	9/8/2009
690	0.18	2/17/2009
9740	<0.5	12/18/2008
6900	<0.5	11/21/2008
11900	<0.5	9/12/2008
5540	<0.5	8/11/2008
2620	<0.5	12/10/2007
5640	<0.5	12/3/2007

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TSS (mg/L)	Iron (mg/L)	Date
6180	0.63	9/22/2007
3240	0.44	3/22/2007

As illustrated, in contrast to historical results, the January 2016 observed iron concentration was anomalously high. In addition to exceeding the AANAL for iron of 1 mg/L by a factor of 30, the January 2016 iron result exceeded the previous highest value for iron, from September 2009, by a factor of 15, in addition to exceeding the average iron concentration (0.42 mg/L) in all downgradient samples since 2007 to an even greater degree.

Furthermore, compared to previous years, the observed TSS concentration in January 2016 of 100 mg/L was unusually low. Yorke also noted that while the 2016 TSS concentrations were abnormally low and the iron concentrations were abnormally high, TSS concentrations from the sample event from September 2009, which also produced high iron concentrations, did not exhibit unusually low TSS results. In summary, 2016 results for both TSS and iron are very difficult to understand in the context of 10 years of previous discharge samples. However, other than for 2016, it can be seen that elevated TSS is not well-correlated with elevated iron results. This suggests that methods to control TSS would not likely be useful in controlling iron (to the extent it needs to be controlled at all.)

Due to this very unusual iron result, Yorke and Cal Energy – who operates the state-certified laboratory in which storm water samples are analyzed – undertook a review of the sample collection and handling, and sample analysis, processes which produced the 2016 result.

The sample collection and handling review suggested several factors that could potentially be affecting the representativeness of samples:

- The facility collects storm water samples using a Vortox Air Technology Liquid Sampler (Vortox device) which is specifically designed to collect storm water samples. Although the device is designed to help keep wind-blown particulate matter from entering it, it appeared that the method of deploying the device may not be achieving this.
- Cal Energy believes that coyotes may urinate onto the sample collection device.
- The Vortox unit is deployed approximately 10 feet from the facility fenceline; this 10 feet of land is unpaved ground surface similar to the undisturbed areas which surround the landfill. Yorke's observations of the area suggest it is very likely that water draining through the landfill fence and towards the sampler (which is set into a vault so that it catches surface flow) would pick up sediment from this area and thus entrain it into the collected sample.

Whether or how any of these situations might affect a sample result for iron is unknown. However, precluding any impact on the sampling device is important to collecting a representative sample for all analyses.

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In contrast to the above uncertainties, Cal Energy's internal review of the sample analysis process found no clear errors or issues that would suggest the analytical result obtained was erroneous. The lab's quality assurance/quality control procedures were followed, and no deviations were noted in any of the laboratory instrument calibration or other results.

2.2 Site Visit

As noted, Yorke visited the site in September and again in December, 2016. The results of these visits and subsequent evaluations are summarized in the table below, and subsequent sections.

Table 2-2: Evaluation Summary from Site Visit and Data Review

Evaluation Criteria	Results of Evaluation
Sampling Data	• See above regarding placement of the Vortox samplers. • As noted below, the sampling location used for current and historical storm water sampling represents only one of seven discharge locations. Although the general appearance of each location does not suggest the sampling location is unrepresentative, nor do activities within each drainage area vary significantly, the SWPPP did not specify specifically how this location was selected.
Drainage Patterns	• The approximately 17-acre site contains an active cell (Cell 3) and two closed cells (Cells 1 and 2); several leachate collection ponds; and a landfill operations area on the northeast side. • There is no discharge from the internally-drained Cell 3 area, which appears to comprise roughly 40% of the entire site. • The site appears to consist of four drainage areas which discharge from seven locations around the site perimeter. Four of these locations are improved with sandbags which help prevent washout/scouring; the others are unimproved. • The location of the discharge point being sampled did appear likely to be affected by operations in the landfill operations area, including the transport of the geothermal wastes up to the disposal cell.
Pollutant Sources	• The SWPPP does not indicate there are sources of iron (or other metals) at the facility. • Non-hazardous geothermal wastes (filter cake, drilling muds and cuttings, geothermal contaminated soil and material, and incidental plastic sheeting) are disposed at the monofill. The non-hazardous wastes are deposited within the open monofill cell cavity, compacted, and stabilized with a polymer soil seal to prevent windblown dispersion of the deposited materials. Various metals, including iron, are present in the waste.

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Evaluation Criteria	Results of Evaluation
	• There polymer soil stabilization material does not contain iron according to its MSDS. • With the exception of asphalt paving within the landfill operations area, the site is entirely unpaved. The closed cells have been capped with an impervious material and native soil, so that no storm water contact with waste materials is possible.
Background or non-industrial sources	• The iron content of native soils used as part of the landfill cover system, and as present throughout the unpaved site, is unknown. • There do not appear to be obvious sources of iron (e.g., air emissions) in the site vicinity. • Inspection of the Vortox sample device did not indicate accumulations of rust or other factors which might influence sample results.
BMPs	An evaluation of current BMPs is presented below.

2.3 Minimum BMP Evaluation

As described above, there are no obvious industrial activity-related sources of iron. Accordingly, there are no BMPs which are specifically designed for this contaminant; and, while there are BMPs in place for erodible surfaces, there is not a demonstrated correlation between control of sediments/TSS and iron.

Based on the facility's current SWPPP dated June 9, 2016, Yorke did not establish that any BMPs were not being performed in accordance with the SWPPP, nor did BMPs appear to be inadequately understood in order to allow performance.

Therefore, no deficiencies relative to minimum BMPs as they relate to iron were identified.

2.4 Advanced BMPs

The facility has deployed sandbags around several of the discharge locations to assist in sediment control. However, as above, it is unclear whether sediment control measures are meaningful relative to iron.

2.5 Additional BMPs Selected for Implementation

As the source of iron at this facility is unknown; and historical data does not support a history of iron presence in storm water samples, no additional BMPs have been selected for implementation. However, adjustments to storm water sampling methodology are warranted as described below.

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3.0 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

As part of the Level 1 ERA process, an identification of SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this IGP was conducted. Table 3-1 presents the recommended SWPPP improvements.

Table 3-1: SWPPP Deficiencies and Improvement Recommendations

SWPPP Section	Deficiency Noted	SWPPP Improvement Recommendation
Section 1	The facility's scheduled operating hours are not clearly defined and appear to be different than (more restricted than) the facility's permitted hours of operation, as required by the IGP.	Clearly state the facility's scheduled operating hours.
Site Map	All drainage areas and discharge locations are not indicated on the Site Map, as required by the IGP.	Update the Site Map to indicate each drainage area and discharge location.
Section 6	The SWPPP did not specify sampling each discharge location, as is required by the IGP.	Update the SWPPP to indicate that each discharge location will be sampled. Alternatively, the facility may be able to justify not sampling each discharge location in each drainage area. If the facility chooses to do this, it must be documented in the SWPPP in accordance with IGP Section XI.C.4.
Section 6	The placement and use of the Vortox device is not clearly described in the SWPPP.	Update the SWPPP to fully describe the placement and use of the Vortox device (or devices, if additional are utilized at additional sampling locations.) Specifically address the placement of the samplers nearer the fenceline; and maintenance of the devices to ensure they are not affected by wind-blown particulate or wildlife.

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C-1c Supplement III - Phase I Draft Constraints Report

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-001(Rev.A)
January 12, 2018

Cal Energy Operating Corp.
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yangiu Wu

DRAFT
Phase 1 Biological, Cultural, and Geological Constraints Report
Desert Valley Company (DVC) Monofill DVC Cell 4
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present this draft Phase 1 report for the proposed Desert Valley Company (DVC) Monofill DVC Cell 4 solid waste facility. This report summarizes the results of the Phase 1 tasks, including Task 1, Biological Resources, Task 2, Cultural Resources, and Task 3 Geologic Resources.

The Phase 1 studies were conducted by Fugro with assistance from subconsultants Brian F. Smith and Associates of Poway, California, and Hernandez Environmental Services of Lake Elsinore, California. The Phase 1 work was authorized under a general services contract between CalEnergy Operating Corporation and Fugro USA Land, Inc., effective October 18, 2017, and was conducted in accordance with Scope of Work #17-35 “Preliminary Studies and Field Investigations to Construct DVC Cell 4,” performed under Purchase Agreement 245885.

The report provides an introduction, a summary of the major findings of the three main studies, and bulleted recommendations for the next steps needed to facilitate selection of a final site footprint and to address permitting requirements. Complete Phase reports for biologic resources, cultural resources, and geologic resources are appended to this report.

1. INTRODUCTION

This report presents the results of the Phase 1 studies, which evaluate constraints on siting of the proposed Desert Valley Company (DVC) Cell 4 monofill based on biological, cultural, and geological resources. The report summarizes the results of Phase 1 studies and makes recommendations for Phase 2. The summary includes a map, or model, integrating the results of the three studies and illustrating our current understanding of the potential constraints on development at the sites being considered for the DVC Cell 4 expansion (Figure 1). Detailed reports of the biological, cultural, and geologic studies are included as appendices.

CalEnergy owns and operates the current DVC Class II monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Cells 1 and 2 are closed and Cell 3 is projected to reach its capacity in the year 2025. Cell 4, with a capacity of at least 1,300,000 cu yd. (same as Cell 3), would need to be operational before Cell 3 can be closed. All of CalEnergy's cells are constructed to Class I standards, and CalEnergy desires the same for Cell 4.

The investigation focusses on two potential sites adjacent to the existing facility: the northwest quadrant of Section 33, located immediately west of the current facility, and Section 27, located northeast of the current facility. Although CalEnergy owns both sites, utilizing the remaining available space within Section 33 is preferred. Within Section 27, the Phase 1 studies focussed on the southwest quadrant, closest to the existing facility, although it is understood that the entire section is owned by CalEnergy. For convenience, the northwest quadrant of Section 33 will be referred to as *site Quadrant 1*, and the southwest quadrant of Section 27 will be referred to as *Quadrant 2* (Figure 1).

2. SUMMARY OF PHASE 1 STUDIES

Phase 1 studies of the biologic, cultural, and geologic constraints are summarized below. Full reports are found in the appendices as follows:

- Appendix A. Biological resources constraints analysis for the Desert Valley Company non-municipal solid waste landfill Cell 4; prepared by Hernandez Environmental Services, Inc.
- Appendix B. Draft Phase 1 cultural resource report for the CalEnergy DVC Cell 4 project: prepared by Brian F. Smith and Associates, Inc.
- Appendix C. Geological constraints analysis for the Desert Valley Company (DVC) Monofill DVC Cell 4; prepared by Fugro USA Land, Inc.

2.1 Biological Resources

The biological resources review was conducted by Hernandez Environmental Services, and was based on literature review, review of biological databases, and review of aerial photographs and topographic maps. No field data were collected. The biological report is presented in Appendix A, and summarized below.

Together, the Section 33 and Section 27 sites were judged to have the potential for the presence of 14 sensitive plant species and 26 sensitive wildlife species. The biological survey report prepared for the existing landfill (ERC, 1989) found that the site supported one sensitive plant and one sensitive wildlife species. No biological constraints are marked on Figure 1, as site-specific studies have not yet been conducted, and individual habitat types have not been identified or delineated.

A potential concern is that, although neither Quadrant 1 nor Quadrant 2 is located within currently designated USFWS critical habitat, desert washes in the far western part of Quadrant 1 drains west into San Felipe Creek (Figures 1 and 2). San Felipe Creek is designated critical habitat for the desert pupfish. Appendix A, Figure 4, shows the location of San Felipe Creek and the designated critical habitat.

2.2 Cultural Resources

The cultural resources review was conducted by Brian F. Smith and Associates, Inc., and consisted of review of literature, previous studies, and archaeological site records, and field survey of 320 acres within the NW quadrant of Section 33 (Quadrant 1), and the SW quadrant of Section 27 (Quadrant 2).

A records search indicated that 34 previously recorded resources were located within the Quadrant 1, while four were located within Quadrant 2. The field survey resulted in the relocation of 11 of the previously recorded sites and the documentation of 10 new isolates (isolated artifacts including lithic tools, flakes, and ceramic fragments) within the two sites. Of the relocated sites and newly identified isolates, nine sites and five isolates are located within Quadrant 1. Two relocated sites and five new isolates were documented within Quadrant 2. Formal archaeological site registration numbers will be requested from the South Coastal Information Center (SCIC) at San Diego State University (SDSU), while updated information for all previously-recorded resources, whether relocated or not, will be submitted to the SCIC.

Figures 1, 2, and 3 show the locations of archeological sites, including previously identified sites and sites newly identified in this survey, and the locations of isolates identified in this survey.

2.3 Geological Resources

The Phase 1 geological constraints study includes a review of the geologic setting based on literature review, and an assessment of the presence of Holocene surface faulting, based on literature review and desktop mapping of potential fault-related features from high resolution aerial imagery and topographic data.

Both quadrants and the existing landfill are underlain by the almost flat-lying fine-grained lacustrine sediments of the late Pleistocene Cahuilla Formation, which were deposited on gently folded alluvial sediments of the Pliocene to middle Pleistocene Brawley Formation (Dibblee, 1954, 2008). Both the Brawley and Cahuilla beds are weakly consolidated and are eroded into barren to scrub-covered low hills at the site. Tectonic deformation has faulted and gently folded the Brawley sediments, creating domes and ridges in the Brawley Formation that protrude through the lacustrine Cahuilla sediments to form low hills (Figure 1).

The Cahuilla lacustrine sediments are topped by a discontinuous cover of gravelly beach ridge deposits, formed as waves reworked the incoming stream alluvium along the shore of the Pleistocene lake. Parallel bands of beach ridges record the gradual recession of the shoreline as Pleistocene Lake Cahuilla gradually shrank to become the Salton Sea (Figure 1). These beach sediments support a scrub vegetation and contrast on aerial imagery with the bare silts of the lacustrine sediments. A network of desert washes dissects the landscape, carrying water and sediment northward to the Salton Sea.

Folding and faulting continue today, associated with the major strike-slip motion along the San Jacinto fault, Superstition Hills fault, and other major plate-boundary faults. Surface fault rupture was documented after the 1987 M6.6 Superstition Hills Earthquake (Hudnut et al., 1989). The mapped rupture is shown in red on Figure 1 along with traces of faults that failed to rupture in that earthquake, but were identified by observation of shear zones or displacement of the bedding in the sediments. Also shown on Figure 1, are lineaments that may be fault related. These were identified from desktop interpretation of aerial imagery and topographic data conducted for this study. These lineaments were expressed as offset bedding in the Brawley Formation and topographic lineaments in the Cahuilla Formation, and are oriented consistent with known faults.

No historical surface rupture nor other active faults have been mapped by previous workers, or by this study through either Quadrant 1 or Quadrant 2. It is not known whether the absence of identified faults is due to the absence of faulting, or the lack of good exposures that would provide evidence of faulting. In the site area, faults have been mapped either where 1987 earthquake-related surface rupture was documented, or where the sedimentary bedding in the Brawley Formation is exposed at the surface and displacement of the beds is directly observed. Within the proposed expansion areas, the Brawley Formation is not well exposed. Most of this area is covered with Holocene alluvium, or Pleistocene lake and beach deposits. Therefore, little direct evidence is available to establish either the presence or the absence of surface faulting at the proposed expansion sites.

Our approach is to examine of the geometry of adjacent known faults and project these faults across the sites. The projected locations can be examined more closely for direct evidence of faulting. Projection corridors of the known faults are shown on Figure 1. In Phase 2 of the project, Fugro plans to collect and interpret geophysical survey data collected across these projections. Proposed geophysical survey lines are shown in Figure 1 and in detail on Figures 2, and 3. The goal of the geophysical surveys is to image the stratigraphy in the underlying Brawley Formation and look for any displacement of the beds or other irregularities that would suggest the presence of faulting. If faults are evident from the geophysical data, Fugro will conduct a trench investigation to expose the faults, confirm their presence and exact locations, and assess their activity.

3. DISCUSSION AND RECOMMENDATIONS

Based on the results of the Phase 1 constraints analysis, recommendations are made with the goals of enabling final site selection and addressing permitting requirements for the DVC Cell 4 project. Activities listed under biological and cultural resources will require additional funding. Activities listed under geological resources are authorized under the current purchase order.

3.1 Biological Resources Recommendations

The Phase 1 desktop review of biological resources finds the potential for the presence of sensitive species and potential impacts to designated critical habitat. The following recommendations are made:

- As part of the California Environmental Quality Act analysis, a biological habitat assessment based on field surveys will be required. The 1989 biological survey report prepared for the existing landfill found that the site supported one sensitive plant and one sensitive wildlife species. If the client elects to proceed with the required biological surveys, please note that surveys for rare plants must be conducted in the months of March and April. The plants cannot be identified with certainty at other times of the year
- A jurisdictional delineation is recommended to determine whether the desert washes that cross the proposed sites qualify as state and federal jurisdictional waters. If so, development of the site will require approvals from the USACE, the California RWQCB, and the CDFW.
- The jurisdictional delineation will also establish boundaries of the headwaters of San Felipe Creek, which extends into the western edge of Quadrant 1 (Figure 2). This stream is designated by the U. S. Fish and Wildlife Service as desert pupfish critical habitat.

3.2 Cultural Resources Recommendations

The Phase 1 desktop study and field reconnaissance identified and located cultural resources sites and isolates in the two proposed site areas, with a significantly greater number identified within Quadrant 1 (Figures 1, 2, and 3). The following recommendations are made:

- From a cultural resources perspective, the significantly fewer number of archaeological resources in Quadrant 2 makes this the preferred location for the DVC Cell 4 facility. Location of the facility within Quadrant 2 is strongly recommended.
- Should the new facility be located in an area of recorded cultural resources, focused archaeological field testing for significance of these resources would be required for the CEQA review process. The studies would provide a detailed evaluation of each site and assessment of project impacts. Studies may include shovel tests, excavation of test units and sifting of soil, radiocarbon dating, analysis of provenience, and the collection and documentation of artifacts within the planned facility footprint.

3.3 Geological Resources Recommendations

Geologic studies focused on the potential for surface faulting. No surface faults have been previously identified within the site boundaries, but are potentially present based on the presence of active faults nearby (Figure 1).

To satisfy the requirements of SWRCB regulations for siting Class I solid waste facilities, a setback of 200 ft. from any known Holocene active fault will need to be established. The SWRCB criteria states:

> "New units and existing units in Categories I, I', REC, and EX, other than existing land treatment units, shall have a 200-foot setback from any known Holocene fault. Existing units in Categories II-1 and T/S and existing land treatment units may be located within 200 feet of a known Holocene fault, provided that containment structures are capable of withstanding ground accelerations associated with the maximum credible earthquake."

The following recommendations are made to locate and characterize Holocene faults:

- Conduct Phase 2 geophysical surveys of each site along the proposed lines 1 and 2 shown in Figures 1, 2 and 3. Process and interpret the data from line 1 (Quadrant 1).
- If the geophysical results show no evidence of faulting, the client may elect to proceed with permitting of this site.
- If the results for Quadrant 1 are not favorable, or other factors lead to rejection of the Quadrant 1 site, the client may elect to process and interpret the geophysical data for Line 2 (Quadrant 2).
- If a fault is identified from the geophysical data, a fault trenching investigation is recommended to confirm the presence and precise location of the fault. This investigation will support establishment of appropriate setbacks. Up to two 50-ft long trenches may be excavated and documented as part of the Phase 2 studies.

These activities are included in the current scope of work under Phase 2—Site-specific Fault Investigation.

4. CLOSING

It has been our pleasure to provide this draft Phase 1 report for your review. Please let us know when you are ready to present your comments and discuss the findings. We will submit the final report within two weeks following receipt of CalEnergy's review comments.

Sincerely,
Fugro USA Land, Inc.

Joshua Goodman, P.G., C.E.G.
Senior Project Geologist

Janet Sowers, Ph.D., P.G.
Associate Geologist

Attachments: **Appendix A.** Biological resources constraints analysis for the Desert Valley Company non-municipal solid waste landfill Cell 4; prepared by Hernandez Environmental Services, Inc.
Appendix B. Draft Phase 1 cultural resource report for the CalEnergy DVC Cell 4 project: prepared by Brian F. Smith and Associates, Inc.
Appendix C. Draft Geologic screening report, DVC Cell 4; prepared by Fugro USA Land, Inc.

Distribution: One electronic copy to Ms. Wu

A	Draft	JMS	JG		1-12-2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

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Figure 1: Geometric Model Overview contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

Figure 2: Geometric Model, NW Quarter of Section 33

contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

Figure 3: Geometric Model, SW Quarter of Section 27

contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

APPENDIX A
BIOLOGICAL RESOURCES CONSTRAINTS ANALYSIS FOR THE
DESERT VALLEY COMPANY NON-MUNICIPAL SOLID WASTE LANDFILL CELL 4
PREPARED BY HERNANDEZ ENVIRONMENTAL SERVICES, INC.

BIOLOGICAL RESOURCES CONSTRAINTS ANALYSIS FOR THE DESERT VALLEY COMPANY NON-MUNICIPAL SOLID WASTE LANDFILL CELL 4

IMPERIAL COUNTY, CALIFORNIA

APNs 019-100-004 and 019-110-012

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 94596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Juan J. Hernandez
Hernandez Environmental Services
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

December 14, 2017

Hernandez Environmental Services

Memorandum

Date: December 14, 2017

To: Kyle Guerrero

Brian F. Smith and Associates, Inc.

From: Juan J. Hernandez, Principal Biologist

Subject: Biological Resources Constraints Analysis for the Desert Valley Company (DVC) Non-Municipal Solid Waste Landfill Cell 4.

Pursuant to your request, Hernandez Environmental Services (HES) conducted a biological resources constraints analysis for two potential sites for the Desert Valley Company (DVC) non-municipal solid waste landfill Cell 4 (Cell 4).

Location

The two potential Cell 4 sites consist of the northwest quadrant of Section 33 and all of Section 27, Range 11 East, Township 12 South within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Kane Spring* Quadrangle. The potential sites are located southwest of Highway 86 and the Salton Sea and northwest of the cities of Westmoreland and Brawley, within Imperial County, California. Refer to Figures 1 and 2.

Methodology

HES conducted a literature review and reviewed aerial photographs and topographic maps of the two potential Cell 4 sites and surrounding areas. A ten-mile radius around the sites was used to query the California Natural Diversity Database (CNDDB). In addition, the California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants, the United States Fish and Wildlife Service (USFWS) Critical Habitat and Threatened/Endangered Species lists, the California Department of Fish and Wildlife (CDFW) Biogeographic Information and Observation System (BIOS), and National Land Cover Database (NLCD)were reviewed to obtain sensitive species, critical habitat, and vegetation information for the area.

Environmental Setting

According to the NLCD 2011 map, the two potential Cell 4 sites consist primarily of barren lands with patches of shrub/scrub lands (Figure 3). The northwest quadrant of Section 33 site ranges in elevation from 65 feet below mean sea level (MSL) to 120 feet below MSL, sloping from southwest to northeast. The Section 27 site ranges in elevation from 130 feet below MSL to 187 feet below MSL, sloping from southwest to northeast. The northwest quadrant of Section 33 site is surrounded by vacant lands to the north, south, and west, and the existing DVC solid waste landfill to the east. The Section 27 site is surrounded by Highway 86 and agricultural lands to the north, vacant lands to the south, east, and west, and the existing DVC solid waste landfill to the southwest. Public lands owned by the Bureau of Land Management (BLM) exist to the northwest, west, and south of the two potential Cell 4 sites.

Sensitive Species

According to the CNDDB, a total of nine sensitive plant species and 26 sensitive wildlife species have the potential to occur on or within the vicinity of the two potential Cell 4 sites. Refer to Tables 1 and 2.

Table 1
CNDDB Sensitive Plant Species
With the Potential to Occur

Scientific Name	Common Name	Rare Plant Rank*	Other Status	Habitat	Presence/Absence
Astragalus insularis var. harwoodii	Harwood's milk-vetch	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Open sandy flats and sandy or stony desert washes; mostly in creosote bush scrub. -50-700 m. Bloom period January - May.	**Potential to be present.**
Astragalus sabulonum	gravel milk-vetch	2B.2		Sandy or gravelly flats, washes, and roadsides. -60-885 m. Bloom period February - July.	**Potential to be present.**
Euphorbia abramsiana	Abrams' spurge	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Sandy sites. -45-1445 m. Bloom period August - November.	**Potential to be present.**
Euphorbia platysperma	flat-seeded spurge	1B.2	BLM_S-Sensitive	Sandy places or shifting dunes. Possibly a waif in California; more common in Arizona and Mexico. 60-960 m. Bloom period May.	**Potential to be present.**

Malperia tenuis	brown turbans	2B.3	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_USDA-US Dept of Agriculture	Sandy places and rocky slopes. 0-550 m. Bloom period March - April.	**Potential to be present.**
Opuntia wigginsii	Wiggins' cholla	3.3		Sandy soils. Sporadic hybrid between O. ramosissima x O. echinocarpa. 30-885 m. Bloom period March.	**Potential to be present.**
Pholisma sonorae	sand food	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Loose, deep sand dunes, usually on the more stable, windward face. 0-125 m. Bloom period April - June.	**Potential to be present.**
Pilostyles thurberi	Thurber's pilostyles	4.3		Sandy alluvial plains, sandstone talus. Parasite on Psorothamnus emoryi (and Psorothamnus polydenius in NV). -50-365 m. Bloom period January.	**Potential to be present.**
Xylorhiza orcuttii	Orcutt's woody-aster	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Arid canyons; often in washes. 0-365 m. Bloom period March - April.	**Potential to be present.**

*Status:
FE: Federally listed as endangered
FT: Federally listed as threatened
SCE: State candidate for listing as endangered
SE: State-listed as endangered
ST: State-listed as threatened
SR: State rare
California Rare Plant Ranks:
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3: Plants About Which We Need More Information – A Review List
4: Plants of Limited Distribution – A Watch List
0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 – Fairly threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Table 2
CNDDB Sensitive Wildlife Species
With the Potential to Occur

Scientific Name	Common Name	Status	Habitat	Presence/Absence
Antrozous pallidus	pallid bat	CSC, BLM - Sensitive	Found in deserts, grasslands, shrublands, woodlands and forests, mostly in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures; very sensitive to disturbance of roosting sites.	**Potential to be present.**
Asio flammeus	short-eared owl	CSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields; tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	**Potential to be present.**
Athene cunicularia	burrowing owl	CSC, BLM - Sensitive	Occurs in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Potential to be present.**
Charadrius alexandrinus nivosus	western snowy plover	FT, CSC	Found in sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Potential to be present.**
Charadrius montanus	mountain plover	CSC, BLM - Sensitive	Inhabits short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	**Potential to be present.**
Cyprinodon macularius	desert pupfish	FE, SE	Found in desert ponds, springs, marshes and streams in Southern California; can live in salinities from freshwater to 68 ppt; can withstand temps from 9 - 45 C and dissolved oxygen levels down to 0.1 ppm.	**Potential to be present.**
Gelochelidon nilotica	gull-billed tern	CSC	Only known breeding colonies are at San Diego Bay and the Salton Sea. Nests on low, sandy islets. Known to feed on fishes at mouth of Colorado River and on grasshoppers in alfalfa fields.	**Potential to be present.**
Junco hyemalis caniceps	gray-headed junco	WL	Summer resident of Clark Mountain (eastern San Bernardino County) and Grapevine Mountains (Inyo County); inhabits white fir association at 7300 ft (Clark Mountain); also, from dense pinyons above 6700 ft (Grapevine Mountains).	**Not expected to be present.**

Larus californicus	California gull	WL	Found in Littoral waters, sandy beaches, waters and shorelines of bays, tidal mud-flats, marshes, lakes, etc. Colonial nester on islets in large interior lakes, either fresh or strongly alkaline.	**Potential to be present.**
Lasiurus xanthinus	western yellow bat	CSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	**Potential to be present.**
Laterallus jamaicensis coturniculus	California black rail	CFP, BLM - Sensitive	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays; needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Potential to be present.**
Lithobates yavapaiensis	lowland leopard frog	CSC, BLM - Sensitive	Found along the Colorado River and in streams near the Salton Sea.	**Potential to be present.**
Melanerpes uropygialis	Gila woodpecker	SE, BLM - Sensitive	In California, inhabits cottonwoods and other desert riparian trees, shade trees, and date palms. Cavity nester in riparian trees or saguaro cactus.	**Potential to be present.**
Melitta californica	California mellitid bee		Inhabits desert regions of SW Arizona, SE California, and Baja California, Mexico. Also collected from Torrey Pines, San Diego Co.	**Potential to be present.**
Neotoma albigula venusta	Colorado Valley woodrat		Inhabits low-lying desert areas in southeastern California; closely associated with beaver-tail cactus & mesquite. Intolerant of cold temps. Eats mainly succulent plants. Distribution influenced by abundance of nest building material.	**Potential to be present.**
Pelecanus occidentalis californicus	California brown pelican	CFP, BLM - Sensitive	Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators; roosts communally; colonial nester on coastal islands just outside the surf line.	**Potential to be present.**
Perognathus longimembris bangsi	Palm Springs pocket mouse	CSC, BLM - Sensitive	Found in desert riparian, desert scrub, desert wash and sagebrush habitats, rarely on rocky sites; occurs in all canopy coverage classes; most common in creosote-dominated desert scrub.	**Potential to be present.**
Phrynosoma mcallii	flat-tailed horned lizard	CSC, BLM - Sensitive	Restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. Critical habitat element is fine sand, into which lizards burrow to avoid temperature extremes; requires vegetative cover and ants.	**Potential to be present.**
Plegadis chihi	white-faced ibis	CWL	Inhabits shallow freshwater marsh and utilizes dense tule thickets for nesting, interspersed with areas of shallow water for foraging.	**Potential to be present.**

Polioptila melanura	black-tailed gnatcatcher	CWL	Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter.	**Potential to be present.**
Rallus obsoletus yumanensis	Yuma Ridgway's rail	CFP	Nests in freshwater marshes along the Colorado River and along the south and east ends of the Salton Sea.	**Potential to be present.**
Rynchops niger	black skimmer	CSC	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	**Not expected to be present.**
Sigmodon hispidus eremicus	Yuma hispid cotton rat	CSC	Primarily found along the Colorado River and in grass and agricultural areas near irrigation waters; wetlands and uplands with dense grass and herbaceous plants; makes runways through vegetation. Nests on surface and in burrows.	**Potential to be present.**
Toxostoma crissale	Crissal thrasher	CSC	Resident of southeastern deserts in desert riparian and desert wash habitats. Nests in dense vegetation along streams/washes; mesquite, screwbean mesquite, ironwood, catclaw, acacia, arrowweed, willow.	**Potential to be present.**
Toxostoma lecontei	Le Conte's thrasher	CSC	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	**Potential to be present.**
Uma notata	Colorado Desert fringe-toed lizard	CSC, BLM - Sensitive	Found primariliy in the Colorado Desert region; in sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub. Requires fine, loose, windblown sand (for burrowing); shrubs or annuals for arthropod production.	**Potential to be present.**

*Status:
Federal/State Listed:
FE = Federally listed endangered
FT = Federally listed threatened
SE = State listed endangered
ST = State listed threatened
OTHER:
CFP = California Department of Fish and Game Fully Protected Species
CSC = California Department of Fish and Game Species of Special Concern
WL = California Department of Fish and Game Watch List
BLM - Sensitive = Bureau of Land Management Designated Sensitive Species

In addition, the CNPS Inventory of Rare, Threatened, and Endangered Plants indicates that 14 sensitive plant species have a potential to occur on or within the vicinity of the two potential Cell 4 sites. Refer to Table 3.

Table 3
CNPS Sensitive Plant Species
With the Potential to Occur

Scientific Name	Common Name	Rare Plant Rank*	Blooming Period	Habitat	Micro Habitat
Abronia villosa var. aurita	chaparral sand-verbena	1B.1	(Jan)Mar-Sep	Chaparral, Coastal scrub, Desert dunes	sandy
Astragalus crotalariae	Salton milk-vetch	4.3	Jan-Apr	Sonoran desert scrub (sandy or gravelly)	
Astragalus insularis var. harwoodii	Harwood's milk-vetch	2B.2	Jan-May	Desert dunes, Mojavean desert scrub	sandy or gravelly
Astragalus sabulonum	gravel milk-vetch	2B.2	Feb-Jun	Desert dunes, Mojavean desert scrub, Sonoran desert scrub	Usually sandy, sometimes gravelly. Flats, washes, and roadsides
Castela emoryi	Emory's crucifixion-thorn	2B.2	(Apr)Jun-Jul(Sep-Oct)	Mojavean desert scrub, Playas, Sonoran desert scrub	gravelly
Euphorbia abramsiana	Abrams' spurge	2B.2	(Aug)Sep-Nov	Mojavean desert scrub, Sonoran desert scrub	sandy
Euphorbia platysperma	flat-seeded spurge	1B.2	Feb-Sep	Desert dunes, Sonoran desert scrub (sandy)	
Grusonia parishii	Parish's club-cholla	2B.2	May-Jun(Jul)	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub	sandy, rocky
Johnstonella costata	ribbed cryptantha	4.3	Feb-May	Desert dunes, Mojavean desert scrub, Sonoran desert scrub	sandy
Lycium torreyi	Torrey's box-thorn	4.2	(Jan-Feb)Mar-Jun(Sep-Nov)	Mojavean desert scrub, Sonoran desert scrub	Sandy, rocky, washes, streambanks, desert valleys
Opuntia wigginsii	Wiggins' cholla	3.3	Mar	Sonoran desert scrub (sandy)	
Pholisma sonorae	sand food	1B.2	(Mar)Apr-Jun	Desert dunes, Sonoran desert scrub (sandy)	
Pilostyles thurberi	Thurber's pilostyles	4.3	Dec-Apr	Sonoran desert scrub	
Xylorhiza orcuttii	Orcutt's woody-aster	1B.2	Mar-Apr	Sonoran desert scrub	

California Rare Plant Ranks:
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
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0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

A biological habitat assessment will need to be conducted as part of the California Environmental Quality Act (CEQA) analysis. The biological habitat assessment will identify the onsite habitats, and will further address the potential presence of sensitive species and any requirements for focused surveys. Based upon the potential presence for the sensitive species identified in Tables 1, 2, and 3, it is expected that the following focused surveys will be required:

- Rare plant studies
- Herpetological studies
- Burrowing owl surveys
- Small mammal surveys
- Nesting bird surveys

The biological survey report prepared in 1989 for the existing DVC solid waste landfill, which is located adjacent to the potential Cell 4 sites, found that the site supported Salton milkvetch and flat-tailed horned lizard. The Environmental Impact Report (EIR) prepared for the existing DVC solid waste landfill required the minimization of impacts to these species and mitigation to compensate for the loss of flat-tailed horned lizard habitat. In addition, the CDFW and BLM provided comments on the EIR indicating the need for compensatory mitigation for the loss of flat-tailed horned lizard habitat. Should flat-tailed horned lizard be found on the site during the biological habitat assessment and focused surveys, it is expected that minimization measures and compensatory mitigation for the loss of habitat will be required.

Critical Habitat

The two potential Cell 4 sites are not located within USFWS designated critical habitat. Designated critical habitat for desert pupfish occurs approximately two miles northwest of the sites. Refer to Figure 4.

Jurisdictional Resources

Based upon aerial photographs and topographic maps, desert washes appear to cross the two potential Cell 4 sites in a northeast direction. It is recommended that a jurisdictional delineation be conducted to assess the potential for the onsite washes to be state and federal jurisdictional waters. Any impacts to jurisdictional waters will require a 404 Permit from the U.S. Army Corps of Engineers (USACE), a 401 Water Quality Certification from the State Regional Water Quality Control Board (RWQCB), and a 1602 Streambed Alteration Agreement from the CDFW.

Recommendations

A biological habitat assessment will need to be conducted as part of the CEQA analysis. The biological habitat assessment will identify the onsite habitat, the potential for presence of special status species, and any requirements for focused surveys for sensitive species, which may require mitigation, if found onsite. It is also recommended that a jurisdictional delineation be conducted to quantify the extent of onsite jurisdictional resources. Any impacts to onsite jurisdictional resources will require a 404 Permit from the USACE, a 401 Water Quality Certification from the RWQCB, and a 1602 Streambed Alteration Agreement from the CDFW.

If you have any questions, comments, or need further clarification, please feel free to call me at (909) 772-9009 or juan@hernandezenvironmental.com with any questions. Thank you.

FIGURES

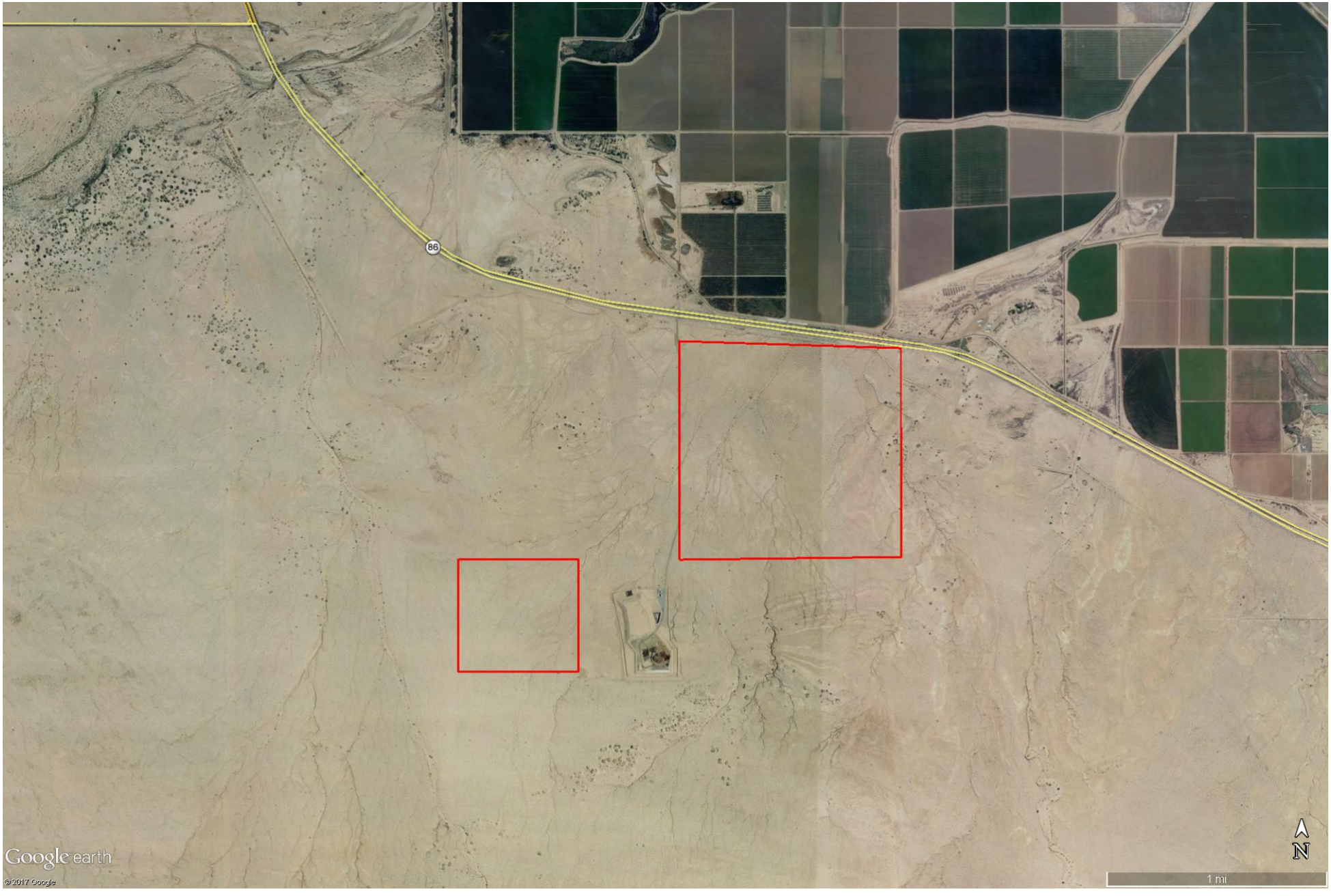

Figure 1 - Location Map

Constraints Analysis
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Site Boundaries

Hernandez Environmental Services

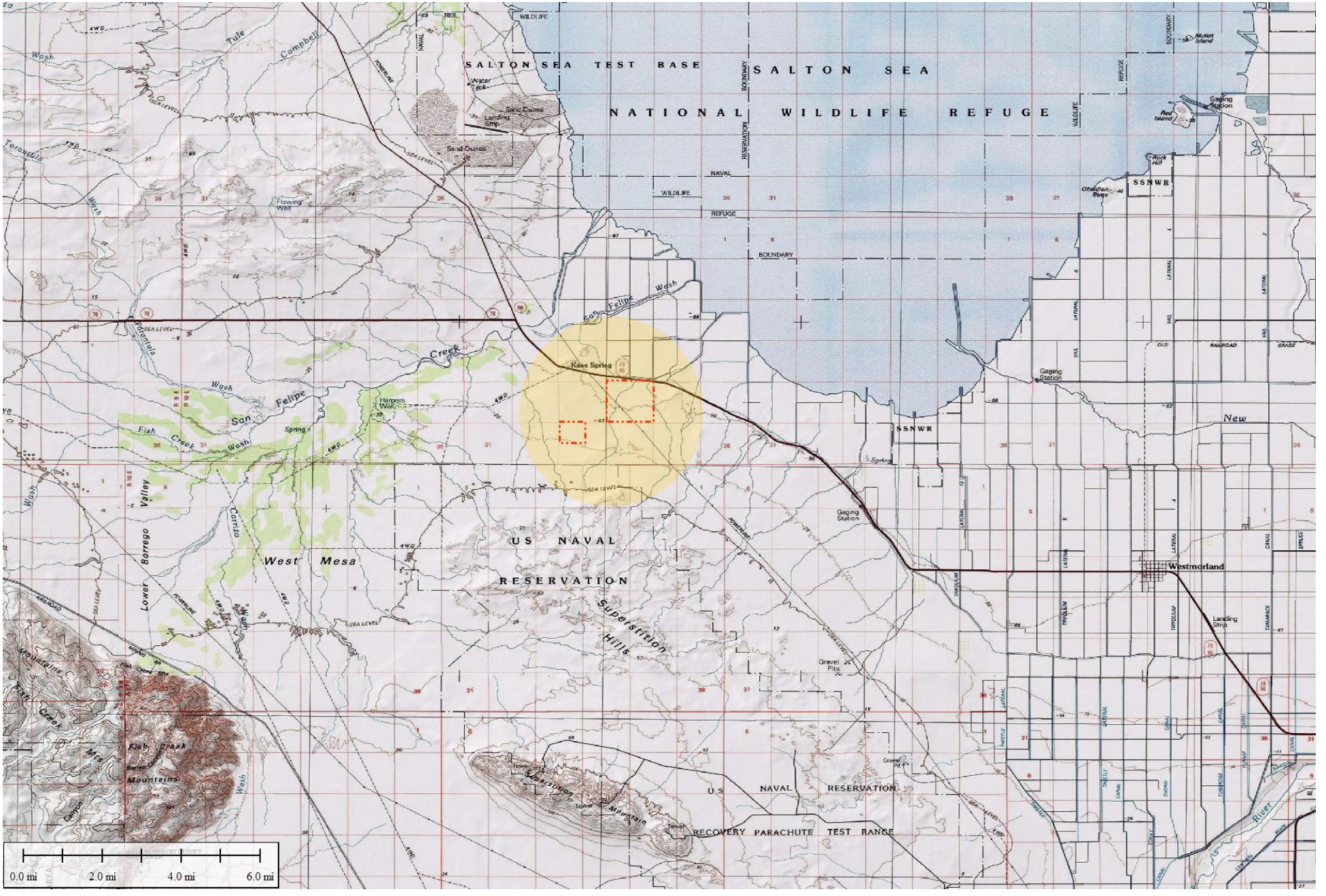

Figure 2 - Vicinity Map

Constraints Analysis
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Site Boundaries

N

Hernandez Environmental Services

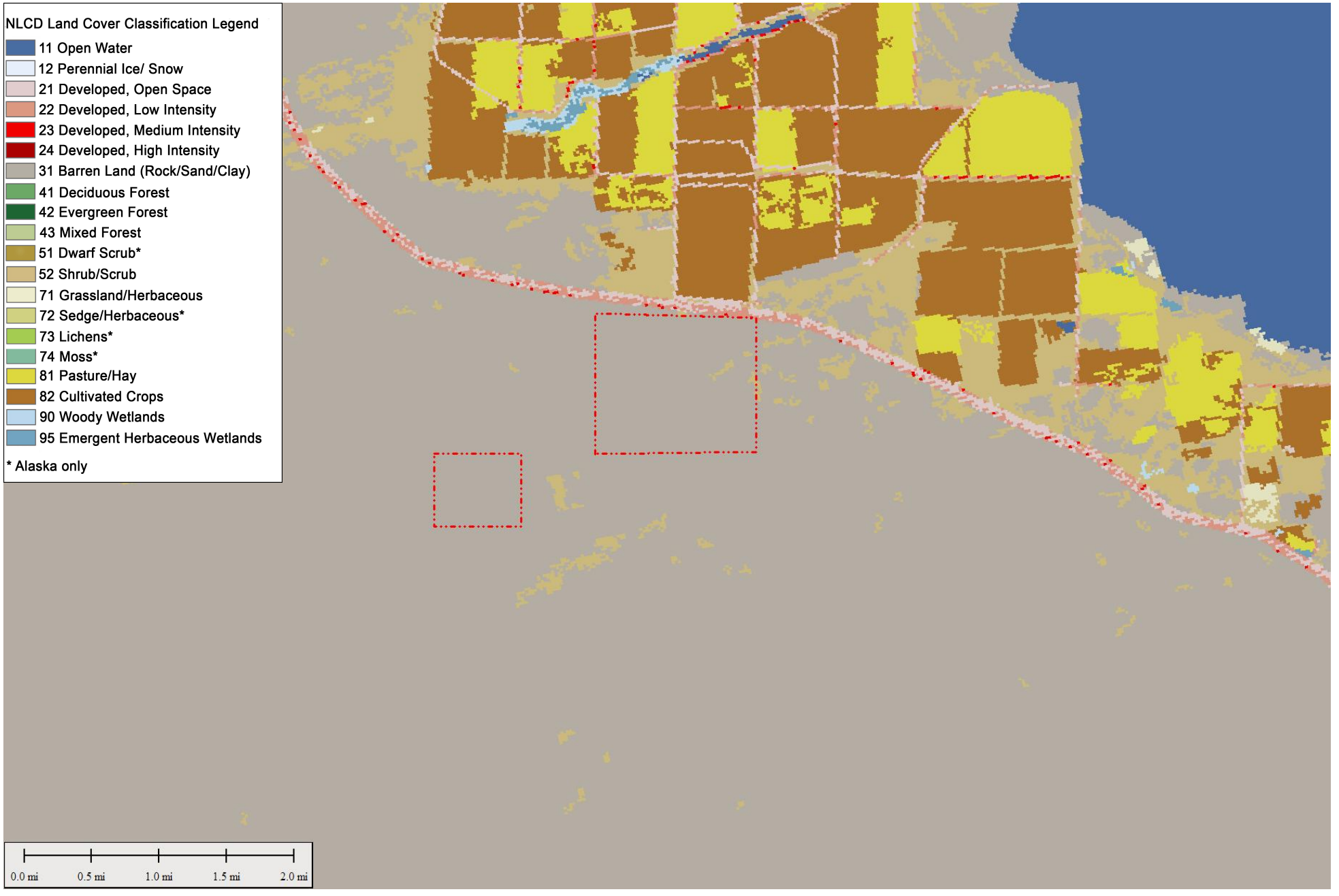

Figure 3 - NLCD 2011 Map

Constraints Analysis
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Site Boundaries

N

Hernandez Environmental Services

Figure 4 - Critical Habitat Map

Constraints Analysis
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Site Boundaries
Desert Pupfish Critical Habitat

N

Hernandez Environmental Services

APPENDIX B
PHASE 1 CULTURAL RESOURCE REPORT FOR THE CALENERGY DVC CELL 4 PROJECT
PREPARED BY BRIAN F. SMITH AND ASSOCIATES, INC.

A *DRAFT* PHASE I CULTURAL RESOURCE REPORT FOR THE CALENERGY DVC CELL 4 PROJECT

IMPERIAL COUNTY, CALIFORNIA

APNs 019-100-004 and 019-110-012

Sections 33 and 27, Township 12 South, Range 11 East of the *Kane Spring, California* USGS Quadrangle

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 94596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Andrew J. Garrison , M.A., RPA and
Brian F. Smith, M.A., Principal Investigator
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

December 18, 2017

Fieldwork Performed: November 28 through December 1, 2017
Report Summary: 320 acres; cultural resources identified; artifact scatters; potential impacts to cultural resources; significance evaluations recommended.

Archaeological Report Summary Information

Authors:	Andrew J. Garrison, M.A., RPA and Brian F. Smith, M.A., Principal Investigator
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	December 18, 2017
Report Title:	A Phase I Cultural Resource Report for the CalEnergy DVC Cell 4 Project, Imperial County, California
Prepared at the Direction of:	Fugro USA Land, Inc. 1777 Botelho Drive, Suite 262 Walnut Creek, California 94596
Prepared for:	CalEnergy 3301 West Highway 86 Brawley, California 92227
Assessor's Parcel Numbers:	019-100-004 and 019-110-012
USGS Quadrangle:	Sections 33 and 27, Township 12 South, Range 11 East of the *Kane Spring, California* USGS Quadrangle
Study Area:	320.0 acres
Key Words:	Archaeological survey; positive; artifact scatters; County of Imperial; 320.0 acres; *Kane Spring* USGS Quadrangle; potential impacts to cultural resources; significance evaluations recommended.

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1.0 MANAGEMENT SUMMARY/ABSTRACT

The following draft report describes the results of a Phase I cultural resources survey program conducted by Brian F. Smith and Associates, Inc. (BFSA) for the CalEnergy DVC Cell 4 Project. The project is adjacent to the Desert Valley Company (DVC) facility located northwest of the city of Brawley, which is owned and operated by CalEnergy. The DVC facility is a private Class II monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022) and is situated in the northeast quarter of Section 33, Township 12 South, Range 11 East, San Bernardino Base and Meridian. The facility only accepts non-hazardous geothermal wastes from CalEnergy facilities in Imperial County. The cultural resource program for the CalEnergy DVC Cell 4 Project involved a preliminary (desktop) study and field investigation of 320 acres to evaluate the suitability of two potential locations for the construction of a new non-municipal solid waste landfill (Cell 4) at the DVC facility located on Assessor's Parcel Numbers (APNs) 019-100-004 and 019-110-012. The two potential sites identified by CalEnergy for preliminary evaluations consist of the 160-acre northwest quarter of Section 33 (Area of Potential Effect [APE] 1) and the 160-acre southwest quarter of Section 27 (APE 2) of the USGS 7.5-minute *Kane Spring, California* topographic map, Township 12 South, Range 11 East. Currently, DVC Cell 1 and Cell 2 are closed, and Cell 3 is projected to reach its capacity in 2025. Before Cell 3 can be closed, a new cell (Cell 4) with a capacity of at least 1,300,000 cubic yards must be fully operational.

The DVC Cell 4 Project is located in Imperial Valley within northwestern Imperial County. The DVC Cell 3 facility and an access road connecting the cell with Highway 86/78 to the north was constructed in the northeast quarter of Section 33 in the early 1990s. The two potential landfill locations identified for the construction of Cell 4 are both located adjacent to the current DVC Cell 3 facility.

BFSA conducted the archaeological assessment to locate and record any cultural resources present within the project in compliance with the California Environmental Quality Act (CEQA) and the County of Imperial environmental guidelines. A records search indicated that 34 previously recorded resources were located within APE 1 while four were located within APE 2. The current study resulted in the relocation of 11 of the previously recorded sites and the documentation of 10 new isolates within the two APEs. Of the relocated sites and newly identified isolates, nine sites and five isolates are located within APE 1. Two relocated sites and five new isolates were documented within APE 2. Formal archaeological site registration numbers will be requested from the South Coastal Information Center (SCIC) at San Diego State University (SDSU), while updated information for all previously-recorded resources, whether relocated or not, will be submitted to the SCIC.

1.1 Purpose of Investigation

The purpose of this investigation was to conduct a records search and field investigation of 320 acres to aid in the evaluation of the suitability of two potential locations for the construction

of a new non-municipal solid waste landfill (Cell 4) at the DVC facilities. This study consisted of the processing of a records search of previously-recorded archaeological sites on or near the property and the completion of an archaeological survey of the project.

1.2 Major Findings

The SCIC records search indicated that 38 previously recorded resources have been documented within APE 1 and APE 2. All of APE 1 and portions of APE 2 were previously surveyed in 1989 by ERC Environmental and Energy Services Company (ERC) for the current DVC monofill facility (Gallegos and Pigniolo 1989a, 1989b). As a result of those surveys, 20 sites and 17 isolates were recorded within APE 1 and APE 2. An additional study in 2008 by Gallegos & Associates updated Site IMP-8789, which is located within APE 2. Of the 38 sites previously studied, two (IMP-128 and IMP-8789) were not subjected to significance evaluations; six (IMP-6142, IMP-6144, IMP-6264-I, IMP-6270, IMP-6271 and IMP-6274) were recommended for further testing; and one (IMP-6141) was evaluated as CEQA-significant and NRHP-eligible. The 29 remaining sites were projected as not-CEQA significant. However, the previous investigations conducted by ERC at the archaeological sites within APE 1 and APE 2 are almost 30 years old and do not meet the current CEQA standards to evaluate a site for potential significance. Further, with the exception of IMP-6139 and IMP-6141, the previous investigations were minimal, and do not provide adequate information for either significance evaluations or impact analysis.

Survey conditions were generally good and ground visibility was excellent throughout the survey area. Ground visibility throughout the property was excellent due to sparse vegetation. As a result of the archaeological survey, 11 recorded sites and 10 isolates were recorded within APE 1 and APE 2. Site record forms (Department of Parks and Recreation [DPR] forms) will be prepared for all relocated and newly discovered resources and submitted to the SCIC at SDSU.

1.3 Recommendation Summary

The findings of this cultural resource study indicate that APE 2 has substantially fewer archaeological sites and less potential to generate adverse impacts. Without knowledge of other environmental, planning, or engineering constraints that will affect the selection of a location for the DVC Cell 4 facility, should the facility be located in an area that corresponds to recorded cultural resources, subsequent focused archaeological testing for significance of these potentially impacted cultural resources would be necessary. This evaluation process is required for the CEQA review process. Previous studies conducted in 1989 on the property were not thorough enough to meet current testing requirements and protocols. Therefore, aside from sites IMP-6141 and IMP-6139 which were thoroughly analyzed, all other sites that would be potentially affected by the project will require a site testing program to generate data to be employed for site significance evaluations and serve as the basis for the impact analysis.

2.0 INTRODUCTION

BFSA was retained by the applicant to conduct a cultural resource survey of the proposed CalEnergy DVC Cell 4 Project located southwest of the Salton Sea, north of Superstition Mountain, and south of Highway 86/78 within an unincorporated area of northwestern Imperial County, California (Figure 2.0–1). The archaeological survey was conducted for review by CalEnergy in order to comply with CEQA and County of Imperial environmental guidelines with regards to development-generated impacts to cultural resources. The project is located in an area of high cultural resource sensitivity, as is suggested by known site density and predictive modeling. Sensitivity for cultural resources in a given area is usually indicated by known settlement patterns, which in the northwestern Imperial County area are focused around environments with accessible food and water.

The project is adjacent to the DVC facility located northwest of the city of Brawley, which is owned and operated by CalEnergy. DVC is a private Class II monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022) and is situated in the northeast quarter of Section 33 of the USGS *Kane Spring, California* topographic map, Township 12 South, Range 11 East. The facility only accepts non-hazardous geothermal wastes from CalEnergy facilities in Imperial County.

The cultural resource program for the 320 acre CalEnergy DVC Cell 4 Project involved a records search and field survey to aid in the evaluation of the suitability of two potential locations for the construction of a new non-municipal solid waste landfill (Cell 4) at the DVC facilities located on APNs 019-100-004 and 019-110-012. The two potential locations identified by CalEnergy for preliminary evaluations consist of the 160-acre APE 1 and the 160-acre APE 2 (Figure 2.0–2). Currently, DVC Cell 1 and Cell 2 are closed, and Cell 3 is projected to reach its capacity in 2025. Before Cell 3 can be closed, a new cell (Cell 4) with a capacity of at least 1,300,000 cubic yards must be fully operational.

Principal Investigator Brian F. Smith and Project Archaeologist Andrew J. Garrison directed the cultural resources study for the project. Archaeological Field Director Clarence Hoff and field archaeologists Michael Tyberg, James Shrieve, and Stephen Anderson conducted the pedestrian survey. Andrew Garrison and Brian Smith prepared the technical report, Kris Reinicke created the report graphics, and Courtney Accardy conducted technical editing and report production with assistance from Caitlin Foote. Qualifications of key personnel are provided in Appendix A.

2.1 Previous Work

An archaeological records search for the project was conducted at the SCIC at SDSU. The SCIC record search indicated that 74 cultural resource locations have been recorded within a half-mile radius of the subject property, 38 of which are located within either APE 1 or APE 2. The majority of these sites (34) are located within APE 1, and the remaining four resources are located

within APE 2.

Most of the sites within the project area were previously tested and evaluated by ERC (Gallegos and Pigniolo 1989a, 1989b). Previous archaeological work within the vicinity of the project was conducted in the late 1980s for the construction of the DVC Cell 3 facility and an access road which connects the DVC facility to Highway 86/78 to the north.

Of the 34 resources located within APE 1, sites IMP-6262, IMP-6263, IMP-6265, IMP-6266 IMP-6267, IMP-6268, IMP-6269, IMP-6272, IMP-6273, IMP-6310, IMP-6275-I through IMP-6290-I, and IMP-6309-I were previously evaluated as not significant; Site IMP-128 could not be relocated during the 1989 survey and, therefore, it was not evaluated; and further testing was recommended for sites IMP-6142, IMP-6144, IMP-6264-I, IMP-6270, IMP-6271, and IMP-6274 should future project impacts to the sites be proposed (Gallegos and Pigniolo 1989b).

Of the four resources located within APE 2, IMP-6138 and IMP-6139 were evaluated as not significant; IMP-8789 was not evaluated; and IMP-6141 was evaluated as CEQA-significant and NRHP-eligible (Gallegos and Pigniolo 1989a). The complete records search results are provided in Appendix B.

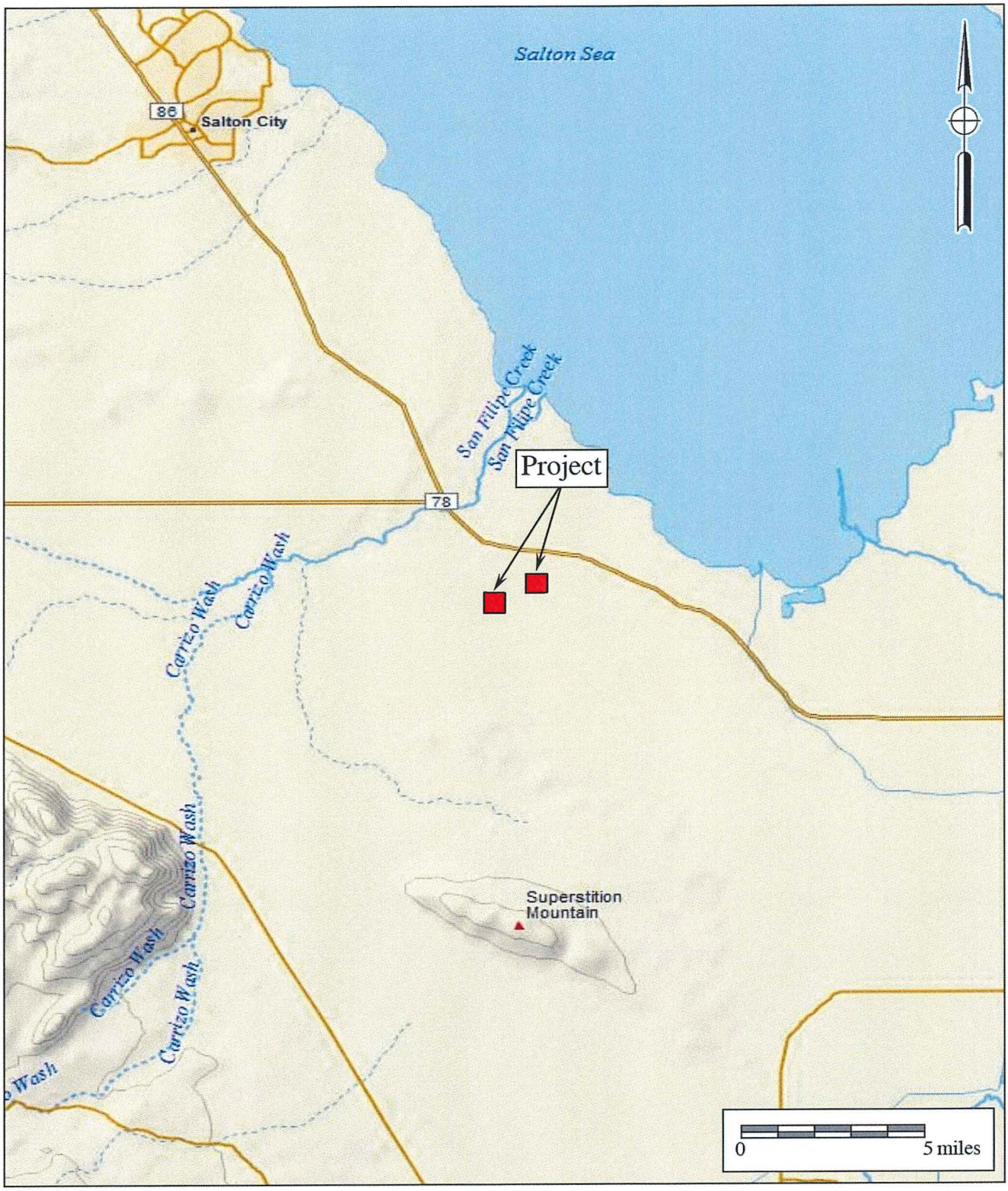

Figure 2.0–1

General Location Map

The CalEnergy DVC Cell 4 Project

DeLorme (1:250,000 series)

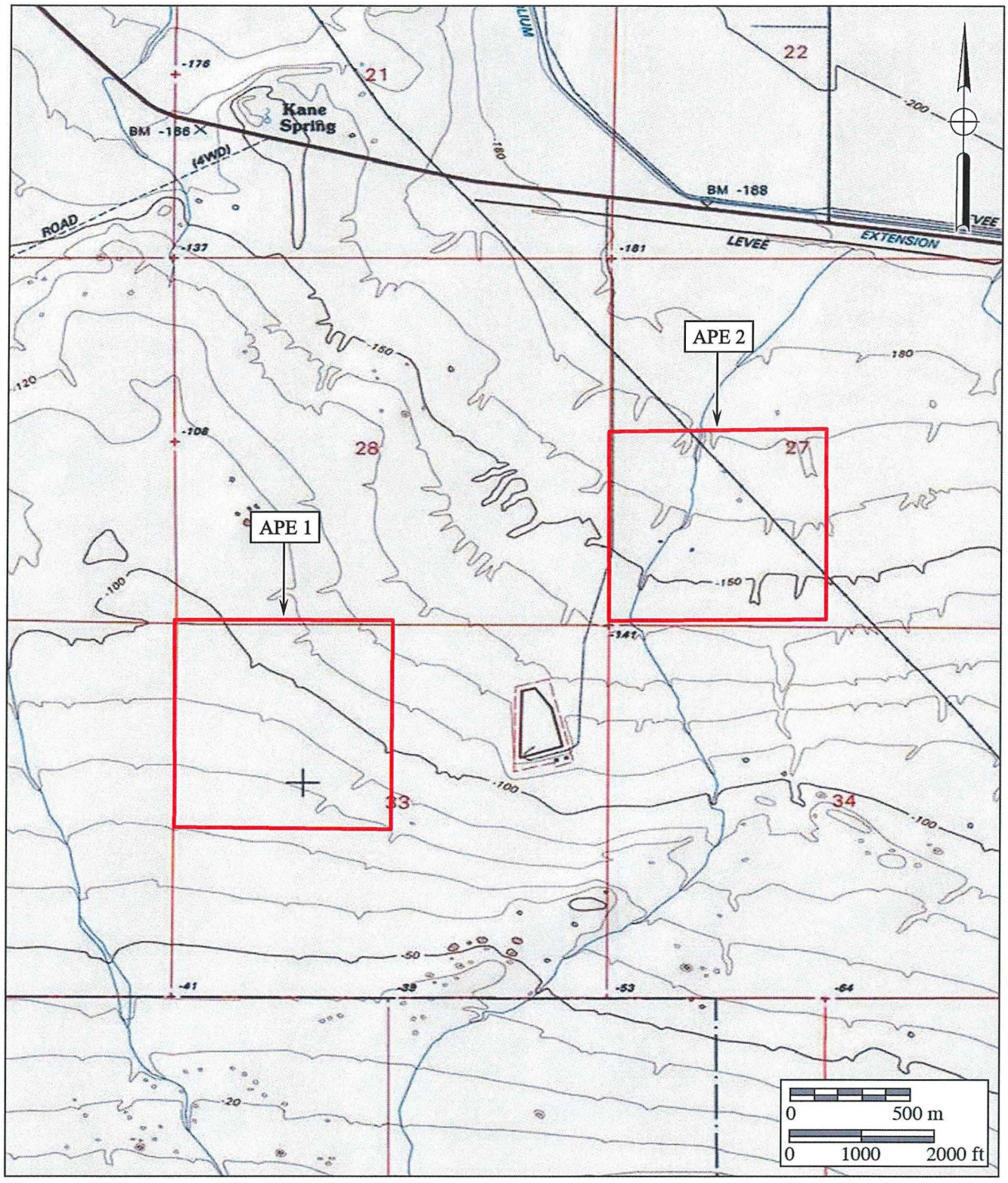

Figure 2.0–2

Project Location Map

The CalEnergy DVC Cell 4 Project

USGS *Kane Spring* Quadrangle (7.5-minute series)

2.2 Project Setting

The 320-acre DVC Cell 4 Project is located in Imperial Valley in northwestern Imperial County. The southern portion of Imperial County lies within the Colorado Desert, the most pronounced feature of which is the Salton Trough. The Salton Trough is an elongated tectonic depression that extends from Palm Springs to the head of the Gulf of California (Abbott 1999). Crossing this area is the Colorado River delta, which essentially blocks water from flowing from the Gulf of California into the Salton Trough. The depression of the Salton Trough is created from the opposite movements of the North American and Pacific plates, which forms an area filled with a large quantity of colluvial and alluvial sediments (Schaefer et al. 1999).

The Peninsular Ranges to the west and the Chocolate and Cargo Muchacho mountains to the east account for much of the sediment in the Salton Trough (Schaefer et al. 1999). However, more recently and prior to the construction of the water supply systems, the meanderings of the Colorado River resulted in the gradual accumulation of sediments, which eventually led to an increased height of the delta and a lower average grade of the main river channel (Schaefer et al. 1999). This made it difficult for the water to find its way to the original river channel, particularly during periods of flooding, resulting in the infilling of the Salton Trough with fresh water. Infilling would continue until the impounding delta was breached, allowing the water to find the original channel and make its way to the Gulf of California, resulting in the draining of the freshwater lake (Schaefer et al. 1999). This cycle continued over decades, or even centuries, at times creating an important water source for plants, animals, and man. Evidence of these lakes is found today in the form of beach formations found at either approximately 40 feet above mean sea level (AMSL) for the Holocene lakes, or over 100 feet AMSL for the late Pleistocene and early Holocene lakes (Schaefer et al. 1999). Geological deposits in the project area are composed of recent Quaternary lake deposits, specifically Lake Cahuilla deposits and playa deposits (Biehler 1979).

As discussed above, the northwestern portion of Imperial County is located in the western portion of the Colorado Desert, which is part of the Sonoran Desert of western North America. The arid environment of this region is due to the rain shadow effect of the northern Transverse and Peninsular Mountain Ranges (Beauchamp 1986). The desert receives three to five inches (seven to 13 centimeters) of rain yearly. Temperatures vary considerably from over 120 degrees Fahrenheit in the summer to below freezing in the winter months (Beauchamp 1986). Currently, vegetation surrounding the project includes drought-tolerant species such as desert scrub, creosote bush, saltbush, and tamarisk. Prehistorically, the project area would have been dominated by a creosote bush scrub community such as that which covers wide areas of southern California from the lowest desert elevations up to 3,000 feet. Plant species would include creosote bush, burroweed, and occasionally desert monkey flower, desert dandelion, Gilia species, Phacelia species, evening primrose, and suncap (Beauchamp 1986).

2.3 Cultural Setting

Archaeological investigations in the desert region of the Salton Trough have been relatively

limited, usually focusing upon linear surveys for transmission lines and road improvement projects. The most common diagnostic artifacts found in the desert are usually attributed to the Late Prehistoric Period, while evidence of earlier occupation is less definite. However, the presence of Archaic and possibly earlier sites surrounding the desert itself suggests that this area has been occupied for a long period of time. Because of the limited amount of studies that have occurred in the desert, the three general, cultural-temporal periods usually used to discuss San Diego County prehistory are also applied here, with minor variations. The cultures that have been attributed to the desert region of southern Imperial County consist of the possible Paleo Indian manifestation of the San Dieguito Complex, the Early Milling Stone Horizon or Archaic Desert Horizon, and the Late Prehistoric Kumeyaay culture. A brief discussion of the cultural elements in the project area is provided below.

2.3.1 Prehistoric Background

Paleo Indian or San Dieguito Complex

The San Dieguito Complex was a group of people who occupied sites in this region between 10,000 and 8,000 years before the present (YBP) and who were related to or contemporaneous with the Paleo Indian groups in the Great Basin area and the Midwest. As discussed above, availability of water in this region centered upon the Colorado River. The earliest occupants of the desert appear to have been relatively mobile foraging groups whose settlement system focused upon this availability of water. The artifacts attributed to the San Dieguito cultural-temporal period duplicate the typology attributed to the Western Pluvial Lakes Tradition (Moratto 1984; Davis et al. 1969) and include scrapers and scraper planes, choppers, and bifacially flaked knives, but few or no milling tools. The absence of grinding or milling stones suggests that cereal grains and nuts were not part of the subsistence pattern. Tools recovered from San Dieguito Complex sites and the general pattern of site locations indicate that they were a wandering hunter/gatherer society (Moriarty 1969; Rogers 1966).

The San Dieguito Complex is the least understood of the cultures that have inhabited Imperial and San Diego counties. This is primarily due to the fact that San Dieguito sites rarely contain stratigraphic information or datable material; this is particularly true in the desert where organic material is rarely preserved. There is a current controversy among researchers centering upon the relationship of the San Dieguito and the subsequent cultural manifestation in the area, the Archaic Period La Jolla or Desert Archaic. Although, firm evidence has not yet been discovered to indicate whether the San Dieguito "evolved" into the La Jolla Complex, the La Jolla Complex moved into the area and assimilated the people of the San Dieguito Complex, or the San Dieguito retreated from the area because of environmental or cultural pressures. Very little concrete evidence concerning the San Dieguito Complex has been identified within the project area, which is primarily due to the paucity of temporal data from desert sites. The occurrence of San Dieguito sites in relation to ancient landforms such as extinct lake margins or elevated terraces is one such technique that has been utilized to date sites (Haney 1999).

The La Jolla Complex

Approximately 9,000 to 8,500 YBP, a second major cultural tradition was established in the region. While this second cultural period was most notable along the California coast, evidence of a more generalized foraging economy has been identified throughout Imperial and San Diego counties. At that time, the shoreline was located farther west than it is currently because the sea level was lower during the end of the last Ice Age. Radiocarbon dates from San Diego County sites attributed to this culture span a period of over 7,000 years in this region (between 9,000 and 2,000 YBP). In San Diego County, the La Jolla Complex is best recognized for its pattern of shell middens, grinding tools closely associated with marine resources, and flexed burials (Shumway et al. 1961; Smith and Moriarty 1985a, 1985b). Archaic cultures in the Colorado Desert are more difficult to identify due to the lack of marine shell, burial sites, and lithic material suitable for grinding. Furthermore, the wide range of organic material, such as mammal, fish, and plant remains, found at Archaic sites located closer to the coast are less durable in desert environments. Although there may be many Archaic sites around the margins of ancient Lake Cahuilla, few have been confidently attributed to the Archaic Period due to a lack of diagnostic material (Schaefer et al. 1999). The possibility exists that Archaic sites in the study area represent only limited use areas, and thus, diagnostic artifacts such as points may not be common elements, or the paucity of sites may reflect an occupational hiatus during the Archaic. The relationship between a desert Archaic complex and one occurring along the coast represents a major research issue for the Archaic Period in general (Haney 1999).

The Late Prehistoric Kumeyaay and Cahuilla

Between approximately 1,500 and 1,200 YBP, Yuman- and Shoshonean-speaking people in the Colorado River Basin began making ceramics, probably introduced from either the Hohokam culture or Mesoamerica. This marks the beginning of Malcolm Rogers's (1945) "Yuman" period; today this period is more commonly referred to as the "Patayan Pattern" in the Yuha Desert region and the Kumeyaay in southern San Diego County (Schaefer et al. 1999). Their subsistence pattern appears to have been based upon a wider range of resources than previous occupants of the area, including the collection of seeds, berries, and bulbs, and the hunting of small game. Artifact collections from Late Prehistoric occupations include milling tools, ceramics, projectile points, scrapers, planes, beads, shaft straighteners, and hammerstones. Ethnographic information indicates that the Kumeyaay Indian culture involved a close clan system with definitive religious beliefs and complex trade associations with relatives living in the Colorado River Basin (Kroeber 1976).

The last phase of the Late Prehistoric culture began approximately 400 years ago with the first contact by Europeans (Juan Rodríguez Cabrillo, in 1542). At that time, the Yuman-speaking Late Prehistoric peoples occupied a territory bounded on the west by the Pacific Ocean, on the east by the Sand Hills, on the north by Agua Hedionda Lagoon, and on the south by Todos Santos Bay in what is now Baja California (Luomala 1978). By 1769, at the time of the first European

settlement in San Diego, at least 20 permanent or semi-permanent villages had been established near the Pueblo of San Diego. Late Prehistoric groups in the desert region were probably smaller and more mobile than their San Diego cousins, primarily due to the harsh environment of the area. Their camps consisted of brush huts and ramadas, with an elaborate long-distance trail system across much of the Yuha Desert (Schaefer et al. 1999). Identified sites attributed to the Late Prehistoric Period in the desert region of southern Imperial County include pot drops or ceramic scatters, small resource extraction camps, pictographs, petroglyphs, and only a handful of large habitation sites.

The project area was likely occupied by the Shoshonean-speaking Cahuilla. Traditional Cahuilla territory extended south from the San Bernardino Mountains to the northern Borrego Desert, east across the Colorado Desert, and west to the vicinity of present-day Riverside. The exact boundaries of the Cahuilla occupation of this region is unknown, although Cahuilla villages were located near water sources in the canyons or on alluvial fans. The diversity of the territory provided the Cahuilla with a variety of foods, including acorns, mesquite, screw beans, piñon nuts, and various types of cacti. A marginal agricultural existence provided corn, beans, squashes, and melons. Rabbits and small animals were hunted to supplement their diet (Bean 1978). At the time of Spanish contact, the Cahuilla population numbered approximately 6,000. Their political and economic autonomy was maintained until 1877, when the federal government started to establish reservations in the area (Bean 1978).

The Late Prehistoric Period in the Colorado Desert is generally divided into three sub-phases based primarily upon changes in settlement patterns and pottery styles (Schaefer et al. 1999). Patayan I refers to settlement between western Arizona and the Colorado Desert and dates to between A.D. 500 and 1050. Occupation in the western portion of the Colorado Desert, which includes the project, is believed to have consisted of mobile foraging groups (Schaefer et al. 1999). By the later part of this period, due to the well-watered routes between Lake Cahuilla and the Peninsular Ranges, the western portion of the Colorado Desert was well populated. This is in contrast to the east side of the desert, which exhibited wide expanses of a waterless environment between Lake Cahuilla and Arizona and created a significant difference in the settlement pattern between the west and east sides of the lake (Schaefer et al. 1999).

The Patayan II phase (A.D. 1000 to 1500) appears to be characterized by temporary camps situated throughout the area between the Peninsular Ranges and the shores of Lake Cahuilla, suggesting the subsistence strategy followed a seasonal round between the different environments (Schaefer et al. 1999). Although occupation focused around the available water sources (Colorado River, Lake Cahuilla, and mountain drainages), it is evident from the archaeological record that the Patayan II peoples exploited a wide range of desert environments.

Throughout the Late Prehistoric occupation of the Colorado Desert, Lake Cahuilla went through cycles of infilling and receding, making it necessary for the occupants of the area to rely heavily upon desert resources. The Patayan III phase (A.D. 1500 to historic times) saw the last receding of the large lake. The seasonal round involving the mountain resources appears to have

become even more important during this period. Although the major water source for the area had all but disappeared by approximately A.D. 1700, groups of Late Prehistoric peoples of the coastal region and the Peninsular Ranges continued to exploit the desert for its resources. Small groups of these people developed exclusively desert-oriented economies (Schaefer et al. 1999). Archaeological surveys have shown that, as expected, larger sites were located near reliable water sources and at contact areas between biotic zones (May 1975; Schaefer et al. 1999; Shackley 1981).

2.3.2 Historic Background

Exploration Period (1530 to 1769)

The Historic Period in southern California began with the landing of Juan Rodríguez Cabrillo and his men in 1542. Sixty years after the Cabrillo expeditions, an expedition under Sebastián Vizcaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Vizcaíno had the most lasting effect on the nomenclature of the coast. Many of the names he assigned to various locations have survived, whereas practically every one of Cabrillo's has faded from use. Cabrillo gave the name "San Miguel" to the first port he stopped at in what is now the United States; 60 years later, Vizcaíno changed it to "San Diego" (Rolle 1969).

Spanish Period (1769 to 1821)

The Spanish occupation of the claimed territory of Alta California took place during the reign of King Carlos III of Spain. José de Gálvez, the powerful representative of the King in Mexico, conceived the plan to colonize Alta California and thereby secure the area for the Spanish crown (Rolle 1969). The effort involved both a military and a religious contingent, with the overall intent of establishing forts and missions to gain control of the land and the native inhabitants through conversion. Actual colonization of the San Diego area began on July 16, 1769, when the first Spanish exploring party, commanded by Gaspar de Portolá (with Father Junípero Serra in charge of religious conversion of the native populations), arrived in San Diego to secure California for the Spanish crown (Palou 1926). The natural attraction of the harbor at San Diego and the establishment of a military presence in the area solidified the importance of San Diego to the Spanish colonization of the region and the growth of the civilian population. Missions were constructed from San Diego to as far north as San Francisco. The mission locations were based upon a number of important territorial, military, and religious considerations. Grants of land were made to those who applied, but many tracts reverted back to the government due to lack of use. As an extension of territorial control by the Spanish empire, each mission was placed so as to command as much territory and as large a population as possible. The first European visit to the Salton Trough was by Juan Bautista de Anza and a group of priests in 1775. The records from this expedition described desert peoples who called themselves the Kamia or Kumeyaay (Schaefer et al. 1999).

Mexican Period (1821 to 1846)

By 1821, Mexico had gained independence from Spain and the northern territories were subject to political repercussions. By 1834, all of the mission lands had been removed from the control of the Franciscan Order under the Acts of Secularization. Without proper maintenance, the missions quickly began to disintegrate, and after 1836, missionaries ceased to make regular visits inland to minister the needs of the Native Americans (Engelhardt 1920). Large tracts of land continued to be granted to those who applied, to those who had gained favor with the Mexican government, and to settle government debts.

Anglo-American Period (1846 to Present)

California was invaded by United States troops during the Mexican War from 1846 to 1848. The acquisition of strategic Pacific ports and California land was one of the principal objectives of the war (Price 1967). At the time, the inhabitants of California were practically defenseless and they quickly surrendered to the United States Navy in July of 1847 (Bancroft 1886).

Little ethnographic evidence exists regarding the lifeway of the Kamia of the Colorado Desert. The Heintzelman expedition conducted in 1849 estimated that 254 individuals were living along the banks of the New River under the leadership of Chief Fernando (Schaefer et al. 1999). With the passage of the "No Fence Act," the economy in San Diego and other southern California counties changed from stock raising to farming (Rolle 1969) and the Native American societies in the desert were disintegrating. The European population in the Imperial Valley began to grow in the late nineteenth century. By the time the ethnographic histories of the Kumeyaay were being written in the 1920s and 1930s, the Kamia had been largely integrated into the Quechan Tribe on the Colorado River (Schaefer et al. 1999).

Based upon the small amount of available ethnographic and archaeological evidence, researchers have pieced together various possible economic systems and settlement patterns for the desert groups (Spiers 1923; Luomala 1963; Shipek 1982). One area of interest and controversy has to do with the degree to which these Late Prehistoric peoples focused upon several native plant species (possibly even practicing horticulture), debating whether their subsistence strategy continued to exploit a wide range of resources on a seasonal basis. For more in depth discussions of the economic and subsistence patterns of the eastern Kumeyaay or Kamia, see Spiers (1923), Gifford (1918, 1931), and Knack (1981).

During the first two decades of the twentieth century, the population of southern Imperial County continued to grow. The most notable development in the area was the construction of the canal system that would eventually make farming a profitable business for the area. The plan to bring water to the Imperial Valley began as early as the 1850s. The first canal, the Alamo Canal, was finally under construction in 1901; however, most of the length of this canal was in Mexico. The Imperial Irrigation District was formed in 1911 and began plans for an All American Canal. About this time, an extensive plank road was constructed through southern Imperial County, making automobile travel through the region more reliable. In 1928, authorization was given to

begin construction on the All American Canal and the Hoover and Imperial dams. The canal was constructed in the 1930s, with the first water being delivered to the valley in 1940. By 1942, the All American Canal and its branches had become the sole water source for Imperial Valley residents and farmers (IID 1998). The system consists of 82 miles of gravity-flow canals beginning at the Imperial Dam on the Colorado River about 20 miles east of Yuma. The canal drops 175 feet between the Imperial Dam and the western edge of the All American Canal, following the Mexico and United States border for much of its path. The structure is considered an engineering marvel and is the lifeline to occupants of the Imperial Valley (IID 1998).

2.4 Research Goals

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is the western portion of Imperial County. The scope of work for the archaeological program conducted for the DVC Cell 4 Project included the survey of two quarter sections which combined make up a 320-acre area. Given the area involved and the narrow focus of the cultural resources study, the research design for this project was necessarily limited and general in nature. Since the main objective of the investigation was to identify the presence of and potential impacts to cultural resources, the goal here is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Although survey-level investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The following research questions take into account the size and location of the project.

Research Questions:

- Can located cultural resources be situated with a specific time period, population, or individual?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation? What are the site activities? What is the site function? What resources were exploited?
- How do the located sites compare to others reported from different surveys conducted in the area?
- How do the located sites fit existing models of settlement and subsistence for valley environments of the region?

Data Needs

At the survey level, the principle research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The

overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research were undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 METHODOLOGY

The archaeological program for the CalEnergy DVC Cell 4 Project consisted of an institutional records search and a Class III intensive pedestrian survey of the 320-acre property by qualified archaeologists. This archaeological study conformed to County of Imperial environmental guidelines and the statutory requirements of CEQA Section 15064.5. Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO March, 1995).

3.1 Archaeological Records Search

The records search conducted at the SCIC at SDSU was reviewed for an area of a half-mile surrounding the project in order to determine the presence of any previously recorded sites. Results of the records search are provided in Appendix B and discussed in Section 4.1. Historic maps, aerial photographs, and land patent records, held by the Bureau of Land Management (BLM) and accessible through the BLM General Land Office website, were also reviewed for pertinent project information. In addition, the BFSA research library was consulted for any relevant historical information.

3.2 Field Methodology

The archaeological survey of the two potential Cell 4 locations (APE 1 and APE 2) was conducted between November 28 and December 1, 2017, and included a Class III intensive level pedestrian reconnaissance survey utilizing a series of parallel transects spaced at approximately 15- to 30-meter intervals, which covered all areas of the project. Photographs were taken to document project conditions during the survey (see Section 4.2). Ground visibility throughout the property was excellent with minimal vegetation. Rodent spoil piles and patches of turned soil were closely inspected for evidence of subsurface archaeological materials. No constraints were encountered during the field survey. During the field survey, previously recorded sites IMP-6138, IMP-6141 (APE 2), IMP-6142, IMP-6144, IMP-6262, IMP-6264-I, IMP-6265, IMP-6266, IMP-6269, IMP-6270, and IMP-6272 (APE 1) were relocated, and unrecorded isolates ISO-1 through ISO-10 were identified.

3.3 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, a brief description of the setting, research methods employed, and the overall results of the survey. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of the final technical report will be placed at the SCIC at SDSU. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate DPR forms, which will be filed with the SCIC.

3.4 Native American Consultation

BFSA requested a review of the Sacred Land Files (SLF) by the Native American Heritage Commission (NAHC) in November of 2017 to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within either of the two proposed DVC Cell 4 locations. The NAHC SLF search did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the area. In accordance with the recommendations of the NAHC, BFSA contacted all Native American consultants listed in the NAHC response letter and has received one response. The Viejas Band of Kumeyaay Indians stated that they have cultural significance or ties to the project area and requested that a Kumeyaay Cultural Monitor be present for any ground disturbing activities. All correspondence is provided in Appendix C.

4.0 RESULTS

4.1 Records Search Results

An archaeological records search for the project was conducted at the SCIC at SDSU. The records search indicated that 38 cultural resources have been previously recorded within the project APE. Thirty-four sites are located within APE 1 and the remaining four are located within APE 2. The records search identified an additional 36 cultural resources within a one-half-mile radius of the project, all of which are prehistoric. These include seven temporary camp or habitation sites with varying associated artifacts and features, two ceramic artifact scatters, two ceramic artifact scatters with associated hearth features, two cobblestone hearth feature sites, 13 lithic artifact scatters, 10 ceramic and lithic artifact scatters, and 38 isolates. A brief description and location in relation to the two different sections of the APE is presented in the table below (Table 4.1–1).

Table 4.1–1
Archaeological Sites Located Within a
Half-Mile Radius of the CalEnergy DVC Cell 4 Project

Site Number	Site Description
IMP-6149	Prehistoric temporary camp with projectile point fragments and associated lithic and ceramic scatter
IMP-6274*	Prehistoric temporary camp with associated lithic and ceramic scatter
IMP-6138†, IMP-6141†, IMP-6144*, and IMP-6145	Prehistoric temporary camp with hearths and associated lithic and ceramic scatter
IMP-6270*	Prehistoric temporary camp with hearths, fishbone, and associated lithic and ceramic scatter
IMP-6481 and IMP-8684	Prehistoric ceramic scatter
IMP-6142*, IMP-6143, IMP-6146, IMP-6152, IMP-6262*, IMP-6265*, IMP-6268*, IMP-6271*, and IMP-8789†	Prehistoric lithic and ceramic scatter
IMP-6147	Prehistoric ceramic scatter (pot drop) with two lithic flakes
IMP-6140, IMP-6148, IMP-6150, IMP-6151, IMP-6153, IMP-6263*, IMP-6266*, IMP-6267*, IMP-6269*, IMP-6272*, IMP-6310*, IMP-6480, and IMP-8613	Prehistoric lithic scatter
IMP-6273* and IMP-6139†	Prehistoric ceramic scatter with associated hearth
IMP-128* and IMP-6264-I*	Prehistoric cobblestone hearth
IMP-6309-I* and P-13-009526	Prehistoric isolated mano

Site Number	Site Description
IMP-6163-I, IMP-6282-I*, IMP-6283-I*, IMP-6285-I*, IMP-6286-I*, IMP-6287-I*, and IMP-6165-I	Prehistoric isolated pottery sherd(s)
IMP-6154-I, IMP-6157-I, IMP-6279-I*, IMP-6280-I*, and P-13-012218	Prehistoric isolated lithic core
IMP-6155-I, IMP-6156-I, IMP-6158-I, IMP-6160-I, IMP-6161-I, IMP-6169-I, IMP-6275-I*, IMP-6276-I*, IMP-6281-I*, IMP-6284-I*, IMP-6288-I*, IMP-6289-I*, IMP-2376, IMP-6159-I, IMP-6162, IMP-6164-I, IMP-6166-I, IMP-6167-I, IMP-6168-I, IMP-6170-I, IMP-6171-I, IMP-6277-I*, IMP-6278-I*, and IMP-6290-I*	Prehistoric isolated lithic flake(s)

** Previously recorded within APE 1*
† Previously recorded within APE 2

The records search also indicated that 10 previous studies have been completed within a half-mile radius of the project (Table 4.1–2). These studies cover all or portions of the current APE 1 and APE 2, and many appear to be associated with earlier phases of the DVC facility development. Three of these studies (Noah and Gallegos 2008; Gallegos and Pigniolo 1989a; Gallegos and Pigniolo 1989b) identified or evaluated sites within the project APE.

Site IMP-8789 was recorded by Gallegos & Associates as part of a large transmission line survey and archaeological inventory for the SDG&E Sunrise Powerlink Project (Noah and Gallegos 2008). The site subsumed the location of an isolate (P-13-008171) previously recorded by ASM Affiliates in 1998 (Pallette and O'Neill 1998). During the survey, Gallegos & Associates did not relocate P-13-008171, a green metavolcanic debitage, but identified an artifact scatter containing ceramic pottery sherds and lithic debitage within 10 meters of the mapped location for P-13-008171. As the study was mainly an inventory of sites along the transmission line corridor, it did not include the testing or evaluation of IMP-8789.

The other two reports that address the previously recorded resources on the property were both compiled by ERC in 1989 for the construction of the current DVC monofill facility and access road. The sites located within APE 2 were documented along the DVC access road alignment (Gallegos and Pigniolo 1989a). ERC recorded and conducted limited subsurface testing at IMP-6138. A more systematic test program was conducted at IMP-6139 and IMP-6141. As a result of the shovel test pits (STPs), no subsurface components of either IMP-6138 or IMP-6139 were identified, and the sites were evaluated as not significant under CEQA (Gallegos and Pigniolo 1989a). STPs excavated within the boundary of Site IMP-6141 recovered cultural material including charcoal and burnt bone. Based on the results of STPs, Site IMP-6141 was evaluated significant under CEQA and potentially eligible to the NRHP (Gallegos and Pigniolo 1989a).

ERC also conducted an archaeological survey and limited testing program in 1989 that

covered the entirety of APE 1. At the time of the survey, Gallegos and Pigniolo stated that only one resource, IMP-128, had been recorded within this portion of Section 33 (Gallegos and Pigniolo 1989b). Site IMP-128 was originally recorded as an unlisted number of cobblestone hearths by Malcom Rogers in 1936. During the 1989 survey, the site could not be relocated (Gallegos and Pigniolo 1989b). A total of 16 sites and 17 isolates were identified within the study area as a result of the ERC cultural resource survey (Gallegos and Pigniolo 1989b). Again, limited subsurface excavation in the form of STPs was conducted at each of the identified sites to determine site importance. As a result, 10 of the sites (IMP-6262, IMP-6263, IMP-6265, IMP-6266, IMP-6267, IMP-6268, IMP-6269, IMP-6272, IMP-6273, and IMP-6310) and all 17 isolates (IMP-6275-I through IMP-6290-I and IMP-6309-I) were evaluated as not significant under CEQA. The six remaining sites, IMP-6142, IMP-6144, IMP-6264, IMP-6270, IMP-6271, and IMP-6274 were not evaluated and testing was recommended should potential impacts to them be proposed (Gallegos and Pigniolo 1989b).

Table 4.1–2
Previous Studies Conducted Within a
Half-Mile Radius of the CalEnergy DVC Cell 4 Project

ENSR Consulting and Engineering

1990 Environmental Assessment/Initial Study For the Placement of Fiber Optic Facilities Between Salton Microwave Station and Calexico California. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

ERC Environmental and Energy Services Co.

1989a Draft Environmental Impact Report For General Plan Amendment, Solid Waste Management Plan Amendment, Zone Change and Conditional Use Permit. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

1989b Final Environmental Impact Report For General Plan Amendment, Solid Waste Management Plan Amendment, Zone Change and Conditional Use Permit. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

1990a Desert Valley Company's Monofill Facility - A Draft Environmental Impact Report (Revised). Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

1990b Desert Valley Company's Monofill Facility Final Environmental Impact Report. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

Gallegos, Dennis and Andrew Pigniolo

1989a Cultural Resource Survey and Evaluation of the Monofill Project Area and Access Road

Alignment, Imperial County, California. ERC Environmental and Energy Services Co. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

1989b Cultural Resource Survey and Evaluation of the Monofill Project Area and Access Road Alignment, Imperial County, California, Appendix B. ERC Environmental and Energy Services Co. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

Noah, Anna and Dennis Gallegos

2008 Final Class III Archaeological Inventory For the SDG&E Sunrise Powerlink Project, San Diego and Imperial Counties, California. Gallegos & Associates. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

Peak & Associates

1989 Cultural Resource Survey and Clearance - Salton Sea Radio Site to Calexico, Imperial County, California. American Telephone and Telegraph Company's Fiberoptic Communication Cable. Unpublished Report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

Von Werlhof, Jay

1983 Archaeological Examinations of Petty Ray Geophysical Transects on West Mesa. Imperial Valley College Barker Museum. Unpublished report on file at the South Coastal Information Center, San Diego State University, San Diego, California.

The following historic sources were also reviewed at the SCIC:

- The National Register of Historic Places Index
- The Office of Historic Preservation, Archaeological Determinations of Eligibility
- The Office of Historic Preservation, Directory of Properties in the Historic Property Data File

Additionally, the following historic sources were reviewed in-house or online by BFSA:

- The 15-minute USGS *Kane Spring* topographic map (1940)
- The 7.5-minute USGS *Kane Spring* topographic map (1956 and 1957)
- Aerial photographs (1953 through 2016)
- The Library of Congress Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) online repository
- Sanborn Fire Insurance Maps

- The Archives of California Land Office Plat Maps contained within the BLM General Land Office (GLO) map online repository

These sources did not indicate the presence of any historic resources within the project. Further, the maps and aerial photographs indicate no structures were ever located on or near the APEs until the development of the current DVC facility in the early 1990s. The only noticeable difference to the property prior to 1990 is the addition of a power line, first visible on the 1957 *Kane Spring* 7.5-minute USGS topographic map, which traverses Section 27 in a north/northwest to south/southeast trajectory. No Sanborn maps exist for the project as the APEs are not located within a developed area. BLM GLO records indicate that both Section 27 and Section 33 were granted to the Southern Pacific Railroad in 1910 (BLM 1910). The two sections were part of a large land grant of 57,269.17 acres granted to the railroad for the construction of a railroad and telegraph line through California to connect with the Atlantic and Pacific Railroad lines (BLM 1910).

BFSA requested a review of the SLF of the NAHC in November of 2017 to determine if any recorded Native American sacred sites or locations of religious or ceremonial importance are present within either of the two proposed DVC Cell 4 locations. The NAHC SLF search did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the area. In accordance with the recommendations of the NAHC, BFSA contacted all Native American consultants listed in the NAHC response letter, and has received one response. The Viejas Band of Kumeyaay Indians stated that they have cultural significance or ties to the project area and requested that a Kumeyaay Cultural Monitor be present for any ground disturbing activities. All correspondence is provided in Appendix C.

The records search identified the presence of recorded cultural resources within and surrounding the project. All of APE 1 and small portions of APE 2 have been previously studied and the density of recorded resources indicated a high potential for locating new unrecorded resources during the survey. The largest number of sites indicated by the records search suggests that prehistoric isolates or lithic and ceramic scatters should be the primary resource types within the property. Given the lack historic development and the results of previous studies on the property, there is a very low potential of historic-era resources to be located on either section of the APE. If present, the most common type of historic resource would likely be associated with episodes of historic dumping. The complete records search results are provided in Appendix B.

4.2 Survey Results

Under the direction of Principal Investigator Brian F. Smith, Archaeological Field Director Clarence Hoff and field archaeologists Michael Tyberg, James Shrieve, and Stephen Anderson conducted the archaeological survey for the CalEnergy DVC Cell 4 Project between November 28 and December 1, 2017. The archaeological survey of the property was an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately 15- to 30-meter intervals.

Both portions of the APE consisted entirely of creosote scrub community vegetation.

Various seasonal drainages and washes traverse the project area. The entire property was accessible with excellent ground visibility and few disturbances were noted. Various dirt utility roads cross the project and a raised asphalt road extends south along the western boundary of APE 2, connecting Highway 86/78 to the current DVC facility. A pit, possibly excavated by pot hunters, was observed just east of the asphalt road within the boundaries of IMP-6141. Overviews of the property are provided in Plates 4.2–1 through 4.2–4.

The survey resulted in the relocation of 11 of the previously recorded sites on the project (IMP-6138, IMP-6141, IMP-6142, IMP-6144, IMP-6264-I, IMP-6270, IMP-6262, IMP-6265, IMP-6266, IMP-6269, and IMP-6272). None of the previously documented isolates could be relocated during the survey; however, 10 new isolates were recorded within APEs 1 and 2.

Plate 4.2–1: Overview of APE 1, facing west.

Plate 4.2–2: Overview of APE 1, facing southwest.

Plate 4.2–3: Overview of APE 2, facing southwest.

Plate 4.2–4: Overview of APE 2, facing northwest.

4.2.1 Survey Results for APE 1

Of the 34 previously recorded resources (17 sites and 17 isolates) within APE 1, nine sites (IMP-6142, IMP-6144, IMP-6262, IMP-6264-I, IMP-6265, IMP-6266, IMP-6269, IMP-6270, and IMP-6272) were relocated during the current survey. Five new isolates were also located within APE 1 (ISO-6 through ISO-10). A brief description of what had been previously recorded followed by the results of the field survey for each resource is presented below.

IMP-128

Site IMP-128 was originally recorded as an unlisted number of cobblestone hearths by Malcom Rogers in 1936. The site could not be relocated during the 1989 survey of APE 1 (Gallegos and Pigniolo 1989b). As with the previous study, the current survey did not relocate this site. The approximate location of the resource is shown on Figure 4.2–1; however, this locational data is based upon older coordinates and survey maps, which may be inaccurate given that the site could not be relocated.

Figure 4.2–1
Cultural Resource Location Map for APE 1

(Deleted for public review; bound separately)

IMP-6142

Site IMP-6142 was originally recorded as a sparse lithic and ceramic scatter, with an artifact density as low as one artifact per 20 square meters. The site was recorded during the 1989 survey of additional acreage in conjunction with the Monofill Project by ERC (Gallegos and Pigniolo 1989b). During the initial study, ERC only collected a single late prehistoric volcanic projectile point from the site. To determine if the site had a subsurface component, ERC excavated one STP to a depth of 30 centimeters within the site boundaries with negative results.

During the current survey, Site IMP-6142 was relocated on a flat, creosote scrub-laden terrace within the southeast corner of APE 1 at an elevation of approximately 90 feet below mean sea level (MSL). An overview of the site location is provided in Plate 4.2–5. Various small washes exist throughout the site. The entire surface of the site was inspected for evidence of prehistoric activity. Two possible sandstone hearth features were located on the southeast quarter of APE 1 within the site boundary of IMP-6142, one of which was outside the project area to the east. No ceramic sherds were observed; however, more than 10 volcanic debitage were very sparsely scattered throughout the recorded site boundaries. The area of the site, delineated by the surface artifact scatter, measures approximately 130 meters by 130 meters, although portions of the site extend outside of the project boundaries. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–5: Overview of Site IMP-6142, facing northwest.

IMP-6144

Site IMP-6144 was originally recorded as a temporary camp or habitation site consisting of several loci linked by a low-density artifact scatter. More than 10 hearth features, two chipping stations, two pot-drops, and an artifact scatter consisting of more than 15 cores, one quartz scraper, more than 50 potsherds, and more than 50 debitage were recorded during the initial 1989 study (Gallegos and Pigniolo 1989b). There is no indication that any artifacts were collected from the site. To determine if the site had a subsurface component, ERC excavated three STPs, each to a depth of 30 centimeters, at different loci within the boundaries of the site with negative results.

During the current survey, Site IMP-6144 was relocated in a flat, eroded area, just west of a major north-to-south trending wash on the eastern half of APE 1. An overview of the site location is provided in Plate 4.2–6. Vegetation included native creosote scrub and salt bush. Several small drainages cut through the site. Although no hearth features were observed, two chipping stations were located during the current survey. One of the chipping stations is located just outside of the originally recorded western boundary of the site. More than ten debitage, one core, and one hammerstone were observed at this chipping station during the current survey. The second chipping station was relocated approximately 200 meters southeast of the first. More than five debitage, one core, and one hammer were observed at this chipping station during the current survey. The remainder of the site was observed for evidence of prehistoric activity; various sparse surface artifacts were observed throughout the site, but no ceramic sherds were seen. Based on the results of the current survey, the site boundary has been extended west to incorporate the newly located westernmost chipping station. The site area, delineated by the artifact scatter, measures approximately 300 meters by 300 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–6: Overview of Site IMP-6144, facing southwest.

IMP-6262

Site IMP-6262 was originally recorded by ERC as a lithic and ceramic scatter consisting of cores, lithic debitage, potsherds and an obsidian tool fragment. During the original study, ERC collected the obsidian tool and excavated an STP to a depth of 30 centimeters within the site boundaries with negative results (Gallegos and Pignolio 1989b).

During the current survey, Site IMP-6262 was relocated in an open, eroded area, just west of a major wash on the southeast quarter of APE 1 at an elevation of approximately 90 feet below MSL. An overview of the site location is provided in Plate 4.2–7. Vegetation at the site included native creosote scrub. The surface of the site was inspected for evidence of prehistoric activity. Three volcanic debitage and three potsherds were observed. The area of the site, delineated by the artifact scatter, measures approximately 60 meters by 60 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–7: Overview of Site IMP-6262, facing southwest.

IMP-6263

Site IMP-6263 was originally recorded by ERC as a small lithic scatter consisting of three black porphyritic volcanic flakes. There is no indication that any artifacts were collected from the site during the original study. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results (Gallegos and Pignolio 1989b). During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6264-I

Site IMP-6264-I was originally recorded as a single, isolated sandstone hearth feature, comprised of rocks averaging one foot in size and fire-reddened sandstone. During the original study, ERC conducted "trowel testing," which revealed subsurface charcoal to a depth of 10 centimeters (Pignolio 1989). No surface artifacts were observed during the original survey, but several isolates and small sites were recorded in the vicinity of Site IMP-6264-I.

During the current survey, despite the sparse vegetation within the recorded boundaries of Site IMP-6264-I, no hearth feature was relocated. However, a sparse scatter of lithic artifacts consisting of four debitage, one core, one mano fragment, and one hammerstone/core were observed at the location of the site, at an elevation of approximately 85 feet below MSL. An

overview of the site location is provided in Plate 4.2–8. The dimensions of the site, delineated by the observed artifact scatter, measures approximately 10 meters by 10 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–8: Overview of Site IMP-6264-I, facing northeast.

IMP-6265

Site IMP-6265 was originally recorded as a small lithic and ceramic scatter, consisting of three potsherds and one volcanic debitage. During the original study, ERC collected a ceramic sample from the site and an STP excavated to 30 centimeters at the site indicated no subsurface deposit (Gallegos and Pignolio 1989b).

During the current survey, one isolated green volcanic debitage was relocated on an open flat area in the southeast quarter of APE 1, within the recorded boundaries of Site IMP-6265 at an elevation of approximately 85 feet below MSL. An overview of the site location is provided in Plate 4.2–9. Vegetation at the site was sparse, consisting of native creosote scrub bushes. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–9: Overview of Site IMP-6265, facing northeast.

IMP-6266

Originally recorded as a small lithic scatter, Site IMP-6266 was comprised of more than five porphyritic volcanic flakes. There is no indication that any artifacts were collected from the site during the original study. To determine if the site had a subsurface component, ERC excavated an STP to a depth of 30 centimeters with negative results (Gallegos and Pignolio 1989b).

During the current survey, Site IMP-6266 was relocated on an open flat terrace in the approximate center of APE 1 at an elevation of approximately 90 feet below MSL. An overview of the site location is provided in Plate 4.2–10. Vegetation at the site consisted of sparse native creosote scrub bushes. Three volcanic pieces of debitage, one volcanic core, and one quartz hammerstone were observed on the surface of the site. The site dimensions, delineated by the observed artifact scatter, measured approximately 10 meters by 20 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–10: Overview of Site IMP-6266, facing northeast.

IMP-6267

Site IMP-6267 was originally recorded as a small lithic scatter consisting of two volcanic flakes and one volcanic core. There is no indication that any artifacts were collected from the site during the original study. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results (Gallegos and Pignolio 1989b). During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6268

Site IMP-6268 was originally recorded as a small ceramic and lithic scatter consisting of two volcanic flakes and six potsherds. No features were observed at the site, but the site form did note a possible hearth feature consisting of fire-cracked rock was observed eroding out of a bank 60 meters west of the recorded site boundary (Pigniolo and Briggs 1989). There is no indication that any artifacts were collected from the site during the original study. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results (Gallegos and Pigniolo 1989b). During the current survey, the site or the fire-cracked rock 60 meters to the west could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6269

Site IMP-6269 was originally recorded as a small lithic scatter consisting of two volcanic debitage and one volcanic core. The site was recorded as an area measuring approximately 42 meters by 10 meters. There is no indication that any artifacts were collected from the site during the original study. To determine if the site had a subsurface component, ERC excavated one STP to a depth of 30 centimeters, with negative results.

During the current survey, Site IMP-6269 was relocated on an open flat area in the northeast quarter of APE 1 at an approximate elevation of 100 feet below MSL. An overview of the site location is provided in Plate 4.2–11. Vegetation at the site consisted of native creosote scrub bushes. The entire surface of the site was inspected for evidence of prehistoric activity. One volcanic debitage, one green volcanic adze, and one volcanic core were observed. The new site dimensions, delineated by the observed artifact scatter, measures approximately 120 meters by 20 meters, and the general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–11: Overview of Site IMP-6269, facing north.

IMP-6270

Site IMP-6270 was originally recorded as a temporary camp, consisting of a hearth feature exposed in a cut bank of a machine-excavated pit and a lithic and ceramic scatter. A fire-affected sandstone slab, more than 100 volcanic flakes, more than 20 ceramics, fire-affected rock (FAR), and burnt fishbone were observed in conjunction with the hearth feature. There is no indication that any artifacts were collected from the site, and no STPs were excavated during the initial study; however, a subsurface component of the site was assumed at the location of the hearth feature, as buried fishbone was observed in the cut bank.

During the current survey, Site IMP-6270 was relocated in the northwest corner of the project area at an approximate elevation of 95 below MSL. An overview of the site location is provided in Plate 4.2–12. Vegetation consisted of native creosote scrub and salt bush. The machine-excavated pit was observed in the northwestern section of the recorded site boundaries (Plate 4.2–13), but the hearth feature was not relocated. A scatter of at least 15 debitage, two cores, and a concentration of potsherds were observed on the surface of the eastern portion of the site. The surface scatter of pottery bleeds over into the site boundaries of Site IMP-6272, with a pot drop of at least 15 large and small ceramic sherds situated between the two sites. The site boundaries, as delineated by the surface artifact scatter, measured approximately 150 meters by 170 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–12: Overview of Site IMP-6270, facing southeast.

Plate 4.2–13: Overview of the machine-excavated pit at Site IMP-6270, facing southeast.

IMP-6271

Site IMP-6271 was originally recorded as a small lithic and ceramic scatter consisting of one potsherd, one volcanic flake, and two volcanic cores, with a possible buried hearth feature due to the presence of charcoal recovered from a single STP excavated at the site. There is no indication that any artifacts were collected from the site during the original study. During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6272

Site IMP-6272 was originally recorded as a small lithic scatter consisting of more than 20 flakes and angular, weather-rounded waste. There is no indication that any artifacts were collected from the site during the initial study. To determine if the site had a subsurface component, ERC excavated one STP to 30 centimeters in depth, with negative results.

During the current survey, Site IMP-6272 was relocated on a flat open area in the northwest quarter of APE 1, approximately 50 meters south of the northern project boundary at an approximate elevation of 100 feet below MSL. An overview of the site location is provided in Plate 4.2–14. Vegetation at the site consisted of native creosote scrub. Five volcanic debitage and at least five ceramic sherds were observed on the surface of the site. The ceramic potsherd scatter

appears to bleed into Site IMP-6270, with an approximate five meter by five meter area of concentrated potsherds lying between the two sites. The site dimensions, delineated by the artifact scatter, measured approximately 40 meters by 40 meters. The general configuration of the resource is shown on Figure 4.2–1.

Plate 4.2–14: Overview of Site IMP-6272, facing southwest.

IMP-6273

Site IMP-6273 was originally recorded as a small ceramic scatter consisting of four potsherds and a possible hearth feature, due to the presence of FAR. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results. One Salton Buff potsherd was collected by ERC during the initial study. During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6274

Site IMP-6274 was originally recorded as a temporary camp with ceramics, lithics, and three probable hearth features of fire-affected sandstone. One Tumco Buff body sherd was collected by ERC during the initial study. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results (Gallegos and Pigniolo

1989b). During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

IMP-6310

Site IMP-6310 was originally recorded as a small lithic scatter consisting of two volcanic cores and two volcanic flakes. There is no indication that any artifacts were collected from the site during the initial study. To determine if the site had a subsurface component, one STP was excavated to a depth of 30 centimeters, with negative results (Gallegos and Pigniolo 1989b). During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–1.

Isolates

Additionally, during the initial study by ERC of APE 1, a total of 17 isolates (IMP-6275-I through IMP-6290-I and IMP-6309-I) were recorded. Isolates IMP-6286-I, a Salton Buff potsherd with a drilled hole, and IMP-6309-I, a granitic bifacial mano, were collected by ERC. During the current survey, BFSA inspected the ground surface carefully in each of the recorded locations of the 15 other isolates in order to relocate the artifacts; however, none of the previously recorded isolates could be relocated.

Newly Recorded Isolates

During the current survey, BFSA archaeologists recorded five new isolates within the northwest quarter of APE 1 (ISO-6, ISO-7, ISO-8, ISO-9, and ISO-10). Isolates ISO-6, ISO-7, and ISO-8 were all located within the northeast quarter of APE 1. ISO-6, a volcanic hammerstone, was recorded approximately 100 meters west of the eastern project boundary, east of a northwest trending wash. ISO-7, a ceramic sherd, was located on a flat creosote scrub-dotted area approximately 230 meters west of the eastern boundary of APE 1 (Plate 4.2–15). ISO-8, a volcanic core, was located southwest of ISO-7, within a flat open area approximately 250 meters west of the eastern boundary of APE 1 (Plate 4.2–16). ISO-9, a chert hammerstone/core, was located in a creosote brush-dotted flat area on the eastern half of APE 1, approximately 70 meters east of the western boundary (Plate 4.2–17). ISO-10, a volcanic hammer/core, was located on the northwest quarter of APE 1, approximately 70 meters due east of Site IMP-6270 (Plate 4.2–18). A south-trending drainage is approximately 40 meters east of ISO-10.

Plate 4.2–15: Close-up view of ISO-7, potsherd, facing north.

Plate 4.2–16: Close-up view of ISO-8, volcanic core, facing north.

Plate 4.2–17: Close-up view of ISO-9, chert core, facing north.

Plate 4.2–18: Close-up view of ISO-10, volcanic hammer/core, facing south.

4.2.2 Survey Results for APE 2

Of the four previously recorded resources within APE 2, two sites (IMP-6138 and IMP-6141) were relocated during the current survey. Five new isolates were also identified within APE 2 (ISO-1 through ISO-5). A brief description of what had been previously recorded followed by the results of the field survey for each resource is presented below.

IMP-6138

Site IMP-6138 was originally recorded as a temporary camp with one small cluster of large sandstone chunks and four clusters of densely-packed rounded pumice cobbles (Gallegos and Pigniolo 1989a). Artifacts noted in conjunction with the site included one core, one granitic mano, one hammer/core, and two potsherds. There is no indication that any artifacts were collected from the site during the initial study. To determine if the site had a subsurface component, ERC excavated an STP to a depth of 30 centimeters within the site boundaries with negative results.

During the current survey, Site IMP-6138 was relocated on a flat terrace in the southwest quarter of APE 2 at an approximate elevation of 145 feet below MSL. An overview of the site location is provided in Plate 4.2–19. The DVC facility raised asphalt access road clips the western half of the site, which lies outside of the project boundary. Although none of the previously recorded pumice or sandstone clusters were observed on the current survey, widely scattered sandstone and pumice chunks were observed within the site boundary. One core and two granitic manos were also observed just east of the recorded site boundaries, and the site has been extended eastward to include this material. The area of the site, delineated by the surface artifact scatter, measures approximately 60 meters by 30 meters, although portions of the site extend outside of the project boundaries. The general configuration of the resource is shown on Figure 4.2–2.

Figure 4.2–2
Cultural Resource Location Map on APE 2

(Deleted for public review; bound separately)

Plate 4.2–19: Overview of Site IMP-6138, facing west.

IMP-6139

Site IMP-6139 was originally recorded as a single probable hearth feature of fire-reddened sandstone and an associated ceramic scatter of more than 35 potsherds. To determine if the site had a subsurface component, ERC excavated one STP to a depth of 30 centimeters with negative results. ERC later returned to the site to conduct additional significance testing. The site was divided into three loci as a result of the additional survey, and a total of 14 STPs were excavated at 20-meter intervals across the site. No cultural material was recovered during the subsurface testing program and ERC did not collect any surface artifacts (Gallegos and Pigniolo 1989a). A majority of the site as recorded in 1989 lies outside of the western boundary of APE 2. During the current survey, the site could not be relocated; however, the approximate location of the resource is shown on Figure 4.2–2. As the raised asphalt DVC facility access road bisects the site, the construction may have affected the surface artifact count.

IMP-6141

Site IMP-6141 was originally recorded by ERC as a temporary camp or habitation site consisting of numerous hearth features with associated ceramic and lithic scatters. Surface artifacts observed during the initial study include over 200 ceramic sherds and at least 75 lithics, including local porphyritic volcanics, cherts, and wonderstone. To determine if the site had a

subsurface component, one STP was excavated to a depth of 50 centimeters, with positive results. ERC returned to the site to do additional significance testing, which consisted of the excavation of 17 total STPs at 20-meter intervals across the site (Gallegos and Pigniolo 1989a). Four of the STPs were positive for cultural material to 30 centimeters within a 40 meter by 20 meter area. Gallegos and Pigniolo only indicate that artifacts were collected from the STPs and not from the site surface. Further, no analysis or special study of the charcoal is presented as part of the initial study (Gallegos and Pigniolo 1989a).

During the current survey, Site IMP-6141 was relocated on a flat, creosote scrub dotted terrace in the southwest corner of APE 2, approximately 80 meters away from the northeast-to-southwest trending DVC facility asphalt access road at an approximate elevation of 140 feet below MSL. None of the sandstone hearth features were relocated, but various sparse scatters of volcanic debitage were observed across the site. A concentration of ceramic sherds, debitage, and one hammerstone were observed approximately 20 meters east of the recorded site boundaries, which may be associated with Site IMP-6141 and have been included into the site's boundary. An overview of the artifact scatter at Site IMP-6141 is provided in Plate 4.2–20. A "pot hunter" cache, consisting of ceramics, one core, and debitage, is piled up just outside of the southwest corner of the project area (Plate 4.2–21). Site dimensions, as determined by the observed artifact scatter, measured approximately 90 meters by 100 meters. The general configuration of the resource is shown on Figure 4.2–2.

Plate 4.2–20: Overview of the artifact scatter at Site IMP-6141, facing north.

Plate 4.2–21: Overview of "pot hunter" cache at Site IMP-6141, facing west.

IMP-8789

Site IMP-8789 was originally recorded as an isolated dark green metavolcanic flake as part of a survey for the Imperial Irrigation District's L-line pole replacement project (Pallette and O'Neill 1998). The site was revisited in 2008 by Gallegos & Associates as part of the SDG&E Sunrise Powerlink project, during which the isolate was not relocated, but an artifact scatter consisting of 15 potsherds and two debitage was observed within 10 meters of the mapped location of the previously recorded isolate (Noah and Gallegos 2008). No subsurface excavations were conducted as part of either project. During the current survey, neither the original isolate nor any portion of Site IMP-8789 were relocated; however, the approximate recorded location of the resource is shown on Figure 4.2–2.

Newly Recorded Isolates

During the current survey, BFSA archaeologists recorded five new isolates within APE 2 (ISO-1, ISO-2, ISO-3, ISO-4, and ISO-5). The locations of the newly-recorded isolates are shown on Figure 4.2–2. ISO-1, a volcanic core, was recorded approximately 300 meters east of the western boundary of APE 2, 30 meters west of a small north-to-south trending wash. ISO-2, a volcanic adze, was located in the northwest quarter of APE 2, 130 meters east of the western boundary and 100 meters west of a north-south running wash. ISO-3, a quartz biface, was located

in the western half of APE 2, 120 meters east of the western boundary and 90 meters west of a southwest trending wash (Plate 4.2–22). ISO-4, a ceramic sherd, was located in a small north-south trending wash on the eastern half of APE 2, approximately 120 meters west of a southeast-trending dirt utility road (Plate 4.2–23). ISO-5, two granite metate fragments, was located within a large wash on the northeast corner of APE 2 (Plate 4.2–24).

Plate 4.2–22: Close-up view of ISO-3, quartz biface, facing north.

Plate 4.2–23: Close-up view of ISO-4, potsherd, facing north.

Plate 4.2–24: Close-up view of ISO-5, granite metate fragments, facing north.

4.3 Summary of Field Investigations

As the records search indicated, 38 cultural resources (21 sites and 17 isolates) have previously been recorded within APE 1 and APE 2. The current field survey relocated 11 of the previously documented sites (IMP-6138, IMP-6141, IMP-6142, IMP-6144, IMP-6262, IMP-6264-I, IMP-6265, IMP-6266, IMP-6269, IMP-6270, and IMP-6272) across APEs 1 and 2. As a result of the survey, the site boundaries of four of the previously recorded resources (IMP-6144, IMP-6272, IMP-6138, IMP-6141) were expanded to reflect the mapping of surface artifacts beyond the previously identified site boundaries. In addition, 10 new isolates, five in APE 1 (ISO-6, ISO-7, ISO-8, ISO-9, and ISO-10) and five in APE 2 (ISO-1, ISO-2, ISO-3, ISO-4, and ISO-5), were recorded. The sites and isolates that could not be relocated during the survey possibly have either been removed or buried by wind or water erosion, which is common in this desert environment.

The resources located on the property consist mainly of lithic and ceramic isolates and artifact scatters. Four prehistoric temporary camps were relocated on the property, IMP-6144 and IMP-6270 within APE 1, and IMP-6138 and IMP-6141 within APE 2. One temporary camp, IMP-6274, previously recorded within the northwest quarter of APE 1, could not be relocated. The artifacts located on both APE 1 and APE 2 consist mainly of lithic tools, flakes, and ceramic fragments, with hearth features often located within the boundaries of the temporary camps.

The artifact assemblage within the property suggests an occupation of the APE spanning the late prehistoric Patayan II and Patayan III phases. Tumco Buff and Salton Buff pottery are associated with the Payatan II phase, while Colorado Buff pottery has been attributed to the Payatan III phase (Waters 1982). All three types of ceramics were manufactured locally, with the Tumco Buff and Colorado Buff pottery also being associated with areas east of the Salton Trough. Tizon Brown Ware is another late prehistoric pottery type often associated with areas west of the Salton Trough. The presence of these ceramics suggests the prehistoric inhabitants of both APEs were in contact with the regions surrounding the Salton Trough.

The lithic material identified within the property shows a dependence on local materials for tool stone. The common lithic materials identified on the property tend to be sandstone and volcanics obtained within gravels found in and around the washes and seasonal drainages. More exotic material has been documented on the APE; however, as Gallegos and Pigniolo state, non-local material tends to be concentrated in the larger habitation sites (Gallegos and Pigniolo 1989a).

The cultural resources located on the property mainly are temporary camps and artifact scatters associated with late prehistoric subsistence pattern around Lake Cahuilla. As identified in previous studies through limited subsurface testing, most of the sites in the vicinity of the subject property lack any subsurface components. Nevertheless, depending on the location of any proposed development within APE 1 or APE 2, further archaeological work would be necessary to adequately evaluate the archaeological sites and assess project impacts. Previous investigations conducted by ERC at archaeological sites within APE 1 and APE 2 are almost 30 years old and do not meet the current CEQA standards to evaluate a site for potential significance. Furthermore, with the exception of sites IMP-6139 and IMP-6141, the previous investigations were minimal,

and do not provide adequate information for either significance evaluation or impact analysis. Isolates are defined by CEQA as not significant and are not relevant for any further discussion or recommendations. Table 4.3–1 below provides a brief summary of the resources identified within APE 1 and APE 2 during the record search and current field survey.

Table 4.3–1
Summary of Archaeological Sites Located Within
the CalEnergy DVC Cell 4 Project in Relation to Survey Results and Evaluation Status

Site Number	Located During Current Survey	Evaluation Status
APE 1		
IMP-128	No	Testing and Evaluation Recommended
IMP-6142	Yes	Testing and Evaluation Recommended
IMP-6144*	Yes	Testing and Evaluation Recommended
IMP-6262	Yes	Testing and Evaluation Recommended
IMP-6263	No	Testing and Evaluation Recommended
IMP-6264-I	Yes	Testing and Evaluation Recommended
IMP-6265	Yes	Testing and Evaluation Recommended
IMP-6266	Yes	Testing and Evaluation Recommended
IMP-6267	No	Testing and Evaluation Recommended
IMP-6268	No	Testing and Evaluation Recommended
IMP-6269	Yes	Testing and Evaluation Recommended
IMP-6270	Yes	Testing and Evaluation Recommended
IMP-6271	No	Testing and Evaluation Recommended
IMP-6272*	Yes	Testing and Evaluation Recommended
IMP-6273	No	Testing and Evaluation Recommended
IMP-6274	No	Testing and Evaluation Recommended
IMP-6310	No	Testing and Evaluation Recommended
IMP-6275-I	No	Isolate; Not Significant
IMP-6276-I	No	Isolate; Not Significant
IMP-6277-I	No	Isolate; Not Significant
IMP-6278-I	No	Isolate; Not Significant
IMP-6279-I	No	Isolate; Not Significant
IMP-6280-I	No	Isolate; Not Significant
IMP-6281-I	No	Isolate; Not Significant
IMP-6282-I	No	Isolate; Not Significant
IMP-6283-I	No	Isolate; Not Significant
IMP-6284-I	No	Isolate; Not Significant
IMP-6285-I	No	Isolate; Not Significant
IMP-6286-I	No	Isolate; Not Significant
IMP-6287-I	No	Isolate; Not Significant

Site Number	Located During Current Survey	Evaluation Status
IMP-6288-I	No	Isolate; Not Significant
IMP-6289-I	No	Isolate; Not Significant
IMP-6290-I	No	Isolate; Not Significant
IMP-6309-I	No	Isolate; Not Significant
ISO-6	Yes	Isolate; Not Significant
ISO-7	Yes	Isolate; Not Significant
ISO-8	Yes	Isolate; Not Significant
ISO-9	Yes	Isolate; Not Significant
ISO-10	Yes	Isolate; Not Significant
APE 2		
IMP-6138*	Yes	Testing and Evaluation Recommended
IMP-6139	No	Not-CEQA Significant
IMP-6141*	Yes	CEQA-significant, NRHP-eligible
IMP-8789	No	Testing and Evaluation Recommended
ISO-1	Yes	Isolate; Not Significant
ISO-2	Yes	Isolate; Not Significant
ISO-3	Yes	Isolate; Not Significant
ISO-4	Yes	Isolate; Not Significant
ISO-5	Yes	Isolate; Not Significant

** Site boundaries extended based on current survey results*

5.0 RECOMMENDATIONS

The data gathered through the records search, research, and field survey has identified 17 archaeological sites in APE 1 and four sites in APE 2, not including the recorded isolates which do not qualify as a site. The focus of this study is to provide guidance during the selection process for the siting of DVC Cell 4 facility with respect to the consideration of avoidance of cultural resources. As illustrated on Figure 5.0–1, APE 1 contains 17 recorded archaeological sites that cover much of the potential building locations. Conversely APE 2 retains ample area for the new facility that would not conflict with the recorded cultural resources. It is strongly recommended that the new facility be located within APE 2 to avoid the recorded archaeological sites in APE 1, and potentially avoid a subsequent archaeological testing program.

Without knowledge of other environmental, planning, or engineering constraints that will affect the selection of a location for the DVC Cell 4 facility, should the facility be located in an area that corresponds to recorded cultural resources, subsequent focused archaeological testing for significance of these potentially impacted cultural resources would be necessary. This evaluation process is required for the CEQA review process. Previous studies conducted in 1989 on the property were not thorough enough to meet current testing requirements and protocols. Therefore, aside from sites IMP-6141 and IMP-6139 which were thoroughly analyzed, all other sites that would be potentially affected by the project will require a site testing program (see below) to generate data. The data from the testing program would to be employed for significance evaluations and are the basis for the impact analysis.

Archaeological Test and Evaluation Program

A standard archaeological test program would be employed to evaluate any site determined to be impacted by proposed development. The following tasks would be conducted to fully document the sites and evaluate their significance under CEQA criteria:

- All surface features and artifacts will be mapped and recorded via GPS, and all artifacts will be collected by provenience location.
- Maps will provide the general surface expressions of the sites and the site boundaries.
- To determine the potential of subsurface deposits, a series of STPs will be employed. Each shovel test will measure approximately 25 centimeters in diameter and will be excavated in decimeter levels. Up to 10 shovel tests will be used at the sites to investigate subsurface deposits. The proposed STP locations would be based on artifact density, proposed impacts, and location of any features, i.e. hearths, should they exist at the site and radiate out to verify and establish accurate site boundaries.
- If the shovel test data indicates that a subsurface deposit is present, a one-square-meter test unit will be excavated to gather focused information regarding the content of the subsurface deposit. All soil from the test excavations will be sifted through a one-

eighth-inch mesh screen to recover artifacts. All field procedures will follow standard archaeological protocol. The potential for subsurface deposits will be further studied by excavating one test unit per site. Additional test units may be employed if subsurface deposits that possess research potential are identified. All tests will be mapped via GPS and plotted on a site investigation map.

- Any cultural materials recovered during the site investigations shall be subjected to standard laboratory analysis and documentation. If any material is encountered that would provide an opportunity for special studies, such as radiocarbon dating, faunal analysis, or obsidian sourcing and hydration, appropriate special studies will be added to the laboratory analysis program. Any artifacts subjected to laboratory analysis will be delivered to the appropriate curation facility or Native American tribe at the conclusion of the project.
- The data collected during the site investigations will be used to complete site registration forms (DPR Form 523) that will be submitted to the SCIC at SDSU.

Figure 5.0–1
Resources Recommended for Further Archaeological Work Depending on Project Impacts

(Deleted for public review; bound separately)

6.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

December 18, 2017

Brian F. Smith
Principal Investigator

Date

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APPENDIX A

Qualifications of Key Personnel

Brian F. Smith, MA

Owner, Principal Investigator

Brian F. Smith and Associates, Inc.
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Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History, and Anthropology, University of San Diego, California **1975**

Professional Memberships

Society for California Archaeology

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the Southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and

Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of An Archaic Cultural Resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Lawson Valley Project, San Diego County, California: Project manager/director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project achaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of

site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project manager/director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor to over 2,500 cultural resources management publications, a selection of which are presented below.

2015 An Archaeological/Historical Study for the Safari Highlands Ranch Project, City of Escondido, County of San Diego.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels II Project, Planning Case No. 36962, Riverside County, California.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels I Project, Planning Case No. 36950, Riverside County, California.

2015 Cultural Resource Data Recovery and Mitigation Monitoring Program for Site SDI-10,237 Locus F, Everly Subdivision Project, El Cajon, California.

2015 Phase I Cultural Resource Survey for the Woodward Street Senior Housing Project, City of San Marcos, California (APN 218-120-31).

2015 An Updated Cultural Resource Survey for the Box Springs Project (TR 33410), APNs 255-230-010, 255-240-005, 255-240-006, and Portions of 257-180-004, 257-180-005, and 257-180-006.

2015 A Phase I and II Cultural Resource Report for the Lake Ranch Project, TR 36730, Riverside County, California.

2015 A Phase II Cultural Resource Assessment for the Munro Valley Solar Project, Inyo County, California.

2014 Cultural Resources Monitoring Report for the Diamond Valley Solar Project, Community of Winchester, County of Riverside.

2014 National Historic Preservation Act Section 106 Compliance for the Proposed Saddleback Estates Project, Riverside County, California.

2014 A Phase II Cultural Resource Evaluation Report for RIV-8137 at the Toscana Project, TR 36593, Riverside County, California.

2014 Cultural Resources Study for the Estates at Del Mar Project, City of Del Mar, San Diego, California (TTM 14-001).

2014 Cultural Resources Study for the Aliso Canyon Major Subdivision Project, Rancho Santa Fe, San Diego County, California.

2014 Cultural Resources Due Diligence Assessment of the Ocean Colony Project, City of Encinitas.

2014 A Phase I and Phase II Cultural Resource Assessment for the Citrus Heights II Project, TTM 36475, Riverside County, California.

2013 A Phase I Cultural Resource Assessment for the Modular Logistics Center, Moreno Valley, Riverside County, California.

2013 A Phase I Cultural Resources Survey of the Ivey Ranch Project, Thousand Palms, Riverside County, California.

2013 Cultural Resources Report for the Emerald Acres Project, Riverside County, California.

2013 A Cultural Resources Records Search and Review for the Pala Del Norte Conservation Bank Project, San Diego County, California.

2013 An Updated Phase I Cultural Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside.

2013 El Centro Town Center Industrial Development Project (EDA Grant No. 07-01-06386); Result of Cultural Resource Monitoring.

2013 Cultural Resources Survey Report for the Renda Residence Project, 9521 La Jolla Farms Road, La Jolla, California.

2013 A Phase I Cultural Resource Study for the Ballpark Village Project, San Diego, California.

2013 Archaeological Monitoring and Mitigation Program, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN-060-032-04).

2012 Mitigation Monitoring Report for the Los Peñasquitos Recycled Water Pipeline.

2012 Cultural Resources Report for Menifee Heights (Tract 32277).

2012 A Phase I Cultural Resource Study for the Altman Residence at 9696 La Jolla Farms Road, La Jolla, California 92037.

2012 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2012 A Phase I Cultural Resource Study for the Payan Property Project, San Diego, California.

2012 Phase I Archaeological Survey of the Rieger Residence, 13707 Durango Drive, Del Mar, California 92014, APN 300-369-49.

2011 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2011 Mitigation Monitoring Report for the 1887 Viking Way Project, La Jolla, California.

2011 Cultural Resource Monitoring Report for the Sewer Group 714 Project.

2011 Results of Archaeological Monitoring at the 10th Avenue Parking Lot Project, City of San Diego, California (APNs 534-194-02 and 03).

2011 Archaeological Survey of the Pelberg Residence for a Bulletin 560 Permit Application; 8335 Camino Del Oro; La Jolla, California 92037 APN 346-162-01-00 .

2011 A Cultural Resources Survey Update and Evaluation for the Robertson Ranch West Project and an Evaluation of National Register Eligibility of Archaeological sites for Sites for Section 106 Review (NHPA).

2011 Mitigation Monitoring Report for the 43rd and Logan Project.

2011 Mitigation Monitoring Report for the Sewer Group 682 M Project, City of San Diego Project #174116.

2011 A Phase I Cultural Resource Study for the Nooren Residence Project, 8001 Calle de la Plata, La Jolla, California, Project No. 226965.

2011 A Phase I Cultural Resource Study for the Keating Residence Project, 9633 La Jolla Farms Road, La Jolla, California 92037.

2010 Mitigation Monitoring Report for the 15th & Island Project, City of San Diego; APNs 535-365-01, 535-365-02 and 535-392-05 through 535-392-07.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Sewer and Water Group 772 Project, San Diego, California, W.O. Nos. 187861 and 178351.

2010 Pottery Canyon Site Archaeological Evaluation Project, City of San Diego, California, Contract No. H105126.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Racetrack View Drive Project, San Diego, California; Project No. 163216.

2010 A Historical Evaluation of Structures on the Butterfield Trails Property.

2010 Historic Archaeological Significance Evaluation of 1761 Haydn Drive, Encinitas, California (APN 260-276-07-00).

2010 Results of Archaeological Monitoring of the Heller/Nguyen Project, TPM 06-01, Poway, California.

2010 Cultural Resource Survey and Evaluation Program for the Sunday Drive Parcel Project, San Diego County, California, APN 189-281-14.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Emergency Garnet Avenue Storm Drain Replacement Project, San Diego, California, Project No. B10062

2010 An Archaeological Study for the 1912 Spindrift Drive Project

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological Constraints Study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an Archaeological Review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in the City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of Archaeological Monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of Archaeological Monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2003 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California. Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad. Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the French Valley Specific Plan/EIR, French Valley, County of Riverside. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and the Evaluation of Cultural Resources at The TPM#24003– Lawson Valley Project. Brian F. Smith and Associates, San Diego, California.

2000 Archaeological Mitigation of Impacts to Prehistoric Site SDI-5326 at the Westview High School Project for the Poway Unified School District. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the Menifee Ranch Project. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Survey and Evaluation of Cultural Resources for the Bernardo Mountain Project, Escondido, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Nextel Black Mountain Road Project, San Diego, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Rancho Vista Project, 740 Hilltop Drive, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Poway Creek Project, Poway, California. Brian F. Smith and Associates, San Diego, California.

2000 Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/ Cavadias Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project. Brian F. Smith and Associates, San Diego, California.

2000 Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 A Report for an Archaeological Evaluation of Cultural Resources at the Otay Ranch Village Two SPA, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Evaluation of Cultural Resources for the Airway Truck Parking Project, Otay Mesa, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and Evaluation of a Resource for the Tin Can Hill Segment of the Immigration and Naturalization and Immigration Service Border Road, Fence, and Lighting Project, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey of the Home Creek Village Project, 4600 Block of Home Avenue, San Diego, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey for the Sgobassi Lot Split, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Evaluation of Cultural Resources at the Otay Ranch Village 11 Project. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological/Historical Survey and Evaluation of a Cultural Resource for The Osterkamp Development Project, Valley Center, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of a Cultural Resource for the Proposed College Boulevard Alignment Project. Brian F. Smith and Associates, San Diego, California.

1999 Results of an Archaeological Evaluation for the Anthony's Pizza Acquisition Project in Ocean Beach, City of San Diego (with L. Pierson and B. Smith). Brian F. Smith and Associates, San Diego, California.

1996 An Archaeological Testing Program for the Scripps Poway Parkway East Project. Brian F. Smith and Associates, San Diego, California.

1995 Results of a Cultural Resources Study for the 4S Ranch. Brian F. Smith and Associates, San Diego, California.

1995 Results of an Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System. Brian F. Smith and Associates, San Diego, California.

1994 Results of the Cultural Resources Mitigation Programs at Sites SDI-11,044/H and SDI-12,038 at the Salt Creek Ranch Project . Brian F. Smith and Associates, San Diego, California.

1993 Results of an Archaeological Survey and Evaluation of Cultural Resources at the Stallion Oaks Ranch Project. Brian F. Smith and Associates, San Diego, California.

1992 Results of an Archaeological Survey and the Evaluation of Cultural Resources at the Ely Lot Split Project. Brian F. Smith and Associates, San Diego, California.

1991 The Results of an Archaeological Study for the Walton Development Group Project. Brian F. Smith and Associates, San Diego, California.

Andrew J. Garrison, M.A., RPA

Senior Project Archaeologist

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Education

Master of Arts, Public History, University of California, Riverside **2009**

Bachelor of Science, Anthropology, University of California, Riverside **2005**

Bachelor of Arts, History, University of California, Riverside **2005**

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Society for American Archaeology
California Council for the Promotion of History
Society of Primitive Technology
Lithic Studies Society
California Preservation Foundation
Pacific Coast Archaeological Society

Experience

Senior Project Archaeologist **June 2017–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Project management of all phases of archaeological investigations for local, state, and federal agencies including National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) level projects interacting with clients, sub-consultants, and lead agencies. Supervise and perform fieldwork including archaeological survey, monitoring, site testing, comprehensive site records checks, and historic building assessments. Perform and oversee technological analysis of prehistoric lithic assemblages. Author or co-author cultural resource management reports submitted to private clients and lead agencies.

Senior Archaeologist and GIS Specialist **2009–2017**
Scientific Resource Surveys, Inc. **Orange, California**

Served as Project Archaeologist or Principal Investigator on multiple projects, including archaeological monitoring, cultural resource surveys, test excavations, and historic building assessments. Directed projects from start to finish, including budget and personnel hours proposals, field and laboratory direction, report writing, technical editing, Native American consultation, and final report submittal. Oversaw all GIS projects including data collection, spatial analysis, and map creation.

Preservation Researcher **2009**
City of Riverside Modernism Survey **Riverside, California**

Completed DPR Primary, District, and Building, Structure and Object Forms for five sites for a grant-funded project to survey designated modern architectural resources within the City of Riverside.

Information Officer **2005, 2008–2009**
Eastern Information Center (EIC), University of California, Riverside **Riverside, California**

Processed and catalogued restricted and unrestricted archaeological and historical site record forms. Conducted research projects and records searches for government agencies and private cultural resource firms.

Reports/Papers

2017 A Phase I Cultural Resources Assessment for the Marbella Villa Project, City of Desert Hot Springs, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resources Survey for TTM 37109, City of Jurupa Valley, County of Riverside. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Survey for the Jefferson & Ivy Project, City of Murrieta, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Nuevo Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resource Study for the Westmont Project, Encinitas, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Winchester Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resource Assessment for TTM 31810 (42.42 acres) Predico Properties Olive Grove Project. Scientific Resource Surveys, Inc.

2016 John Wayne Airport Jet Fuel Pipeline and Tank Farm Archaeological Monitoring Plan. Scientific Resource Surveys, Inc. On file at the County of Orange, California.

2016 Phase I Cultural Resources Assessment: All Star Super Storage City of Menifee Project, 2015-156. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2016 Historic Resource Assessment for 220 South Batavia Street, Orange, CA 92868 Assessor's Parcel Number 041-064-4. Scientific Resource Surveys, Inc. Submitted to the City of Orange as part of Mills Act application.

2015 Historic Resource Report: 807-813 Harvard Boulevard, Los Angeles. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2015 Exploring a Traditional Rock Cairn: Test Excavation at CA-SDI-13/RBLI-26: The Rincon Indian Reservation, San Diego County, California. Scientific Resource Surveys, Inc.

2015 Class III Scientific Resource Surveys, Inc. Survey for The Lynx Cat Granite Quarry and Water Valley Road Widening Project County of San Bernardino, California, Near the Community of Hinkley. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Phase I: Cultural Resource Survey of the South West Quadrant of Fairview Park, Costa Mesa. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Monitoring Results: The New Los Angeles Federal Courthouse. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2012 Bolsa Chica Archaeological Project Volume 7, Technological Analysis of Stone Tools, Lithic Technology at Bolsa Chica: Reduction Maintenance and Experimentation. Scientific Resource Surveys, Inc.

2010 Phase II Cultural Resources Report Site CA=RIV-2160 PM No. 35164. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2009 Riverside Modernism Context Survey, contributing author. Available online at the City of Riverside.

Presentations

2017 "Repair and Replace: Lithic Production Behavior as Indicated by the Debitage Assemblage from CA-MRP-283 the Hackney Site." Presented at the Society for California Archaeology Annual Meeting, Fish Camp, California.

2016 "Bones, Stones, and Shell at Bolsa Chica: A Ceremonial Relationship?" Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Markers of Time: Exploring Transitions in the Bolsa Chica Assemblage." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Dating Duress: Understanding Prehistoric Climate Change at Bolsa Chica." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2015 "Successive Cultural Phasing Of Prehistoric Northern Orange County, California." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Southern California Cogged Stone Replication: Experimentation and Results." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Prehistoric House Keeping: Lithic Analysis of an Intermediate Horizon House Pit." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Pits and Privies: The Use and Disposal of Artifacts from Historic Los Angeles." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Grooving in the Past: A Demonstration of the Manufacturing of OGR beads and a look at Past SRS, Inc. Replicative Studies." Demonstration of experimental manufacturing techniques at the January meeting of The Pacific Coast Archaeological Society, Irvine, California.

2014 "From Artifact to Replication: Examining *Olivella* Grooved Bead Manufacturing." Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2014 "New Discoveries from an Old Collection: Comparing Recently Identified OGR Beads to Those Previously Analyzed from the Encino Village Site." Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2012 Bolsa Chica Archaeology: Part Seven: Culture and Chronology. Lithic demonstration of experimental manufacturing techniques at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2012 "Expedient Flaked Tools from Bolsa Chica: Exploring the Lithic Technological Organization." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 "Utilitarian and Ceremonial Ground Stone Production at Bolsa Chica Identified Through Production Tools." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 "Connecting Production Industries at Bolsa Chica: Lithic Reduction and Bead Manufacturing." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2011 Bolsa Chica Archaeology: Part Four: Mesa Production Industries. Co-presenter at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2011 "Hammerstones from Bolsa Chica and Their Relationship towards Site Interpretation." Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

2011 "Exploring Bipolar Reduction at Bolsa Chica: Debitage Analysis and Replication." Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

APPENDIX B

New and Updated Site Record Forms

(Deleted for Public Review; Bound Separately)

APPENDIX C

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX D

NAHC Sacred Lands File Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX E

Confidential Maps

(Deleted for Public Review; Bound Separately)

A DRAFT PHASE I CULTURAL RESOURCE REPORT FOR THE CALENERGY DVC CELL 4 PROJECT

IMPERIAL COUNTY, CALIFORNIA

CONFIDENTIAL APPENDIX

APNs 019-100-004 and 019-110-012

Sections 33 and 27, Township 12 South, Range 11 East of the *Kane Spring, California* USGS Quadrangle

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 94596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Andrew J. Garrison , M.A., RPA and
Brian F. Smith, M.A., Principal Investigator
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

December 19, 2017

Fieldwork Performed: November 28 through December 1, 2017
Report Summary: 320 acres; cultural resources identified; artifact scatters; potential impacts to cultural resources; significance evaluations recommended.

APPENDIX B

New and Updated Site Record Forms

Appendix B: New and Updated Site Record Forms

contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

APPENDIX D

NAHC Sacred Lands File Search Results

Brian F. Smith & Associates

Archaeological/Biological/Historical/Paleontological/Air/Traffic/Noise Consulting

November 15, 2017

For: Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

From: Kris Reinicke, M.S.
Brian F. Smith and Associates Inc.
14010 Poway Rd. Suite A
Poway, CA 92064

Re: Request for Sacred Lands File and Native American Contact List for the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California.

I would like to request a record search of the Sacred Lands File and a list of appropriate Native American contacts for the following project: CalEnergy DVC Cell 4 (Project No. 17-226). This project is an archaeological assessment requested by CalEnergy for the construction of a new non-municipal solid waste landfill on approximately 320-acres of land. The project is located at 3301 West Highway 86, Brawley, Imperial County, CA 92227. The project is located in Township 12 south, Range 11 east, Sections 27 and 33, in the USGS *Kane Spring* Quadrangle. A copy of the project map showing the project area has been included for the processing of this request.

Sincerely,

Kris Reinicke, M.S.
Archaeologist/GIS Specialist
Billing: 14678 Ibex Court, San Diego, CA 92129
Phone: 858-484-0915
Email: kris@bfsa-ca.com

Attachments:
USGS 7.5 *Kane Spring,* California, topographic maps with project area delineated.

Sacred Lands File Request Form

Sacred Lands File & Native American Contacts List Request
NATIVE AMERICAN HERITAGE COMMISSION
∗915 Capitol Mall, RM 364 ∗ Sacramento, CA 95814 ∗ (916) 653-4082 ∗
(916) 657-5390 – Fax ∗ nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Project: CalEnergy DVC Cell 4

County: Imperial

USGS Quadrangle Name: *Kane Spring*

Township: 12S Range: 11E Sections: 27 and 33

Company/Firm/Agency: Brian F. Smith & Associates Inc.

Contact Person: Kris Reinicke

Street Address: 14010 Poway Road, Suite A

City: Poway Zip: 92064

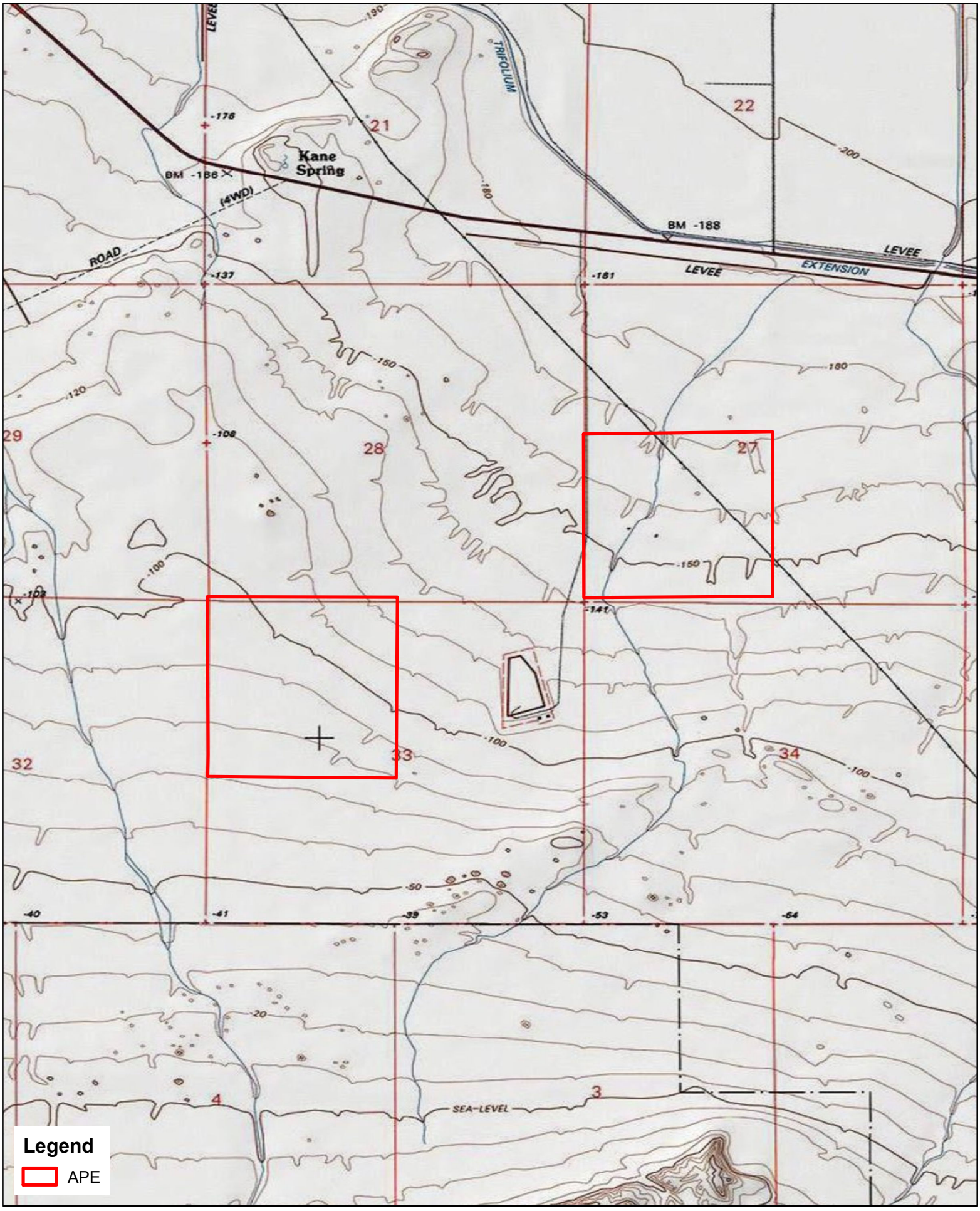
Phone: 858-484-0915

Fax: 858-679-9896

Email: kris@bfsa-ca.com

Project Description:

This records search is for my company's project: CalEnergy DVC Cell 4 (Project No. 17-226). This project is an archaeological assessment requested by CalEnergy for the construction of a new non-municipal solid waste landfill on approximately 320-acres of land. The project is located at 3301 West Highway 86, Brawley, Imperial County, CA 92227. The project is located in Township 12 south, Range 11 east, Sections 27 and 33, in the USGS *Kane Spring* Quadrangle. A copy of the project map showing the project area has been included for the processing of this request.



0 1,000 2,000 Feet

Record Search Loation Map
The CalEnergey DVC Cell 4 Project
USGS Kane Spring Quadrangle (7.5-minute series)

KRR, BFSA 11-15-2017

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

November 17, 2017

Kris Reinicke
Brian F. Smith & Associates, Inc.

Sent by E-mail: kris@bfsa-ca.com

RE: Proposed CalEnergy DVC Cell 4 Project, City of Brawley; Kane Spring USGS Quadrangle, Imperial County, California

Dear Ms. Reinicke:

A records search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

Native American Heritage Commission
Native American Contact List
Imperial County
11/17/2017

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. Kumeyaay
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 Kumeyaay
Pine Valley, CA, 91962
Phone: (619) 709 - 4207

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed CalEnergy DVC Cell 4 Project, Imperial County.

Native American Heritage Commission
Native American Contact List
Imperial County
11/17/2017

Mesa Grande Band of Mission Indians
Mario Morales, Cultural Resources Representative
PMB 366 35008 Pala Temecula Rd.
Pala, CA, 92059
Phone: (760) 622 - 1336
Kumeyaay

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com
Kumeyaay

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org
Kumeyaay

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org
Kumeyaay

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 312 - 1935
lhaws@sycuan-nsn.gov
Kumeyaay

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov
Kumeyaay

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov
Kumeyaay

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov
Kumeyaay

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed CalEnergy DVC Cell 4 Project, Imperial County.

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Alexis M. Vargas
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, California 92109

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Vargas:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Allen E. Lawson
Chairperson
San Pasqual Band of Mission Indians
P.O. Box 365
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Lawson:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Angela Elliott Santos
Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, California 91905

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Elliott Santos:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Carmen Lucas
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, California 91962

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Lucas:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Clint Linton
Director of Cultural Resources
Iipay Nation of Santa Ysabel
P.O. Box 507
Santa Ysabel, California 92070

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Linton:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Cody J. Martinez
Chairperson
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, California 92109

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Martinez:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Edwin Romero
Chairperson
Barona Group of the Capitan Grande
1095 Barona Road
Lakeside, California 92040

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Romero:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Erica Pinto
Chairperson
Jamul Indian Village
P.O. Box 612
Jamul, California 91935

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Pinto:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Ernest Pingleton
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Pingleton:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Gwendolyn Parada
Chairperson
La Posta Band of Mission Indians
8 Crestwood Road
Boulevard, California 91905

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Parada:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Javaughn Miller
Tribal Administrator
La Posta Band of Mission Indians
8 Crestwood Road
Boulevard, California 91905

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Miller:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Jim McPherson
San Pasqual Economic Development Agency
P.O. Box 10
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. McPherson:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

John Flores
Environmental Coordinator
San Pasqual Band of Mission Indians
P.O. Box 365
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Flores:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Julie Hagen
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Hagen:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Lisa Haws
Cultural Resources Manager
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, California 92109

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Haws:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Lisa K. Cumper
Secretary / Treasurer
Jamul Indian Village
P.O. Box 612
Jamul, California 91935

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Cumper:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Mariah Banares
Administrative Assistant
San Pasqual Band of Mission Indians
P.O. Box 365
Valley Center, California 92082

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Banares:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Mario Morales
Cultural Resources Representative
Mesa Grande Band of Mission Indians
35008 Pala Temecula Road, PMB 366
Pala, California 92059

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Morales:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Michael Garcia
Vice Chairperson
Ewiiaapaayp Tribal Office
4054 Willows Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Garcia:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Ralph Goff
Chairperson
Campo Band of Mission Indians
36190 Church Road, Suite 1
Campo, California 91906

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Goff:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Ray Teran
Grant Writer / Administrator
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Teran:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Rebecca Osuna
Chairperson
Inaja Band of Mission Indians
2005 South Escondido Boulevard
Escondido, California 92025

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Ms. Osuna:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Robert Pinto
Chairperson
Ewiiaapaayp Tribal Office
4054 Willows Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Pinto:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Robert Welch
Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, California 91901

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Welch:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

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tstropes@bfsa-ca.com

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USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Virgil Oyos
Chairperson
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, California 92070

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Oyos:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

Brian F. Smith and Associates, Inc.
Archaeology / Biology / History / Paleontology / Air Quality / Traffic / Acoustics

November 27, 2017

Virgil Perez
Chairperson
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, California 92070

Subject: Information regarding Native American cultural resources on or near the CalEnergy DVC Cell 4 Project, Brawley, Imperial County, California

Dear Mr. Perez:

This inquiry is requesting information you may have regarding the existence of Native American cultural resources on or near the CalEnergy DVC Cell 4 Project. The information you provide will be used to assess areas of potential adverse impact within the proposed project's Area of Potential Effect (APE). Any information you might provide will be kept confidential and will not be divulged to the public.

The project is in Imperial County, California, and includes the development of 320 acres of land for the construction of a new non-municipal solid waste landfill. The project area can be found at 3301 West Highway 86 in the city of Brawley, California. Specifically, this project is located in Sections 27 and 33 of the USGS 7.5-minute *Kane Spring, California* topographic quadrangle (Township 12 South, Range 11 East). Please find enclosed sections of the USGS *Kane Spring* Quadrangle map on which the project is delineated.

Although a records search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate CalEnergy DVC Cell 4 Project area, the Native American Heritage Commission requested that we consult with you directly regarding the potential for the presence of Native American cultural resources that may be impacted by this project. If you do have information to provide regarding any resources on or near the project, please contact Brian Smith or myself at (858) 484-0915, or contact CalEnergy directly. We would like to extend our thanks for your response regarding this issue.

Sincerely,

Tracy A. Stropes, M.A., RPA
Senior Project Archaeologist
tstropes@bfsa-ca.com

Attachment:
USGS 7.5-minute *Kane Spring, California* topographic map with project area delineated

VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

December 1, 2017

Tracy A. Stropes
Senior Project Archaeologist
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, CA 92064

RE: CalEnergy DVC Cell 4 Project

Dear Mr. Stropes,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to Viejas.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing activities to inform us of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

Please call me at 619-659-2312 or Ernest Pingleton at 619-659-2314 or email, rteran@viejas-nsn.gov or epingleton@viejas-nsn.gov , for scheduling. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

APPENDIX E

Confidential Maps

Appendix E: Confidential Maps contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

APPENDIX C
GEOLOGIC SCREENING REPORT, DVC CELL 4
PREPARED BY FUGRO USA LAND, INC.

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-001(Rev.A) Appendix C
January 12, 2018

Cal Energy Operating Corp.
7030 Gentry Road
Calipatria, California, 92233

Attention: Ms. Yanqiu Wu

DRAFT Geologic Screening Report, DVC Cell 4,
Brawley, California

Dear Ms Wu,

Please find attached the Draft Phase 1 Geologic Screening Report for the proposed DVC Cell 4 solid waste facility. This report is presented as Appendix C of the Phase 1 DVC Cell 4 Summary report.

This report is divided into four sections; Introduction, Geologic Setting, Evaluation of Active Faulting, and Recommendations for a site-specific fault investigation. The results of this report are also used as input into the geometric model presented in the Phase 1 summary report. The results of our analysis are inconclusive with respect to presence or absence of Holocene faulting within the northwest quadrant of Section 33, and the southwest quadrant of Section 27, primarily due to cover of young sediments that poorly preserve fault evidence. We provide a map indicating the locations of documented faulting, and present a layout for planned geophysical studies.

If you have any questions or comments, please do not hesitate to contact me.

Sincerely,
Fugro USA Land, Inc.

Joshua Goodman, P.G., C.E.G
Senior Project Geologist

A	Initial Draft	JG	JMS		January 12, 2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

1. INTRODUCTION

This report presents the results of the Phase 1 desktop geological screening evaluation for the proposed Desert Valley Company (DVC) Cell 4 site.

1.1 Project Understanding

CalEnergy owns and operates the current DVC Class II monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the Northeast Quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Cells 1 and 2 are closed and Cell 3 is projected to reach its capacity in the year 2025. Cell 4, with a capacity of at least 1,300,000 cu yd (same as Cell 3), would need to be operational before Cell 3 can be closed. All of CalEnergy's cells are constructed to Class I standards, and CalEnergy desires the same for Cell 4.

The focus of this investigation consists of two potential sites in the vicinity of the existing facility: One in the Northwest Quadrant of Section 33, and the other in the southwest quadrant of Section 27. Further, it is our understanding that utilizing the remaining available space within Section 33 is preferred.

1.2 Report Elements

The Geologic Screening Report consists of three sections: 1) Geologic Setting; 2) Evaluation of Active Faulting; and 3) Recommendations for Site-Specific Fault Investigation. The results from Task 1 presented in this report are used as input to the geometric model presented in the Phase 1 summary report and have helped to determine the layout of the geophysical site investigation.

2. GEOLOGICAL SETTING

The DVC site is located in Imperial County, within the southwestern portion of the Salton Trough, a topographic and structural low within the Colorado Desert Geomorphic Province of California. The Colorado Desert Province is bound to the north by the Transverse Ranges, to the west by the Peninsular Ranges, to the east by the Mojave Desert, and to the south by the Gulf of California.

The site sits on a gently sloping plain on the north flank of the Superstition Hills, about 12 km southwest of the present day Salton Sea shoreline. The Salton Sea is California's largest lake, and formed in 1905 when irrigation channels from the Colorado River overflowed and flooded the basin, forming the present day Salton Sea. The lake level has fallen from an original surface elevation of 197 ft below sea level to its present day elevation of 236 ft below sea level (USGS, 2017). With no natural outlets for the water (the outlet is at 39 ft above sea level), the water has evaporated and gradually become more saline.

The following subsections describe the tectonic setting of the site, the geologic materials underlying the site and their depositional history, historical seismicity, and the location and geometry of active faults**.**

2.1 Tectonic Framework

Relative plate motion between the North American and Pacific plates is accommodated primarily by the San Andreas fault (SAF) system. In the vicinity of the Site, the active plate boundary structures include the SAF on the east, the San Jacinto fault (SJF) on the west, and lesser faults such as the Superstition Hills, and Elmore Ranch faults to the south (Figure C-1). The NW trending Salton Trough is at the transition between the ocean-floor spreading regime of the Gulf of California and the San Andreas transform fault system (Elders, 1979). The Salton Sea occupies the structurally weak gap between the relatively strong edges of the North American and Pacific Plates (i.e. the crystalline rocks of the Peninsular Ranges on the west of the SJF, and the crystalline rocks of the Mojave Desert to the east of the SAF; (Fuis et al., 1984).

South of the Salton Sea, the SJF and SAF systems converge towards the Imperial fault, which extends south into Mexico. The SAF system forms the eastern side of the trough, while the SJF system, Superstition Hills fault, and Imperial fault define the western margin (Figure C-1). The zone of convergence of these major fault systems at the southern end of the Salton Trough includes a complex system of shorter perpendicular cross faults connecting the two major systems. Several of these cross-faults occur at the north end of the Superstition Hills fault near the Site.

The cross-faults have predominantly left-lateral strike-slip motion, and are oriented in a southwest-northeast direction, perpendicular to the dominant trend of the right-lateral SAF and SJF systems (Hudnut et al., 1989a). The primary cross-faults near the site are the Elmore Ranch fault, Lone Tree fault, and Kane Springs fault (Figure C-2). Additionally, an alinement of seismicity south of the town of Brawley known as the Brawley Seismic Zone likely results from faulting in a tensional or releasing step between the Imperial and SAF faults (Figure C-1).

2.2 Local Geology

The site underlain by the almost flat-lying fine-grained lacustrine sediments of the late Pleistocene to Holocene Cahuilla Formation, which were deposited on gently folded alluvial sediments of the Pliocene to middle Pleistocene Brawley Formation (Dibblee, 1954, 2008) (Figure C-2). Both the Brawley and Cahuilla beds are weakly consolidated and are eroded into barren to scrub-covered low hills at the site. Tectonic deformation has faulted and gently folded the Brawley sediments, creating domes and ridges in the Brawley Formation that protrude through the lacustrine Cahuilla sediments to form low hills (Figure C-2).

Throughout the Holocene, the Colorado River periodically changed flow direction from a southerly path, which caused it to empty into the Gulf of California, to a more westerly path, which caused it to empty into the Salton Trough. When the Salton Trough filled up with water, it would eventually flow to the Gulf of Mexico from an outlet at the southern end of the valley. The Salton Trough's natural outlet is at an elevation of about 39 ft. above sea level. When the full flow of the Colorado River entered the basin, the lake would fill up within several years. When flow to the basin ceased, desiccation would occur within 60 years (Howard et al., 2007). This flooding and desiccation of the trough occurred numerous times in the Holocene, and according to Waters (1980), and occurred at least 4 times within the last 2,000 years

The Cahuilla lacustrine sediments are topped by a discontinuous cover of gravelly beach ridge deposits, formed as waves reworked the incoming stream alluvium along the shore of the lake. Parallel bands of beach ridges record the gradual recession of the shoreline as Lake Cahuilla gradually shrank to become the Salton Sea (Figure C-3). These beach sediments support a scrub vegetation and contrast on aerial imagery with the bare silts of the lacustrine sediments. A network of desert washes dissects the landscape, carrying water and sediment northward to the Salton Sea.

2.2.1 Stratigraphy

The surface and near-surface materials at the site, from youngest to oldest, include Quaternary sediments and strata of the Cahuilla and Brawley Formations (Qc and Qbr, respectively; Figure C-2). Both units are mantled by active alluvial channels that drain the nearby hills and flow towards the Salton Sea. A description of the two geologic units observed at the surface are included below (Dibblee, 1954, 2008).

2.2.1.1 The Cahuilla Formation (Holocene Age)

The Cahuilla Formation is described as a thin series of tan gray, fossiliferous claystone, sand and gravel. The deposits are lacustrine in origin, and associated with Lake Cahuilla – a proto Salton Sea that persisted in the Holocene (Diblee, 1954).

2.2.1.2 The Brawley Formation (Pleistocene age)

The Brawley formation is described as the lacustrine facies of the Ocotillo conglomerate, consisting of light gray claystone with thin beds of sandstone and some pebbly beds. It is likely of Pleistocene to late Pliocene age, and is up to 2,000 feet thick (Dibblee, 1954). This unit outcrops extensively to the south and north of the site vicinity, but is present at the surface mostly in the southeast quadrants of Sections 27 and 33 (Figure C-2).

2.3 Seismic Hazards

Faults have the potential to produce two types of hazards: (1) surface-fault rupture, and (2) earthquake induced seismic ground shaking. This report only addresses the former. There are several faults that have been mapped in the vicinity of the Site. These are discussed below.

2.3.1 Historical Surface Fault Ruptures

The region is seismically active and has experienced several moderate sized earthquakes over the last 50 years. The two most recent earthquakes occurred in November 1987: a magnitude Mw 6.2 on the Elmore Ranch fault, followed by a magnitude Mw 6.6 on the Superstition Hills fault. The Elmore Ranch earthquake preceded the Superstition Hills earthquake by about 12 hours, and ruptured both the Elmore Ranch fault and smaller northeast-trending parallel faults (Hudnut et al., 1989).

The northeast-trending faults extend from the Superstition Hills fault towards the Salton Sea and the SAF system. In the vicinity of the site, they include, from north to south, the Kane Springs fault (KSF), East Kane Spring fault (EKSF), and the Elmore Ranch fault (ERF) (Figure C-3). The ERF is located to the southeast of the Site, while the KSF and EKSF are located to the northwest of the site.

All three of the faults had surface rupture during the 1987 earthquake sequence, with the majority of surface slip occurring along the ERF, and lesser displacement on the EKSF and KSF. The locations of surface rupture are shown in Figure C-3.

The surface displacement along each fault was broadly distributed over a large area rather than concentrated in a narrow zone. The surface ruptures were described as right-stepping, en-echelon and discontinuous. In the case of the KSF and EKSF, the fault ruptures were associated with the doubly-plunging anticlinal domes in the Brawley Formation (Sharp et al., 1989).

2.3.2 Mapped Faults

The ERF, KSF, and EKSF have all been designated by the USGS as active faults in accordance with the Alquist-Priolo Act. The mapped traces are shown in Figure C-3. Following the 1987 earthquake, researchers from the USGS documented surface ruptures along these faults (e.g. Sharp et al., 1989). The mapping also included fault strands that did not rupture during the 1987 events, but which may be active none the less. No fault traces were identified within Section 27 or Section 33, although several of the mapped fault traces project towards these quadrants (Figure C-3).

2.3.2.1 Elmore Ranch Fault

The ERF consists of a left-lateral fault system located to the southeast of the Site. The fault is comprised of three strands: The Elmore Ranch and West Elmore Ranch faults, which form along-strike continuations of each other, and the East Elmore Ranch fault, which branches off of the latter faults approximately three miles to the southwest, and lies approximately one mile to the southeast (Figure C-3). The West Elmore Ranch fault is the closest strand to Section 27, and had significant surface rupture during the 1987 Mw 6.2 Elmore Ranch earthquake. Hudnut and others (1989c) report maximum displacement on the ERF as 130

mm over a rupture length of about 10 km. The fault is located wholly to the south of the considered Sections, and does not project towards the Site.

2.3.2.2 Kane Springs Fault

The KSF is a left-lateral fault located about 1.7 km to the northwest of Section 33 (Figure C-3). The fault truncates a series of doubly dipping anticlines within the Brawley Formation as mapped by Diblee, (1954; Figure C-3). The mapped fault is relatively short, with a total length of about 4 km. Surface rupture along the fault during the 1987 Elmore Ranch earthquake produced displacements up to 28 mm over rupture lengths of about 2 km (Hudnut et al., 1989c). The orientation of the fault is northeast-southwest, and does not project towards the areas of interest.

2.3.2.3 East Kane Springs Fault

The EKSF fault is located to the north of section 33 (Figure C-3). The fault is identified as left lateral, and is mapped as a series of short, right-stepping en-echelon segments. The mapped fault is relatively short, with a length of about 1.5 km. The fault produced surface rupture in the 1987 earthquake sequence; Hudnut and others (1989c) report maximum displacement was 40 mm over a rupture length of about 1.4 km. The orientation of the fault is nearly north-south, and its orientation projects towards Section 33.

2.3.2.4 Unnamed Fault Segments

Additional unnamed faults were identified in the Site vicinity (Sharp et al., 1989; Tremain, 1989). These are described as Quaternary in age, but they did not rupture during the 1987 earthquake sequence. The closest segments are located east of Section 33 / south of Section 27, south of Section 33, and north of Section 33 / west of Section 27. Both fault segments project towards the quadrants of interest.

2.3.2.5 Faults Identified In FEIR

The investigation performed as part of the siting of DVC Units 1-3 documented the presence of three Holocene active fault traces, as shown on Figure C-3. The researchers performed a site investigation to document the limits of fault activity, and eventual siting of facilities were located more than 200 feet from the fault trace (ERC, 1990).

2.3.3 Paleoseismology

Paleoseismology is the study of historical and prehistorical earthquakes. By studying the stratigraphy and identifying cross cutting relationships of sediments within a fault zone, the fault rupture history can be evaluated. Several previous investigations have been performed on the Elmore Ranch fault and the Superstition Hills fault; faults located to the south and east of the Site.

Notably, paleoseismic investigations by Hudnut and others, (1989a) indicate that the penultimate event on the Elmore Ranch fault was approximately 330 years ago. Hudnut and Sieh (1989) and Lindvall et al. (1989) indicate the penultimate event on the Superstition Hills fault was also within the last 330 years. The researchers note that the paleoseismic history for the Elmore Ranch fault and Superstition Hills fault appear

to be temporally linked, such that the 1987 rupture may be indicative of the characteristic mode of rupture for the entire fault system.

2.4 Interpretation Of Aerial Imagery

To perform the screening analysis, we compiled and interpreted available published maps and remotely sensed data in a GIS database. The remotely sensed data included satellite imagery with 15 cm resolution from 2016, and stereo pair aerial photographs from 1954. The published maps included the surface geology (Dibblee, 1954, 2008) and locations of historical surface-fault rupture from the 1987 earthquake (Sharp et al., 1989; USGS/CGS, 2006) (Figure C-3).

For the purposes of the screening study, all of Section 33 and Section 27 were evaluated, since potential faulting may be obscured in one location, but visible in another. Likewise, nearby geological, stratigraphic or geomorphic features may be present that have the potential to preclude the likelihood of faulting within the areas of interest.

The interpretation included an independent assessment of the data to (1) confirm whether the resolution was sufficient to image the previously mapped faults, and (2) identify evidence of other faults that may not have ruptured in the 1987 sequence but which may still be Quaternary activity. Special attention was given to the areas where known fault displacement occurred in 1987, and where the strike of identified fault strands projects towards the areas of interest. The objective of the interpretation was to identify linear features (i.e., lineaments) in the landscape that suggest a tectonic origin

Overall, the desktop interpretation was inconclusive with respect to the presence or absence of surface faulting in Sections 27 and 33. Across much of the area, the ground surface is mantled by young alluvial fan sediments and beach and lacustrine deposits from Lake Cahuilla. The network of alluvial channels and drainages appears to be fairly active, which greatly reduces the preservation potential of older, and perhaps subtler, geomorphic features that indicate faulting. In addition, in many places the northerly trend of the Lake Cahuilla beach ridges is subparallel to the expected fault fabric. While in some locations the linear landscape features can be confidently interpreted as beach ridges and not faulting, in many places they cannot.

Additional sources of uncertainty in identifying faulting at the sites include the potential for small-magnitude displacements, which were documented following the 1986 sequence (e.g., less than 5 cm on the EKSF and KSF), and the discontinuous *en echelon* style of the surface ruptures. Our analysis of aerial photographs and satellite imagery largely corroborates the comments of Sharp et al. (1989) following the fault displacement mapping for the 1987 earthquake:

"Geomorphic expression of the northeast trending faults is muted to absent, for the same reasons that the Superstition Hills fault zone is poorly expressed in the topography. The high rate of erosion in the badlands of the hills, as well as the beveling of the ground below the lake shoreline and the predominance of strike slip in the fault offsets, combine to make scarp formation and preservation unlikely. In many places where slight relief does mark these fault traces, it occurs where sediments of differing lithologies are juxtaposed and can therefore be attributed to differential erosion as well as to past fault movement."

Despite these limitations, we were able to delineate stratigraphic marker beds within limited outcrops of Brawley Formation exposed in and adjacent to the study areas. The lateral extents of individual marker beds can be used to demonstrate absence of faulting in isolated areas, while in other locales they provide constraints on how far previously mapped faults can possibly extend relative to their mapped limits (these constraints apply mostly to Section 27). Where imaged by the satellite data, the Brawley Formation is expressed as alternating planar, light brown to white and dark brown layering with sharp tonal boundaries. At the resolution of the satellite imagery (up to approximately 15 cm), both the tonal contrasts and planar geometry of the bedding allows these intervals to be used as robust strain markers, which are designated on Figure C-4 by dashed black lines.

The apparent lateral continuity of these beds along the east side of Section 27, where they define a northeast-trending outcrop belt, constitutes positive evidence for the absence of faulting in this area. Similar exposures of the Brawley Formation south of Section 27—these strike east-west and are located due east of the existing mono-fill facility—were used to preclude the projections of previously mapped faults into Section 27 from the south. In particular, a roughly half-mile-long, north-trending fault identified in the field by Sharp et al. (1989) was shown in our proposal as possibly projecting north into Section 27. Based on our interpretation of the satellite imagery, the northern admissible limit of this fault can be constrained by a series of closely-spaced beds that are gently folded around the fault tip, but are otherwise continuous (Note: As a sensitivity test, we performed independent mapping of the Sharp et al. [1989] fault using only the imagery. From this test, we were able to identify clear evidence of offset and deformed bedding and shear fabric, and mapped an almost identical fault trace—see Figure C-4).

We are therefore able to eliminate the northward projection of this fault in our geological model of the Site. The same result was obtained for a shorter, northeast-trending fault that was mapped approximately 1,500 feet to the west by Sharp et al. (1989). The along-strike projection of the same stratigraphic interval shows that this fault cannot continue to the northeast at the surface (i.e., into Section 27). Thus, the tentative projection of this fault to the northeast, as shown in our proposal, was removed from the geological model.

Due to a lack of optimally located Brawley Formation outcrops further to the west, we were not able to apply this same technique in Section 33. As part of the screening evaluation, we considered in our proposal the possibility that the EKSF continued south-southwest along one of two trajectories, both of which cross Section 33, to link up with short faults identified in the FER. While we cannot definitively rule out that possibility, structural relationships between the southern termination of the 1986 rupture and a series of east-trending, right-stepping domes mapped by Dibblee (1954) strongly suggests that left slip on the EKSF may be transferred west *via* a restraining step-over or bend. Given the lateral extent of the fold belt, the opposing transfer fault may be located west of Section 33.

3. CONCLUSIONS AND RECOMMENDATIONS

Our literature review and lineament analysis attempted to identify evidence of faulting within the vicinity of the NW quadrant of Section 33, and the SW quadrant of Section 27. Based on our analysis, we cannot conclusively identify the presence of a Holocene active fault within the areas of interest, but at the same time we cannot preclude the presence of such a fault. To satisfy the requirements of SWRCB regulations for siting Class I solid waste facilities, a setback of 200 ft. from any known Holocene active fault must be established. The SWRCB criteria states:

"New units and existing units in Categories I, I', REC, and EX, other than existing land treatment units, shall have a 200-foot setback from any known Holocene fault. Existing units in Categories II-1 and T/S and existing land treatment units may be located within 200 feet of a known Holocene fault, provided that containment structures are capable of withstanding ground accelerations associated with the maximum credible earthquake."

As presented above, our analysis identified 1) several mapped faults that project towards the quadrants of interest; 2) several lineaments that may be fault-related, and more notably, 3) areas where continuous marker beds within the Brawley Formation appear to be un-broken, suggesting positive evidence for the absence of fault displacement in localized areas.

Termination of a specific fault does not eliminate the possibility that other faults may be present in areas where the Brawley Formation bedding is not exposed. The lacustrine silts, beach gravels, and young alluvium that cover most of Sections 33 and 27 provide poor preservation of fault features. For this reason, screening of the proposed sites using geophysical surveys and targeted fault trenching is recommended.

The following recommendations are made to locate and characterize Holocene faults:

- Conduct Phase 2 geophysical surveys of each site along the proposed lines 1 and 2 shown in Figure C-4. Process and interpret the data, identifying any evidence that suggests a fault may be present.
- If a fault is identified from the geophysical data, a fault trenching investigation is recommended to confirm the presence and precise location of the fault. This investigation will support establishment of appropriate setbacks. Up to two 50-ft long trenches may be excavated and documented as part of the Phase 2 studies.

These activities are included in the current scope of work under Phase 2—Site-specific Fault Investigation.

4. REFERENCES

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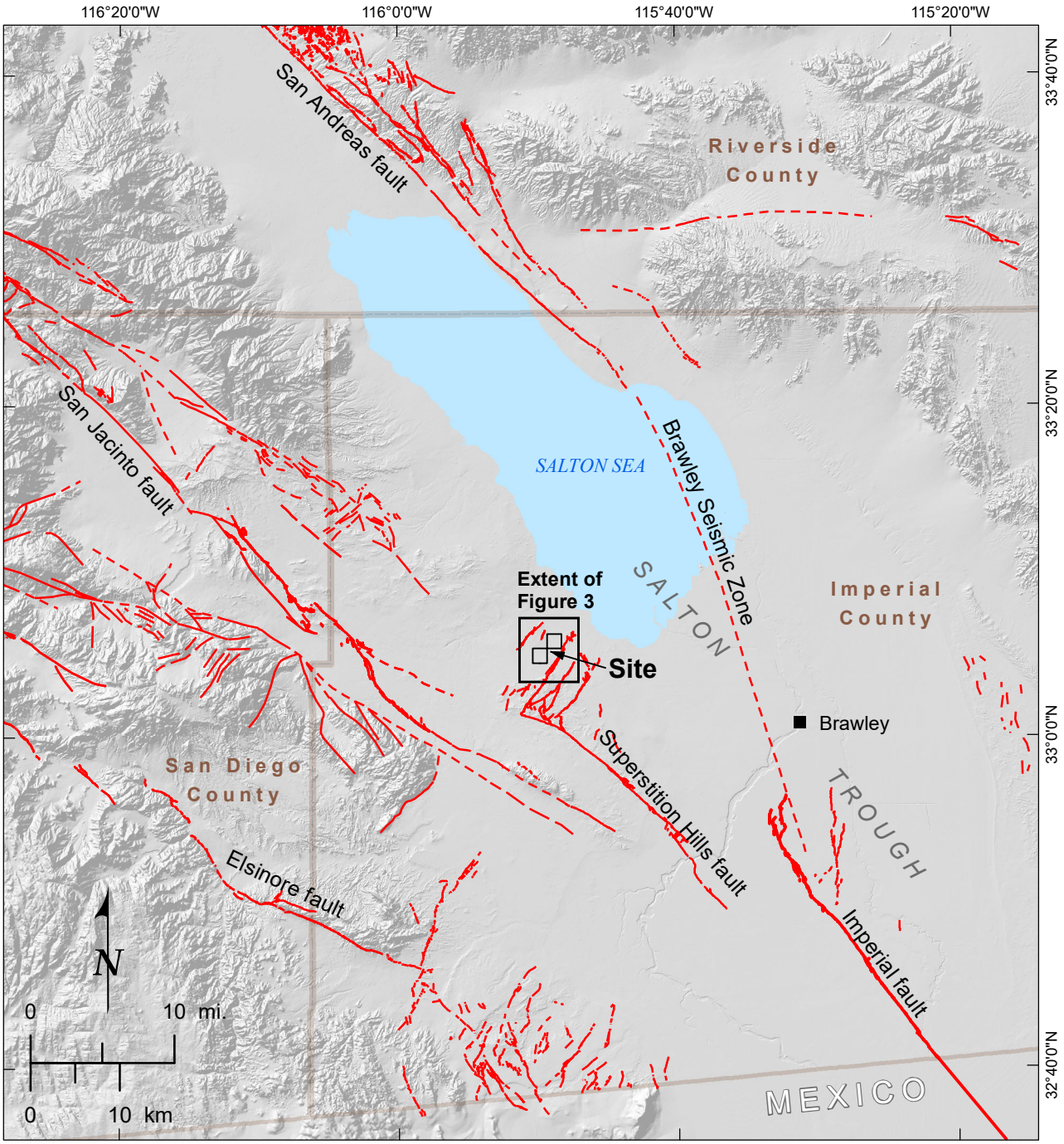


Base map: hillshade from NED 30 m.

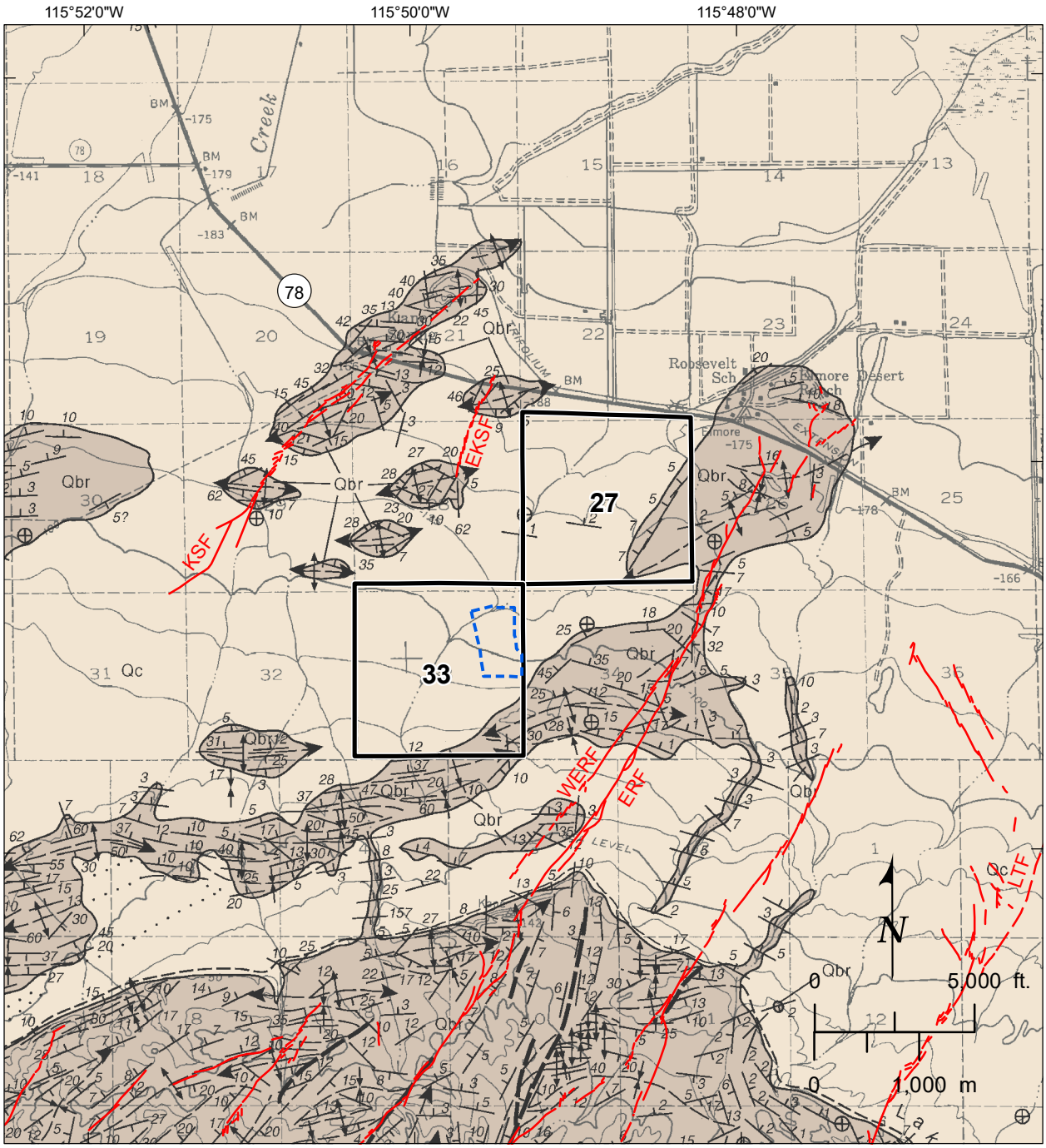
Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

TECTONIC SETTING MAP FIGURE C-1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\1_TectonicSetting.mxd; j.holmberg; 1/12/2018



Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

KSF	Kane Springs Fault
EKSF	East Kane Springs Fault
WERF	West Elmore Ranch Fault
ERF	Elmore Ranch Fault
LTF	Line Tree Fault

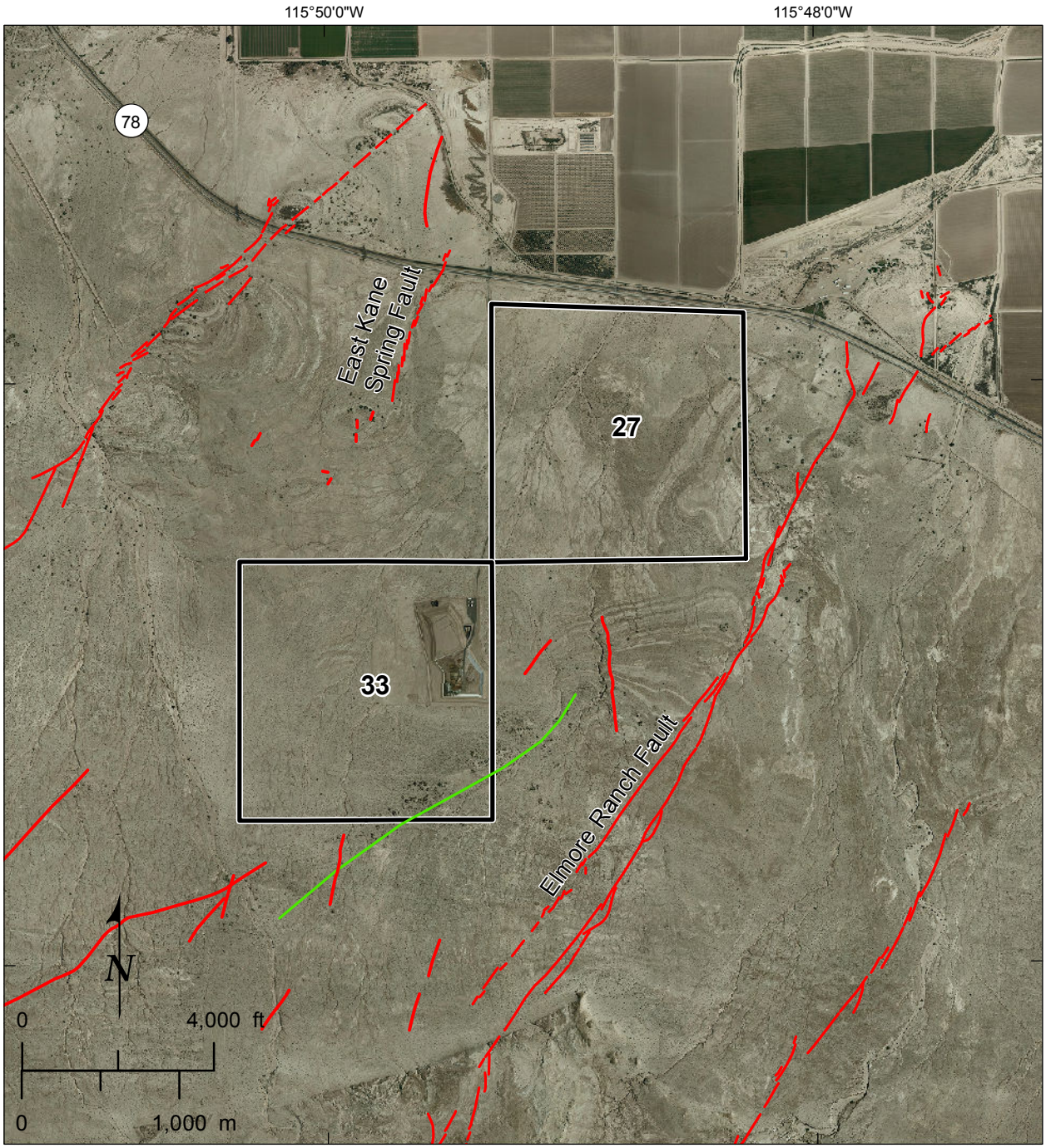
Geologic Units (Dibblee, 1954, 2008)

Qc	Cahuilla Beds; thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla, fossiliferous.
Qbr	Brawley Formation; Lacustrine facies of Ocotillo Conglomerate, up to 2000 feet thick.

- Existing site
- Sections 27 and 33

GEOLOGIC MAP FIGURE C-2

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\2_GeologicMap_Dibblee.mxd; j.holmberg; 1/12/2018



Imagery from Southern California Association of Governments (SCAG), 2011.

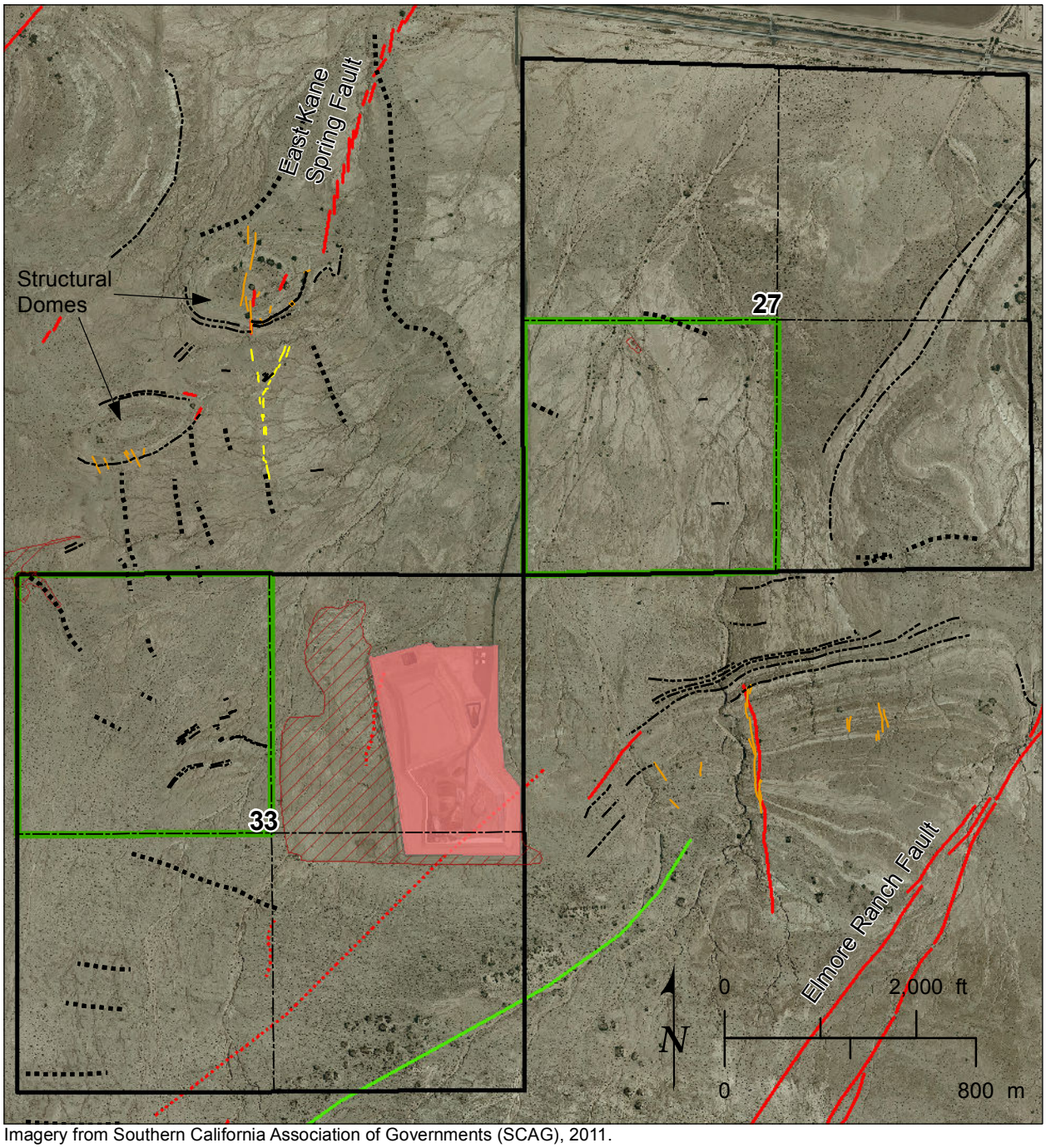
Sections 27 and 33, with quadrants

Historical fault (USGS, 2017; FER 207)

Late Quaternary fault (USGS, 2017)

POST-1987 EARTHQUAKE FAULT RECONNAISSANCE MAP FIGURE C-3

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\3_FaultMap.mxd; m.ticci; 1/12/2018



Imagery from Southern California Association of Governments (SCAG), 2011.

- Beach ridge, Lake Cahuilla
- Bedding in Brawley Formation
- Developed or disturbed area
- Monofill development

Lineaments, this study

- Offset bedding
- Topographic lineament, possible fault
- Quadrant evaluated

- Sections 27 and 33, with quadrants
- Historical fault (USGS, 2017; FER 207)
- Late Quaternary fault (USGS, 2017)
- Buried fault, age unknown (ERC, 1990)

PHOTO-INTERPRETED FAULT AND GEOMORPHIC MAP FIGURE C-4

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\4_Fault_Geomorphic_Map.mxd; m.ticci; 1/12/2018

C-1d Supplement III - Phase II Site Geologic Review

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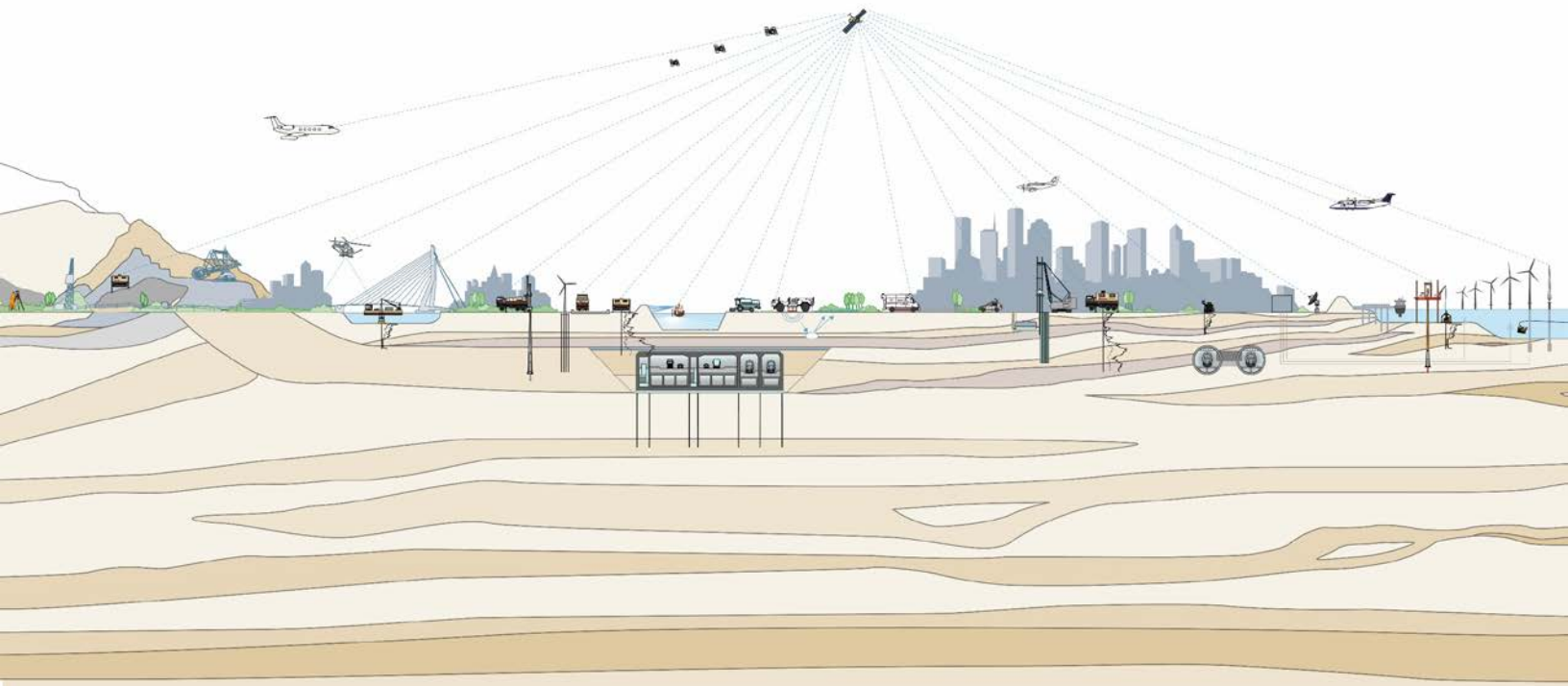
Phase 2: Site Geologic Data Review and 3D Model
Desert Valley Company Monofill
DVC Cell 4 Project
Brawley, California

August 15, 2018
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-003(Rev.A)

CalEnergy Operating Corporation

DRAFT



FUGRO

Phase 2: Site Geologic Data Review and 3D Model
DVC Cell 4 Project
Desert Valley Company Monofill
Brawley, California

August 15, 2018
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-003(Rev.A)

DRAFT

Prepared for:

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

A	Draft	JMS, KAS, JHN	PH	JMS	August 15, 2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

Fugro Project No. 04.72170065
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Attention: Ms. Yanqiu Wu

Phase 2: Site Geologic Data Review and 3D Model
Desert Valley Company (DVC) Monofill, DVC Cell 4 Project
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present this draft review of site geologic data for the proposed Desert Valley Company (DVC) Monofill DVC Cell 4 solid waste facility. This report is one of several Phase 2 siting studies designed to facilitate selection of a viable site for Cell 4. This report details the results of Tasks 6c and 7, field geologic mapping, site geologic data review, and preparation of a site 3D geologic model. The work was authorized under a general services contract between CalEnergy Operating Corporation and Fugro USA Land, Inc., effective October 18, 2017, Change orders 2 and 3, under Purchase Agreement #245885.

The report provides an introduction, a summary of the major findings of the site data review, geologic mapping, and 3D modeling, and recommendations for the next steps toward collecting the geologic data needed for selection of a Cell 4 site footprint.

It has been our pleasure to perform this study for CalEnergy on Phase 2 of the DVC Cell 4 project. We look forward to continuing to serve CalEnergy in future phases of this project. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

Janet Sowers, Ph.D., P.G.
Principal Geologist

Kelley A. Shaw, M.S.
Project Geologist

John H. Niles, M.S.
Senior Staff Geologist

Distribution: One electronic copy to Ms. Yanqiu Wu

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APPENDICES

APPENDIX A - GEOLOGIC FIELD MAPPING REPORT

1. INTRODUCTION

CalEnergy owns and operates the DVC Class II Monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Three cells have thus far been constructed, beginning with Cell 1 in 1990. Cells 1 and 2 have been filled and closed and Cell 3, completed in 2004, is projected to reach its capacity in the year 2025. Proposed Cell 4, with a capacity of at least 1,300,000 cu yd. (same as Cell 3), would need to be operational before Cell 3 can be closed. Cell 3 occupies approximately 20 acres including the surrounding berm, thus a similar acreage is targeted for Cell 4.

CalEnergy owns Section 33 and diagonally adjacent Section 27 (Figure 1), herein referred to as the DVC property. The purpose of the Phase 2 siting studies is to identify a suitable 20-acre site within the DVC property for the construction of Cell 4. Multiple factors are considered in the site selection process, including access, biological and cultural resource impacts, groundwater, water supply, cost, and public acceptance. This report focusses on geologic constraints.

The purpose of this report is to review site-specific existing and newly collected geologic data, compile and interpret these data, and use this understanding to inform site selection for Cell 4. Site geologic data consist of previous geologic investigation reports for Cells 1, 2, and 3 dating from 1988 to 2005, and newly acquired geologic, topographic, and drainage data collected by Fugro in 2018.

1.1 Background

Two primary geologic factors are considered in selecting a site for the proposed Cell 4. These are: (1) the absence of active faulting, and (2) the presence of low permeability strata (e.g., clay layer) beneath the landfill. California State Water Resources Control Board (SWRCB) regulations require that a Class II landfill be set back at least 200-foot from any known Holocene fault. The presence of an active fault within the landfill footprint would constitute a fatal flaw.

The presence of a low permeability strata beneath the landfill reduces the likelihood that leachate from the landfill could contaminate underlying groundwater resources. SWRCB regulations require that a Class II landfill have substantial isolation from ground water. A clay liner with a hydraulic conductivity of no more than $1x10^{-6}$ cm/sec is specified as follows (SWRCB/CIWMB Regulations, Division 2, Title 27):

> *"New and existing Class II landfills or waste piles shall be immediately underlain by natural geologic materials which have a hydraulic conductivity of not more than $1x10^{-6}$ cm/sec (i.e., 1 foot/year) and which are of sufficient thickness to prevent vertical movement of fluid, including waste and leachate, from Units to waters of the state for as long as wastes in such units pose a threat to water quality."*

DVC Cells 1, 2, and 3 were sited over natural clay layers within the Brawley Formation. The presence of similar clay layers is desired for Cell 4. However, a suitable clay liner may be engineered using compacted

clay borrow and synthetic materials. Thus, the lack of a thick clay bed beneath the footprint does not constitute a fatal flaw.

The Phase 1 report (Fugro, 2018a), summarized biologic, cultural, and geologic constraints of the site based on published regional literature, a field cultural resources survey, interpretation of available aerial imagery and topographic data, and review of the environmental impact report for Cells 1 and 2 (ERC, 1990). A summary of the findings of the Phase 1 geologic constraints assessment is provided below, to provide context for the site-specific geologic information that follows.

1.2 Summary of the Phase 1 Geologic Constraints Study

The Phase 1 geological constraints study included a review of the geologic setting based on literature review, an assessment of the presence of Holocene surface faulting based on literature review and desktop mapping of potential fault-related features from aerial imagery and available topographic data.

The DVC property is underlain by the almost flat-lying fine-grained lacustrine sediments of the late Pleistocene to early Holocene Lake Cahuilla deposits, which were deposited on gently folded alluvial and lacustrine sediments of the Pliocene to middle Pleistocene Brawley Formation (Dibblee, 1954, 2008). Both the Brawley Formation and Lake Cahuilla deposits are weakly consolidated and are eroded to form barren to scrub-covered low-relief hills at the site. Tectonic deformation has faulted and gently folded the Brawley Formation, and is expressed as structural domes and ridges that protrude through the Lake Cahuilla deposits to form low hills (Figure 2).

Lake Cahuilla deposits are overlain by a discontinuous cover of gravelly and coarse-grained beach ridge deposits, formed as waves reworked the incoming stream alluvium along the shore of the lake. Parallel bands of beach ridges record the gradual change in the position of the shoreline as early Lake Cahuilla gradually receded. At present, a network of generally north- to northeast-trending washes dissect the landscape, carrying water and sediment northward to the Salton Sea.

Previous workers have documented evidence for active folding and faulting associated with strike-slip motion along the San Jacinto fault, the Superstition Hills fault, and other major plate-boundary faults (Figure 3). Proximal to the DVC property, Hudnut et al. (1989) documented surface ruptures associated with the 1987 Superstition Hills earthquake sequence on both the East Kane Spring and the West Elmore Ranch faults. These faults are northeast-trending, left-lateral cross-faults that likely link major northwest-trending right-lateral faults (Figure 3). The mapped 1987 surface rupture traces are shown in red on Figure 1 along with traces of faults that did not rupture in that earthquake, but were identified by observation of shear zones or stratigraphic displacement.

It is not known whether the scarcity of identified faults in the DVC property is due to the absence of faulting or the or the absence of evidence for faulting due to the lack of adequate exposure. In the site area, faults have been mapped either where 1987 earthquake sequence-related surface ruptures were documented, or where the strata of the Brawley Formation is exposed at the surface and faulting can be observed directly. As most of the DVC property is covered with Holocene alluvium, or Pleistocene to Holocene lake and beach

deposits, evidence for faulting is difficult to establish. In the immediate vicinity of the monofill, the presence of faults was addressed via a fault trenching program conducted for Cells 1, 2, and 3. A number of faults were observed displacing strata of the lake beds, thus were presumed to be active. This information is reviewed and compiled in Section 3.2

1.3 Purpose of the Phase 2 Site Geologic Assessment

This Phase 2 geologic report builds on the context provided by the Phase 1 report, focusing on the compilation and analysis of site-specific data. Some of these data were collected during the geologic and geotechnical investigations conducted for Cells 1, 2, and 3 (e.g., Balderman, 1988, 1989, 2002), and others are new data collected by Fugro in 2018. The new data include LiDAR topographic data, high resolution aerial imagery, drainage delineation, and field geologic mapping observations.

The Phase 2 geologic review focus on potential Cell 4 site areas located near the existing facility as follows: portions of Section 33 immediately north, west, and south of the existing monofill, and southwest quadrant of Section 27 (Figure 1).

2. METHODS

This section details the historical data reviewed, the data collected by Fugro in 2018, and methods of data compilation and analysis applied to obtain the results presented in Section 3.

2.1 Data Review and Compilation

The purpose of the data review was to compile and analyze available historical geologic and geotechnical data collected during the investigations for Cells 1, 2, and 3. A request was made to CalEnergy for these data, and a number documents were provided. Table 1 lists the documents available and reviewed in the preparation of this report. Additional documents may become available in the future. The review consists of a narrative description of the types of data collected and the conclusions presented in the cited reports, with reproductions of key figures.

Table 1. Historical Site Geologic Reports Reviewed

Cell	Citation	Notes
1, 2	Balderman, M. A., 1988, Report of Site Selection and Geologic Exploration, Monofill Project Imperial County, California, prepared for Targhee, Incorporated, Long Beach, CA, 113 pages including figures and oversized plates.	Provided by CalEnergy
1, 2	Balderman, M. A., 1989, Report of geologic investigations, Desert Valley Company Monofill project, Imperial County, California: prepared for Targhee, Incorporated, Long Beach, CA, 257+ pages including appendices of test pit logs, soil tests, boring logs, trench logs, CPT, Well records, water quality analyses.	Provided by CalEnergy
2, 3	Balderman, M. A., 2000, Borrow Area Investigation, Draft Report prepared for Desert Valley Company, 49 pages including map, logs, and cross sections.	Provided by CalEnergy
3	Balderman Consulting, Inc., 2002, Geologic Investigations, proposed Cell 3 area, Desert Valley Company Monofill, Imperial County, California, September 2002, prepared for McDowell & Associates, Midland, Michigan.	Provided by CalEnergy
3	Desert Valley Company, 2015, Joint Technical Document Desert Valley Monofill, Cell III, Revision 2.4, 190 pages, 40 appendices, prepared by RTP Environmental Associates of La Jolla.	Main text was obtained online. The 40 appendices were not available.
1,2	ERC Environmental and Energy Services Co. (ERC), 1990, Desert Valley Company's Monofill Facility Final Environmental Impact Report, Project report No. 89032206.	Previously provided and reviewed in Phase 1 report. Geologic information was summarized from Balderman 1999.

Key geologic data types presented in the historical reports were digitized by Fugro as listed in Table 2. The historical reports employed a facilities grid and reported all locations in coordinates with reference to that grid. Fugro georeferenced a map of this grid from the historical reports to re-create the facilities grid in ArcGIS format. Exploration locations, were then plotted in GIS. The plotted locations corresponded reasonably well with the locations shown on the exploration plan illustrations in the historical reports, such as those shown on Figures 4 and 5. Where locations were slightly different, we assumed the locations plotted from coordinates were more precise.

Table 2. Historical Data Digitized by Fugro

Data Type	Digital Format	Notes
Locations of fault trenches	GIS line shapefile attributed with trench number.	Locations based on reported plant-grid coordinates on plant grid, except the Trench 1 location was digitized based on the disturbed zone visible on the 2018 imagery
Locations of test pits	GIS point shapefile attributed with report citation and test pit number	Locations based on reported plant-grid coordinates
Locations of faults interpreted from trench investigations	GIS line shapefile attributed with report citation. These were traced from Figure 25 of Balderman (2002) (Figure 6)	Faults shown in Balderman, (1989) and ERC (1990) were superseded by the updated faults in Fig 25 of Balderman (2002) (Figure 6)
Locations of boreholes	GIS point shapefile attributed with hole number	Locations based on reported coordinates on borehole logs, or from report figures if coordinates not provided
Locations of wells (monitoring, water, etc.)	GIS point shapefile attributed with well number and type	Locations based on reported coordinates on well logs
Borehole and well stratigraphy	Digital log in gINT format summarizing the major stratigraphic layers and depths	Information was selectively transferred from printed borehole and well logs. Final gINT data were QA checked
Cone penetrometer tests	GIS point shapefile attributed with CPT number	Digitized from Fig 3 of Balderman 2002

2.2 Collection of New Data

Fugro collected several new datasets in the spring and summer of 2018 that provide additional information for siting studies. These datasets include LiDAR and high-resolution aerial imagery for a five square-mile area surrounding the DVC site, delineation of jurisdictional drainages, geophysical survey of line GL-1 in the SW quadrant of Section 27, and field geologic mapping. These datasets are briefly described below.

2.2.1 High Resolution Aerial Imagery and LiDAR Topographic Data

LiDAR topographic data and high-resolution aerial imagery were collected in June of 2018. A hillshade DEM developed from the LiDAR topographic data and showing the aerial extent of the dataset is presented in Figure 7. The topographic data and aerial imagery were added to Fugro's ArcGIS database for use in geologic analyses. Fugro transmitted the LiDAR data, imagery, and associated documentation files to CalEnergy on July 3, 2018 (Fugro, 2018c).

2.2.2 Jurisdictional Delineation

State and Federal regulations protect certain drainages and waterways, termed "jurisdictional drainages," from impacts that affect stream function and habitat. Any alteration of a jurisdictional drainage, including fault trenching, must go through a permitting process before they may be done.

To identify and delineate these jurisdictional drainages, a survey was conducted of Sections 27 and 33. The survey consisted of a combination of field traverses to identify jurisdictional drainages, and mapping of those

drainages in detail in ArcGIS through interpretation of the LiDAR topographic data and high-resolution imagery.

Documentation of the methods and results of the jurisdictional drainage delineation are provided in a separate transmittal. The jurisdictional drainages are shown for a portion of Section 27 in Figure 8.

2.2.3 Geophysical Survey

Geophysical survey was conducted along line GL-1, an east-west oriented line that extended across the SW ¼ of Section 27 (Figure 8), to screen the area for faults, and focus upcoming fault trenching investigations in this potential Cell 4 site area. Shallow seismic reflection imaging along line GL-1shows generally unbroken planar stratigraphy in the imaged depths of approximately 10 to 100 meters. Three locations were identified where the reflectors appear to be displaced on the order of 1-2 meters. Plans are underway to excavate fault trenches across these features to determine whether they are an expression of an active fault. The geophysical survey is documented in Fugro report No. 04.72170065-PR-002, dated April 25, 2018.

2.2.4 Field Geologic Mapping

Prior to field activities, a draft geologic map was prepared in the office by interpreting the 2018 LiDAR and imagery data in ArcGIS. Two Fugro geologists then spent two days in the field checking the map, looking for evidence of active faulting, and documenting the characteristics of the Brawley Formation and Lake Cahuilla deposits where they are exposed in drainage channels. A full report of geologic mapping field activities and findings is provided in Appendix A.

2.3 Compilation of Geologic Map and 3D Model

Historical and new geologic data were compiled in an ArcGIS database for analysis and interpretation. Specific compilations prepared include a geologic map of the DVC area including known or potentially active faults, a contour map of the top of the Qb5 clay layer, and a 3D model of the Cell 1, 2, and 3 area. The methods of preparation are described below.

2.3.1 Preparation of the Surficial Geologic Map of the DVC Area

The surficial geologic map, shown in Figure 9, was compiled at a scale of 1:15,000 In ArcGIS Ver. 10.4.1. The description of geologic units is provided in Table 3. The map is based on the available data at the time of preparation, so should be considered a work-in-progress. As additional data are collected through the life of the project, the map will be updated.

2.3.2 Preparation of the 3D Model of Subsurface Stratigraphy

Eighty-nine logs of borehole, wells and test pits surrounding the DVC Monofill site from previous reports (Balderman 1988, 1989, 2000, 2002) were digitized into gINT (v8i). Information pertaining to the location, elevation, material, consistency, color, and moisture for each layer were added into the program. In addition, top and bottom elevation of each stratigraphic unit (Fill, Qb2-Qb8) was input into gINT, based on cross

sections in the Balderman (2002) report. A quality control check was performed on the digitization process to confirm that the information was entered correctly.

Next, the gINT database was imported into ArcGIS and two shapefiles were created, one for lithology and one for stratigraphy. The lithology shapefile contains material information for each layer (e.g.,clay, silt, sand) and was symbolized based on general material types (e.g., blues for clay, greens for silts, browns for sands). The stratigraphy shapefile contained multiple points per borehole stacked on top of each other, placed at the top elevation of each unit within the Brawley Formation. Five 3D surfaces (tops of Qb2 through Qb7) were created by interpolation between borehole points using the kriging method. These surfaces were projected to the historic ground surface (i.e., pre-landfill) based on the unit contacts found on Balderman's (2002) surficial geologic map. Lastly, the initial interpolated rectangular surfaces were then clipped to where they are constrained with data points.

The final product is a 3D model in ArcGIS format, showing of a set of five north dipping surfaces, each defining the top of a stratigraphic unit, a 3D depiction of the borehole logs showing composition of the units, and a 3D depiction of the present-day ground surface. The model is presented and discussed in Section 3.2.1.

3. RESULTS OF DATA COMPILATION AND ANALYSIS

The results include the review and compilation of the 1988-2002 siting studies and exploration data from the geologic investigations conducted for Cells 1, 2, and 3, permits currently in place for these cells, and the geologic model of the site prepared using the historical data and data collected in 2018. The geologic model consists of the geologic map, a description of the status of fault mapping and assessment, and a 3D stratigraphic model.

3.1 Historical Data Review

This section summarizes and reviews the historical geologic and geotechnical data presented in the reports listed in Table 1. These reports detail the site selection process, the field exploration for DVC cells 1 and 2, the field exploration for Cell 3, and reviews current state and county permits held for the monofill.

3.1.1 The 1988 Site Selection Process for Cells 1 and 2

The 1988 geologic investigation report (Balderman, 1988) was authored by Morris Balderman of Balderman Consulting, Inc. Mr. Balderman was a California Registered Geologist and Certified Engineering Geologist. The report describes the site selection process and the geologic exploration of the preferred site location. It details the two long trenches that were excavated in Section 33. The locations of faults exposed in these trenches helped inform the choice between two candidate sites for Cells 1 and 2 within Section 33.

The work began with identifying site selection criteria (Balderman, 1988). These criteria included the requirements of the State of California as well as considerations of the availability and access to candidate properties, and whether the site could be developed in a timely manner and could be operated economically. California Code of Regulations, Title 23, Section 2530 lists siting criteria for Class I and II landfills. They are:

1. Unit must be underlain by natural geologic materials having permeability of 10^{-6} cm/sec or less (e.g., clay), or an equivalent liner system. Clay is present in large quantities in the lake beds of the Imperial Valley, thus areas underlain by lake beds were targeted in the search.
2. Units must be located outside the area of the 100-year flood.
3. Units must have a 200-foot setback from any known Holocene fault. (Holocene faults were addressed at every step in the siting process.
4. Units must be designed, constructed and maintained to preclude failure from tidal waves. Tidal waves are unlikely, except along the shore of the Salton Sea, an area which would also be eliminated by the groundwater depth requirement in item 5 below.
5. Waste shall be a minimum of 5 feet above the highest anticipated ground water level. With the exception of areas near the shore of the Salton Sea, groundwater levels are deeper than 5 feet throughout the Imperial Valley)
6. Site must not be subject to rapid geological change.
7. No impact to significant cultural features, rare and endangered species, sensitive or unique habitats. (Candidate sites were generally similar in these characteristics).

A number of practical and economic siting criteria were also applied, as follows:

1. Relatively short haul distance from the waste source,
2. Areas of vacant land so as to avoid conflicting land use,
3. Privately owned property that can be purchased,
4. Minimal length of new road required,
5. Minimal number and size of washes to be crossed, and
6. Minimal need for right-of-way agreements.

Holocene faulting was addressed at the outset of the site-selection process. The initial screening identified faults that had been previously recognized in Imperial County, and specifically in the area between the Salton Sea and the Superstition Hills. In this area, five privately-owned parcels, one square mile each were identified, and field geologic mapping of these parcels was conducted. Studies soon focused on the square mile that comprised Section 33. Figure 10 shows the pre-development appearance of the Section 33 area in a 1950 aerial photograph.

In Section 33, Two long trenches were excavated to screen for Holocene faults. Trench 1 was 1,590 feet long and located in the far northern part of Section 33; Trench 2 was 1,110 feet long and located in the northeastern part of Section 33 (Figure 4). The trenches were sited in areas where clay deposits were observed close to the surface in surface exposures, test pits and bucket auger holes. Trench 1 encountered several faults and many fractures; thus, this area was rejected in favor of the area near Trench 2, which encountered faulting only in the far western end of the trench. Additional trenches were excavated to determine the extent of these faults.

The northeast quarter of Section 33 was chosen as the preferred location. It was found to best meet all requirement for site selection, including the lack of active faults. In addition, this area had the following positive attributes:

1. It is closest to the highway and existing roads, reducing cost and environmental impact.
2. It is well removed from the Area of Critical Environmental Concern at San Sebastian Marsh (along San Felipe Creek, currently designated critical pupfish habitat).
3. The productive habitat in Section 33 is confined to the hill area in the southeast quadrant.
4. The hill area in the southeast quadrant diverts the natural drainage thus minimizes runoff potential at the monofill.

Cells 1 and 2 were sited so as to avoid an active fault that had been identified through fault trenching (See Section 3.1.3), and to overlie a thick clay bed later designated as Qb2 (Balderman, 2002).

3.1.2 Siting of Cell 3

The Cell 3 site was identified through exploration activities that took place in 1997, focused on the area immediately south of Cells 1 and 2 (Balderman, 2002). The Cell 3 area was chosen mainly by the presence of the thick clay bed (Qb5) and the absence of Holocene faults. The western boundary represents the

required 200-foot setback from an active fault identified through fault trench investigations. The eastern boundary represents the eastern extent of the thick clay facies of unit Qb5. The northern boundary abuts Cells 1 and 2, and the southern boundary appears to be arbitrary and set to provide the desired acreage for the disposal area.

3.1.3 Geologic Investigations for Cells 1, 2, and 3

Detailed geologic investigations were conducted for Cells 1, 2, and 3 by Morris Balderman. The results were presented in several reports, listed in Table 1. The report for Cell 3 (Balderman, 2002) incorporates much of the data from the Cell 1 and 2 investigations into the discussion and analysis of the Cell 3 data (Balderman, 1988 1989, and 2000). The results of the combined exploration program for all three cells is presented in this section.

The exploration program consisted of borings, monitoring wells, neutron tubes, cone penetrometer tests, test pits, and fault trenches as listed in Table 3 and shown on Figure 11. Explorations conducted in support of Cells 1 and 2 are documented in Balderman reports dated 1988 and 1989; those conducted in support of Cell 3 are documented in reports dated 2000 and 2002.

Table 3. Geotechnical Exploration for Cells 1, 2, and 3

Type	Count	Designations	Completed in	Reported in
Boreholes	12	B1 through B12	1988	Balderman, 1988
	4	DV2, DV3	1989	Balderman, 1989
	6	DV126 through DV131	1999	Balderman, 2000
	30	DV101 through DV125	1997-2002	Balderman, 2002
Monitoring wells and piezometers	4	W01 through W04	1989	Balderman, 1989
	6	W06, W08 through W12	1991	Balderman, 2002
	6	W301 through W306	1999	Balderman, 2002
Water supply well	1	Monofill water well	1991	Balderman, 2002
Neutron tube	6	Z1 through Z6	1991	Balderman, 2002
CPT	24?	CPT1 through CPT22 FC 28, FC29? (missing data)	1989	Balderman, 1989
Test pits	9	T1 through T9	1988	Balderman, 1988
	4	T10 through T13	1989	Balderman, 1989
	6	R-1 through R-6*	1989	Balderman, 1989
	7	T106 through T112	1993	Balderman, 2000
Fault trenches	2	TR1, TR2	1988	Balderman, 1988
	3	TR3, TR4, TR5	1989	Balderman, 1989
	7	TR8, TR106, TR107, TR108, TR112, TR113, TR114	1988-1993	Balderman, 2002
	19	TR201 through TR219	1997-2002	Balderman, 2002
*Located along access road				

3.1.3.1 Fault trenching

As described in the previous section, Trenches TR1 and TR2 were excavated in 1988 as part of the initial screening study for Cell 1 and 2 site selection (Figure 11, Figure 12). The site was selected in large part

based on fault features observed in these two trenches. Several faults and many fractures were identified in TR1, whereas TR2 showed a lack of faulting in the central and eastern portions. Thus the site for Cells 1 and 2 was placed in the TR2 area.

Additional investigation was done to delineate the fault exposed in the west end of TR2. In 1989, three additional trenches, TR3, TR4, and TR5, were excavated to trace the fault north and south of the exposure in TR2, and to define fault length. Balderman (1989) reports that the fault on the west end of TR2 "can be recognized by subtle surface features where the Brawley Formation is exposed between Trenches 3 and 4…" "The fault is a disturbed zone several feet across that appears to be nearly vertical and has an average strike of N10°E." Comparisons between borings B-1 and B-3 indicate that the beds on the west side of the fault are about 20 feet lower than their equivalents on the east (Balderman, 1988).

In addition, the presence of a fault on the east side of the site was suggested by a lack of correlation in CPT profiles. A trench was excavated and a series of small breaks identified that together were interpreted as a fault zone with east-side-down displacement and a strike of N12°W. Cells 1 and 2 were sited to accommodate a 200-foot setback from the faults on the east and west sides (Figure 12).

Siting studies for Cell 3 included an extensive program of fault trenching, as shown on Figures 5 and 11 (Balderman 2002, Figure 4). The west-side faults that had been identified in the Cells 1 and 2 area were tracked to the south and additional faults were identified (Figure 6; Balderman, 2002, Figure 25). the western margin of Cell 3 was defined by a 200-foot setback from faults identified in these trenches. The main area of Cell 3 was cleared of active faulting.

3.1.3.2 Boreholes

The borehole program for Cells 1, 2, and 3 enabled geologists to establish a site stratigraphy and interpret geologic structure, to determine foundation and groundwater conditions, and to delineate the thickness and depth of clay layers. Clay layers were significant for use as borrow material for the clay liner, and to leave in-place as a natural barrier between the base of the landfill and the groundwater. Cone penetrometer tests were employed as a rapid and cost-efficient way to track stratigraphic layers between boreholes.

Cells 1 and 2 were sited over clay layer Qb2, a 10- to 28-foot-thick layer of silty clay classified as CH. This unit is exposed at the surface west of Cells1 and 2, and dips northeastward to underlie the cell footprints. The exposed area of unit Qb2 was excavated for borrow material to create the compacted clay liner for these cells.

Cell 3 was sited over unit Qb5, a massive clay classified as CH, which occurs as a layer 10 to 14 feet thick under the Cell 3 footprint. This unit is exposed at the surface to the west of Cell 3, and was excavated as borrow material for construction of this cell.

The position of the eastern margin of Cell 3 was constrained by a lateral facies change in unit Qb5 from the thick clay found beneath the cell, to a fine to medium sand east of the cell. A cross section drawn from SW to NE through boreholes illustrates this facies change (Figure 13). Balderman (2002) interprets the

relationship between the clay and the sand as reflection of the paleoenvironment during the deposition of unit Qb5. The thickening of the clay toward the northeast indicates that the clay was deposited in a lagoon or small embayment within the much larger lake. The body of eolian sand, likely a sand dune, apparently bounded the northeastern side of the lagoon or embayment. The interfingering of the sand and clay near the facies change represents variations through time in the boundary between the lagoon or embayment and the dune.

3.1.4 Current Permitted Areas

DVC currently holds three permits for the current monofill facility (Table 4). The conditional use permit (CUP) covers water use in all of Section 33. The solid waste facility permit (SWP) and the Board Order cover a total of 181.5 acres, which includes the NE quarter of Section 33 plus a small area of the SE quarter of Section 33 currently used by Cell 3 (Figure 14). This area includes the entirety of the current facility and the disturbed area on the west side. The permitted area for disposal, 28.9 acres, consists of the footprint of Cells 1, 2, and 3 within their perimeter berms.

Table 4. Current Permits Held by DVC

Permitting Agency	Permit Type	Permittee and date	Acreage, Description
Imperial County Planning and Development Services Department	Conditional Use Permit for a Class II solid waste monofill facility #CUP 05-0020	Desert Valley Company December 2005	640 acres, or all of Section 33
Imperial County Public Health Department	Solid Waste Facility Permit #13-AA-0022	Desert Valley Company September 2015	181.5 acres total 28.9 acres disposal
California Regional Water Quality Control Board, Colorado River Basin	Board Order #R7-2016-0016	Desert Valley Company June 2016	181.5 acres total 28.9 acres disposal

3.2 Geologic Model of the Cells 1, 2, and 3 Area

To have a clearer view of potential siting constraints for proposed Cell 4, the existing data generated during siting and exploration studies for Cells 1, 2, and 3 were compiled to create a geologic model. The model consists of (1) a geologic map of Sections 27, 28, 33, and 34, (2) a 3D depiction of borehole stratigraphy and (3) a 2D depiction of known faults. The process for development of the 3D stratigraphic model is described in preceding section 2.3.2. The model depicts the stratigraphic boundaries between sedimentary layers in the Brawley Formation that were defined by Balderman (2002) and identified in boreholes and surface geologic mapping. In addition to the 3D stratigraphic model, a 2D depiction of known active faults is presented along with a discussion of known active faults.

3.2.1 Geologic Map

The geologic map, presented in Figure 9, provides a plan view of the distribution of geologic units at the surface and known faults at a scale of 1:15,000. The extent includes the DVC property plus adjoining sections 28 and 34. This map illustrates the stratigraphic and geomorphic relationships among the mapped units, including the Brawley Formation, Lake Cahuilla deposits, Holocene alluvial deposits, and eolian

deposits. The mapped geologic units are described in Appendix A. The detailed scale of this map provides a higher resolution delineation of units relative to earlier mapping by Dibblee (2009) (Figure 2), and Balderman (1988) (Figure 4). The map also includes confirmed locations of known faults based on review of the published literature, geologic investigations for Cells 1, 2, and 3, and 2018 field mapping.

3.2.2 3D Stratigraphic Model

The purpose of the 3D stratigraphic model is to help visualize the geometry of stratigraphic units at depth in the current monofill area where they are delineated in detail in borehole logs. Then, utilize the geologic understanding and visualization to assess the likelihood that clay layers similar to those that underlie Cells 1, 2, and 3 may underlie potential sites for Cell 4. This section describes the stratigraphy and geometry of the clay beds beneath the site, and refers to three views of the 3D model, presented in Figures 15, 16, and 17. Note that the model exaggerates the true dip angle of the beds by applying a 5X vertical exaggeration. Actual bedding dips are less than 10 degrees.

The 3D model depicts the planar surfaces at the contact between units on a framework of simplified borehole logs. Thus the colored surfaces separate the individual geologic units. Clay unit Qb2 occurs between the teal and green surfaces and clay unit Qb5 occurs between the blue and purple surfaces. Note that the borehole logs within these units are colored dark blue to indicate the borehole encountered clay in this interval.

The stratigraphic units of the Brawley Formation defined by Balderman (2002) at the current monofill site include two thick clay layers, Qb2 and Qb5, which are interbedded with relatively coarser deposits comprising units Qb1, Qb3, Qb4, Qb6, and Qb7. The characteristics of the beds reflect alternating changes in depositional environments through the time of deposition. Conditions alternated between lacustrine, fluvial, and aeolian environments. The thick clay units indicate deposition in very still water of a lagoon or embayment isolated from significant coarse alluvial deposition.

Unit Qb5 exhibits an important change in composition from clay to sand at the eastern edge of the monofill. View B (Figure 16). The clay of Qb5 seen in the boreholes under Cell 3, transitions to sand in boreholes to the east. As discussed in section 3.1.3.2, a body of eolian sand, likely a sand dune or ramp, apparently bounded the northeastern side of the lagoon or embayment. View B of the 3D model clearly shows this facies change.

At the monofill site, the beds of the Brawley Formation generally dip to the north with gentle undulations resulting from tectonic deformation. Unit Qb2 is the younger clay layer and underlies Cells 1 and 2. Unit Qb5 is a somewhat older clay unit and underlies Cell 3. Both outcrop to the west of the monofill where they were quarried for borrow to construct the clay liner of each cell. Additional borrow was used for the cap of Cells 1 and 2. The disturbed area shown on the geologic map (Figure 9) reflects the excavation, backfill and grading from these activities.

Based on the 3D model, some idea of the likelihood of the occurrence of clay layer Qb2 or Qb5 can be made. The model provides good evidence of the presence of a clay layer in the subsurface in potential Cell

4 sites immediately north or west of the existing monofill. Either Qb2 or Qb5 should be present. The area south of the monofill, however, is underlain by stratigraphically older units that were not characterized by the previous investigations. The presence of a clay layer beneath this area is not yet known. In the southwest quadrant of Section 27, the model does not indicate with adequate precision whether either the Qb2 or the Qb5 may occur beneath the surface at appropriate depths. The Section 27 area is some distance from the area of known exploration and the underlying geologic structure is unclear. Based on the dip of beds in outcrops in Section 34, both Qb2 and Qb5 likely underlie this area, but may occur at depths below the groundwater table. No data have yet been collected on the stratigraphic units younger than Qb2 that may occur at more shallow depth.

3.2.3 Model of Active Faulting

As reviewed in Section 1.2, the site is located in a tectonically active area, and a number of faults have been identified at the site on the basis of fault trenching, geologic mapping, and most recently, geophysical survey. Major active faults located to the northwest and southeast of Sections 27 and 33 experienced surface rupture in the 1987 Superstition Hills earthquake (Figure 1). No 1987 surface rupture was documented in either Section 27 or 33. Faults discovered at the site were judged active on the basis of their displacement of Late Pleistocene to Holocene sediments. In general, the faults thus far documented in trenches and washes are considered to be minor faults with small displacements and do not constitute major tectonic elements of the Superstition Hills fault system.

During the data review, the evidence for each fault was reviewed. The map in Figure 12 shows the location of all faults in Section 33 whose presence and extent were well supported by field observations of trenches or wash exposures. Faults are numbered on the map and described below.

Faults 1 through 5 were documented in Trench 1, excavated for the initial site selection study (Balderman, 1988). The faults are described as steeply dipping to vertical with displacement of bedding of less than two feet. Also present in Trench 1 were a number of fractures and disturbed zones that did not show displacement of beds consistent with faulting. These may have formed as a result of strong ground shaking. The presence of these faults and fractures led to the elimination of this area as a potential site for the monofill (Balderman, 1988).

Fault 6 was documented in Trench 2, also excavated for the initial site selection study. It was the only fault identified in this trench at the time (Balderman, 1988). In 1989, additional trenches constrained the lateral extent of this fault and identified a second parallel fault, Fault 7 (Balderman, 1989). A 200-foot setback from Fault 7 established the western margin of Cells 1 and 2.

Faults 8 and 9 were identified during the fault trenching investigations conducted for the siting of Cell 3 (Balderman, 2002). The presence of Fault 9 constrained the western margin of Cell 3. The southern extent of Fault 8 was not investigated.

Fault 10 was identified in an incised wash draining northward along the east side of Section 33 (Balderman, 2002). The fault trends N 30W. It was not observed in Trench 219 which was located about 250 feet south of the wash exposure. Trenches on the east side of the monofill did not encounter other faults.

Fault 11 was identified in an incised wash to the southwest of the monofill, during the initial siting investigations (Balderman, 1988). The northern and southern extensions of this fault were not visible due to soil cover.

Fault 12 was identified in an incised wash during Fugro's 2018 field mapping. This fault is described as a one-foot wide zone with several parallel traces, having a 1.4-foot cumulative displacement of the Lake Cahuilla beds (Appendix A, Photo 6A). The fault could be traced a short distance across the surface to the south, but could not be traced north of the wash due to soil cover.

A fault that had been shown on early published maps and adopted for the 1988 Geologic map of Section 33 (Figure 4) has been subsequently reevaluated and removed. This fault is shown in a dashed line on Figure 4, trending northeast and marked "(FAULT FROM U.S.G.S.)." Balderman (2002) did not encounter this fault in the trenching investigation for Cell 3, therefore did not show it on the geologic structure map for Cell 3 (Figure 6). The most recent map published by the U. S. Geological Survey and the California Geological Survey (SGS/CGS, 2006) does not include it. Based on the work of Balderman (2002) and the USGS/CGS (2006), this presence of this fault is not supported by current data, thus the fault is not included on geologic maps for this project (Figure 12).

In summary, all faults that have been identified in Section 33 were documented in trench exposures or incised washes. They were recognized on the basis of vertically displaced bedding of generally less than one meter. Evidence to quantify lateral displacement was not present. Some faults could be traced across the ground surface for a limited distance, but generally faults could not be recognized across the surface in Section 33, possibly due to soil cover. In areas trenched extensively for the monofill, individual faults were laterally discontinuous. Insufficient data exist to establish whether they may continue in an enechelon pattern.

The relatively small displacements and lack of surficial expression suggest the faults thus far identified are minor faults and do not constitute major tectonic elements of the larger fault system. None were observed to have ruptured in the 1987 Superstition Hills earthquake. Nonetheless, they should be presumed capable of future surface rupture.

4. DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

This review of geologic information gathered by previous site investigations of 1988 through 2002 and data gathered in 2018 focuses on the potential for surface faulting, and on the subsurface location and extent of major clay beds.

Surface faults were identified based primarily on fault trenching investigations conducted for Cells 1, 2, and 3, are potentially present elsewhere within the CalEnergy property (Sections 27 and 33) based on the presence of active faults nearby, and the lack of good geologic exposures on the site (Figure 1). Siting studies for Cell 4 are tasked with identifying and delineating active faults so that the cell can be sited to maintain the required 200-foot setback from any active fault.

Previous studies provide useful background information on geologic conditions and a framework for understanding geologic issues for evaluating potential sites for Cell 4. However, they do not provide specific information with which to evaluate the presence of active faults in the potential Cell 4 sites. The lack of good exposure of stratigraphic units by which fault displacement can be evaluated results in a lack of information except where a fault trench has been excavated to expose these contacts, or where a drainage has eroded to reveal them. In Section 4.2 below, we recommend a screening level geophysical survey to identify potential fault locations within the area under study for the siting of Cell 4, followed by a targeted fault trenching investigation.

The presence of a thick clay bed to serve as a groundwater barrier at depth beneath the cell and as borrow material at the surface, is an important consideration in Cell 4 siting. The geologic model shows that the geometry of clay beds Qb2 and Qb5 is well documented beneath Cells 1, 2, and 3, and most likely can be reliably traced to the immediate west and northwest of the monofill along the strike of the bedding.

To the south of Cell 3, the strata of the Brawley Formation are older than Qb5 and their composition is not known, except for a single borehole located on the southern margin of Cell 3. Based on field description of Brawley Formation strata in Section 34 to the east (Appendix A, Figures A-1 and A-2) clay may be present similar to the clay observed at Field Stop 1, however subsurface exploration would be required to determine the depth and thickness of this or any other clay layers in a site located to the south of Cell 3.

In the southwest quadrant of Section 27, clay layer Qb2 would likely be too deep (i.e. below the groundwater table), based on the northward dip of the bedding. The composition of the strata overlying Qb2 is not known. Again, subsurface exploration would be required to determine the depth and thickness of clay layers in Section 27.

4.2 Recommendations for Completing the Geologic Siting Assessment

Due to the time required for permitting fault trenches that cross jurisdictional drainages, and the time and expense required to conduct screening-level fault trenching (i.e. many long trenches), we propose to rely on geophysical survey as the initial screening tool to identify areas of potential active faults. Based on the

results of Fugro's 2018 seismic reflection survey of line GL-1 in Section 27, the method is capable of imaging planar reflectors in the subsurface with a resolution of 0.5 meters. Reflectors represent stratigraphic contacts observed in the geophysical profile, and they may be interpreted as continuous (un-faulted) or displaced (faulted).

Geophysical surveys would be followed closely by fault trenching studies to evaluate specific areas where potential faults have been identified in the geophysical profiles. By limiting trenches to specific targets, trench length may be constrained to minimize the need for excavations that impact jurisdictional drainages. For example, the geophysical results for line GL-1 showed continuous planar reflectors over most of the line. Three locations show displaced reflectors (displacements of 1-2 meters) that indicate potential faulting. Two fault trenches have been marked in the field to investigate these features and determine whether they represent active faults. Neither crosses a jurisdictional drainage.

A geophysical survey can also provide excellent information on geologic structure, and can help track specific beds in the subsurface across the property. This can be especially helpful in correlating clay beds from one area to another.

A proposed layout for a screening-level geophysical campaign is presented in Figure 18. The campaign consists of seven lines comprising a total of 5,594 meters (18,353 feet) of survey line, focusing on the areas north, west, and south of the existing monofill in Section 33, and the southwest quadrant of Section 27.

To summarize, the following field investigations and analyses are recommended:

1. Conduct a screening-level geophysical campaign to identify potential faults and establish the depth and location of subsurface clay beds within potential Cell 4 site areas.
2. Based on interpretation of the geophysical data, identify possible fault trench locations, avoiding jurisdictional drainages where possible.
3. Conduct fault trenching investigations in three phases.
    a. The first phase will consist of the two trenches currently identified in Section 27 from geophysical line GL-1 (Figure 19). These trench investigations may be conducted concurrently with or in advance of the geophysical campaign. The results of from these trenches will help understand how faults imaged at depth in a geophysical profile may appear in a trench exposure.
    b. The second phase will consist of trenches identified on the basis of interpretation of the additional geophysical lines, and will include only those trenches that can be sited to avoid jurisdictional drainages.
    c. The third phase, if needed, will consist of trenches that cross jurisdictional drainages thus require additional lead time to allow for permitting.
4. Drill two boreholes, each approximately 150 feet deep, as shown on Figure 18. The boreholes will be logged to note the presence and thickness of clay layers, correlate lithologic units to the stratigraphic sequence established by Balderman (2002), and document groundwater levels. Collect samples of clay for conductivity testing. A geophysical log will also be run in the borehole to determine the seismic

velocity profile of the subsurface materials. Seismic velocities will enable the seismic reflection profiles to be adjusted to correctly indicate the depths of the reflectors.

5. Use the borehole and geophysical data to define the 3D geologic model to show key bedding contacts (e.g., tops of clay layers) as they occur beneath the candidate Cell 4 sites.

Once completed, the above program will provide key geologic information needed to select a site footprint for Cell 4.

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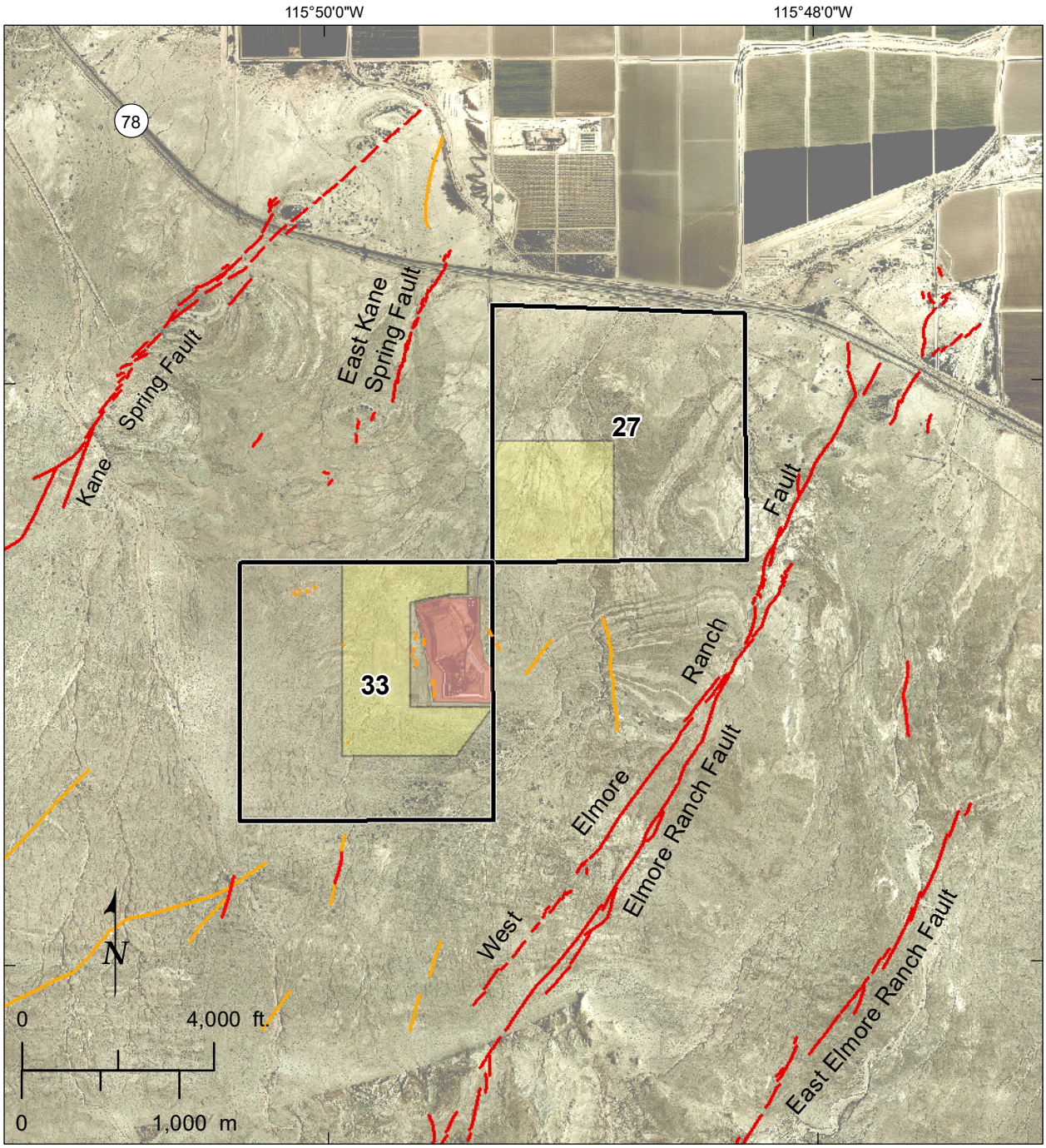
FIGURES



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

Existing monofill

DVC Property showing section numbers

Primary areas under study for siting of Cell 4

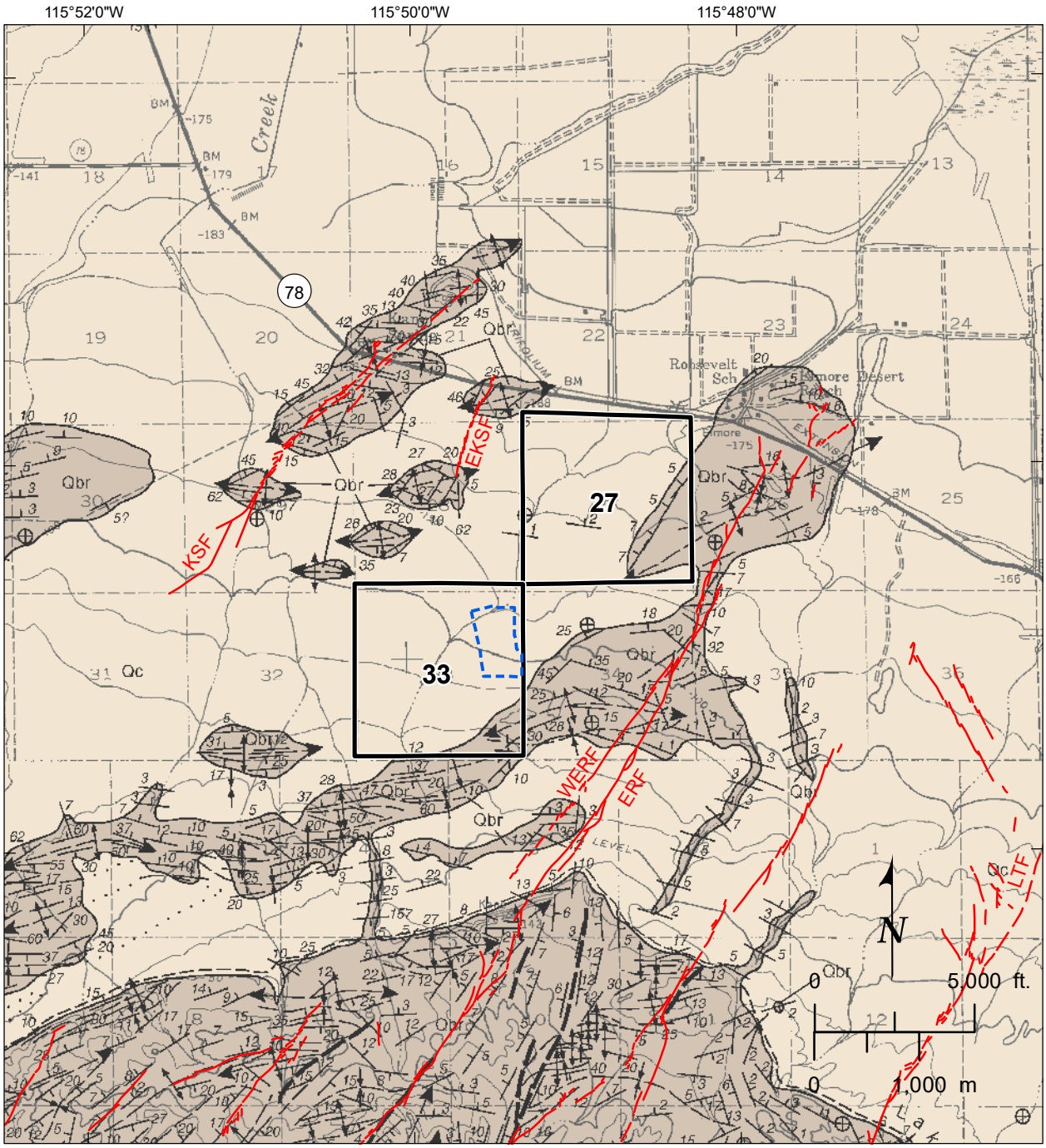
Faults

Historical fault, 1987 rupture (USGS/CGS, 2006; Treimen, 1989)

Late Quaternary fault without 1987 rupture (Sharp et al., 1989, Balderman, 2002.)

SITE LOCATION SHOWING KNOWN FAULTS FIGURE 1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\01_D-25_FaultMap.mxd; j.holmberg; 8/16/2018



Legend

Faults (USGS/CGS, 2006)

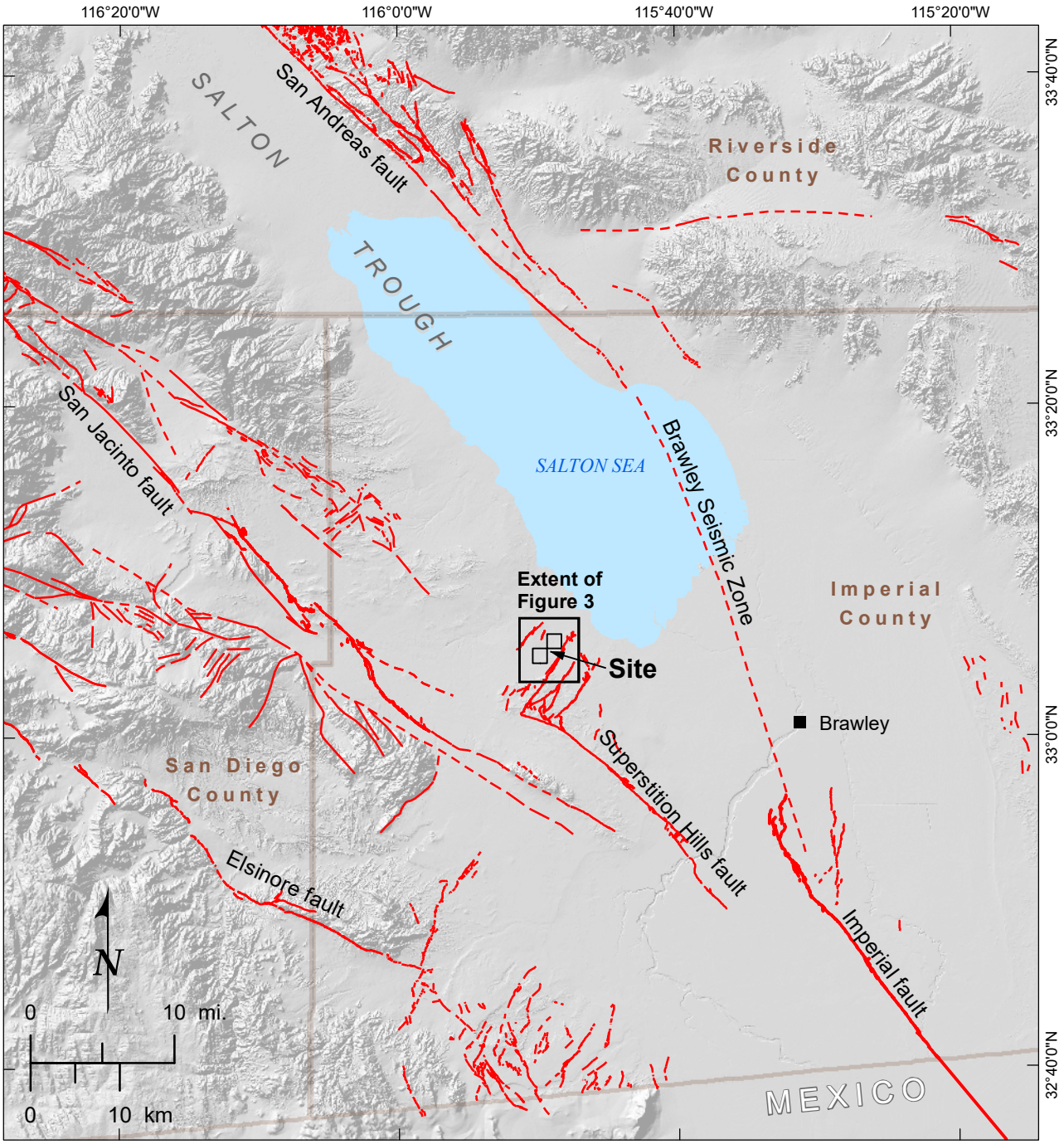
- Well Constrained
- Moderately Constrained
- Inferred
- KSF — Kane Springs Fault
- EKSF — East Kane Springs Fault
- WERF — West Elmore Ranch Fault
- ERF — Elmore Ranch Fault
- LTF — Line Tree Fault

Geologic Units (Dibblee, 1954, 2008)

- Qc — Cahuilla Beds; thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla, fossiliferous.
- Qbr — Brawley Formation; Lacustrine facies of Ocotillo Conglomerate, up to 2000 feet thick.
- Existing monofill
- Sections 27 and 33

GEOLOGIC MAP OF VICINITY FIGURE 2

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\02_D-24_GeologicMap_Dibblee.mxd; j.holmberg; 8/16/2018



Base map: hillshade from NED 30 m.

Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

TECTONIC SETTING MAP FIGURE 3

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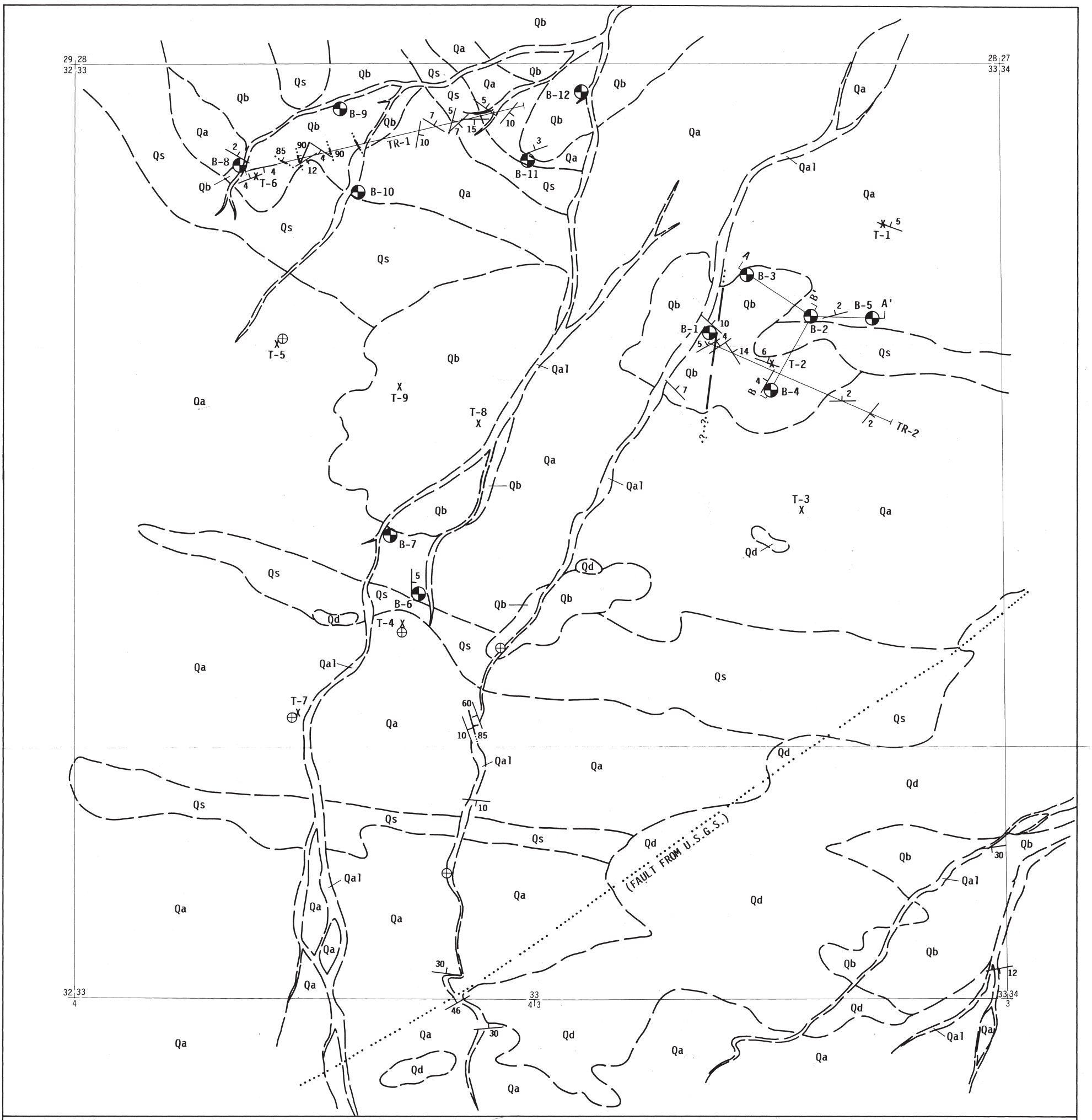

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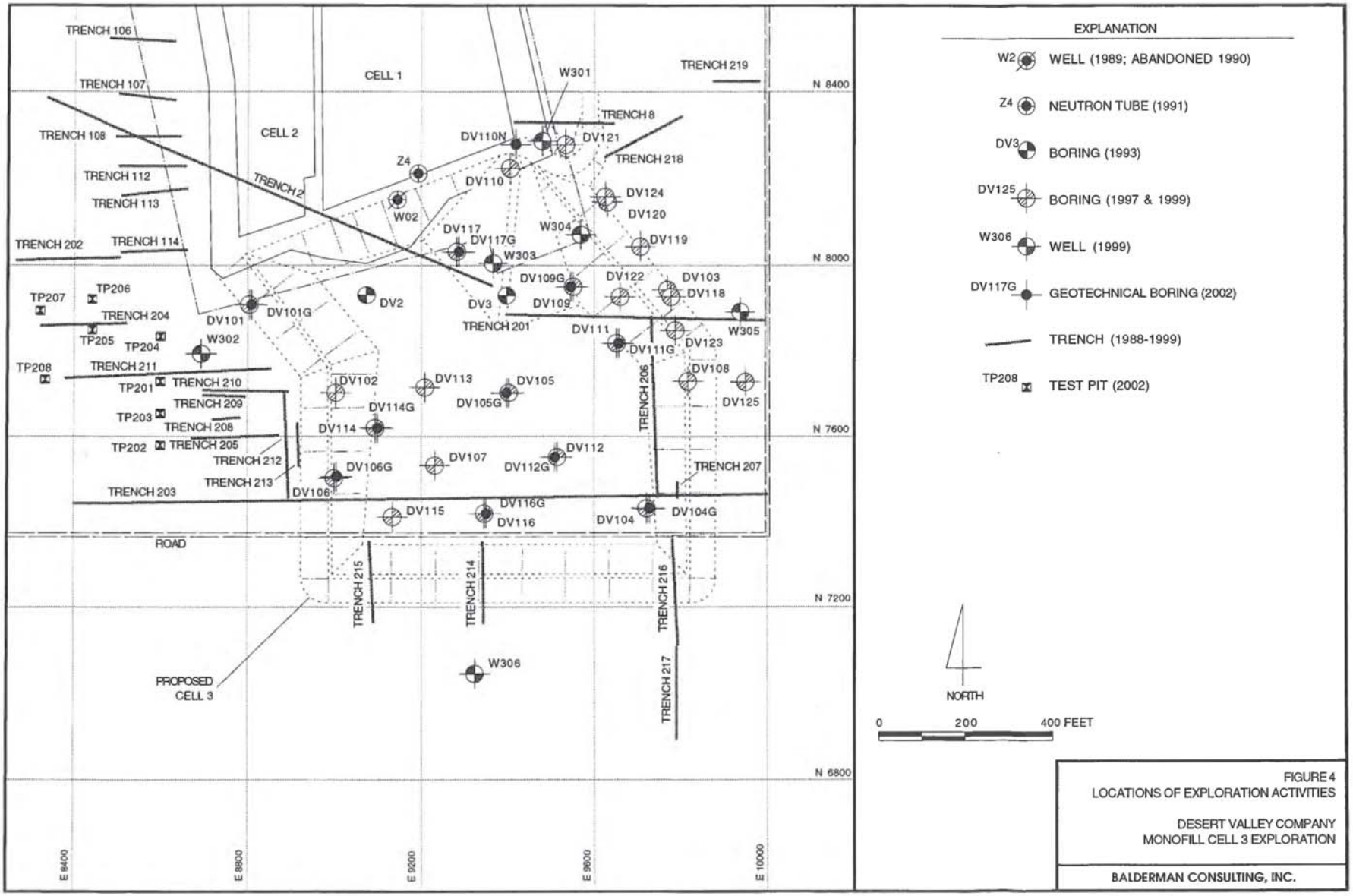
GEOLOGIC MAP
SECTION 33, T12S/R11E

PROJECT NAME: MONOFILL
PROJECT NO.: TI88-100
DATE: OCTOBER 1988 | FIGURE 8

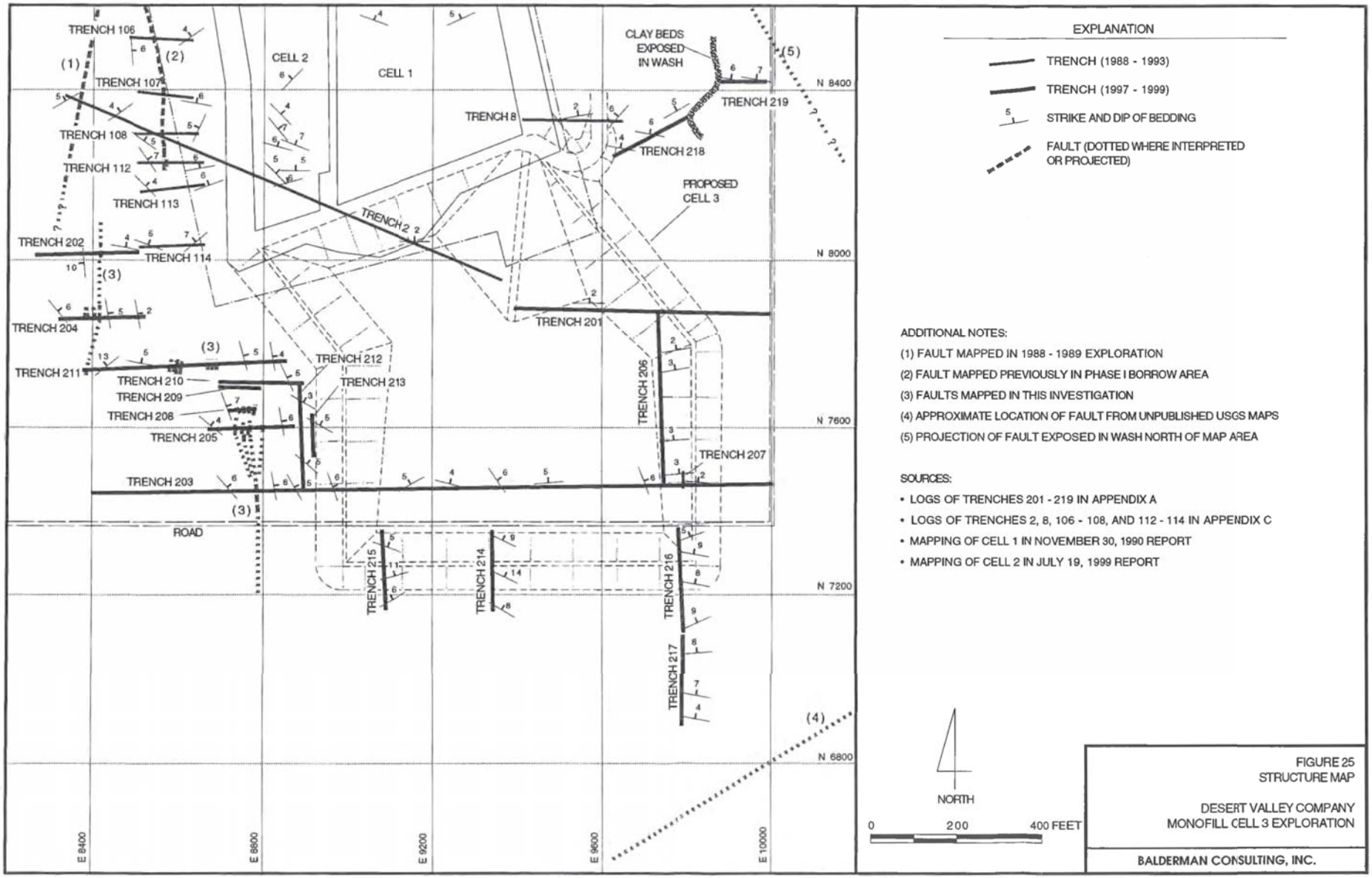
Source: Balderman, 1988.

1988 GEOLOGIC MAP OF SECTION 33 FIGURE 4



Source: Balderman, 2002.

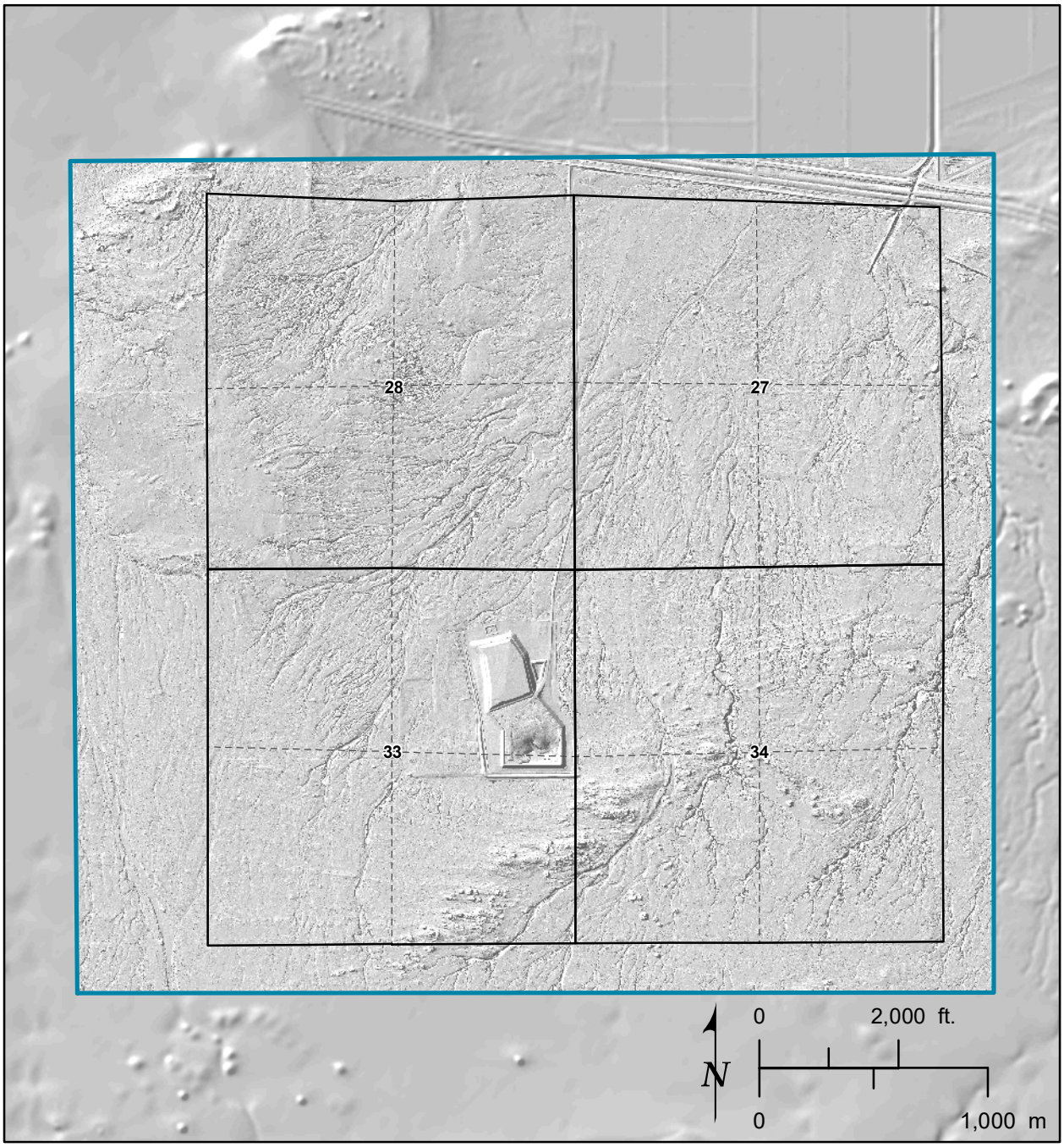
GEOLOGIC EXPLORATION FOR CELL 3, 1993-1999 FIGURE 5



Source: Balderman, 2002.

GEOLOGIC STRUCTURE OF THE CELL 3 SITE FIGURE 6

fwla-wc-file1/Project/Projects/72_0000/72_170065_CalEnergy_DVC_Cell4/05_Graphics/Site_Geology_Review/ 06(D-40)_Structure_Cell_3.ai Wednesday, August 15 2018 16:08:57



Legend

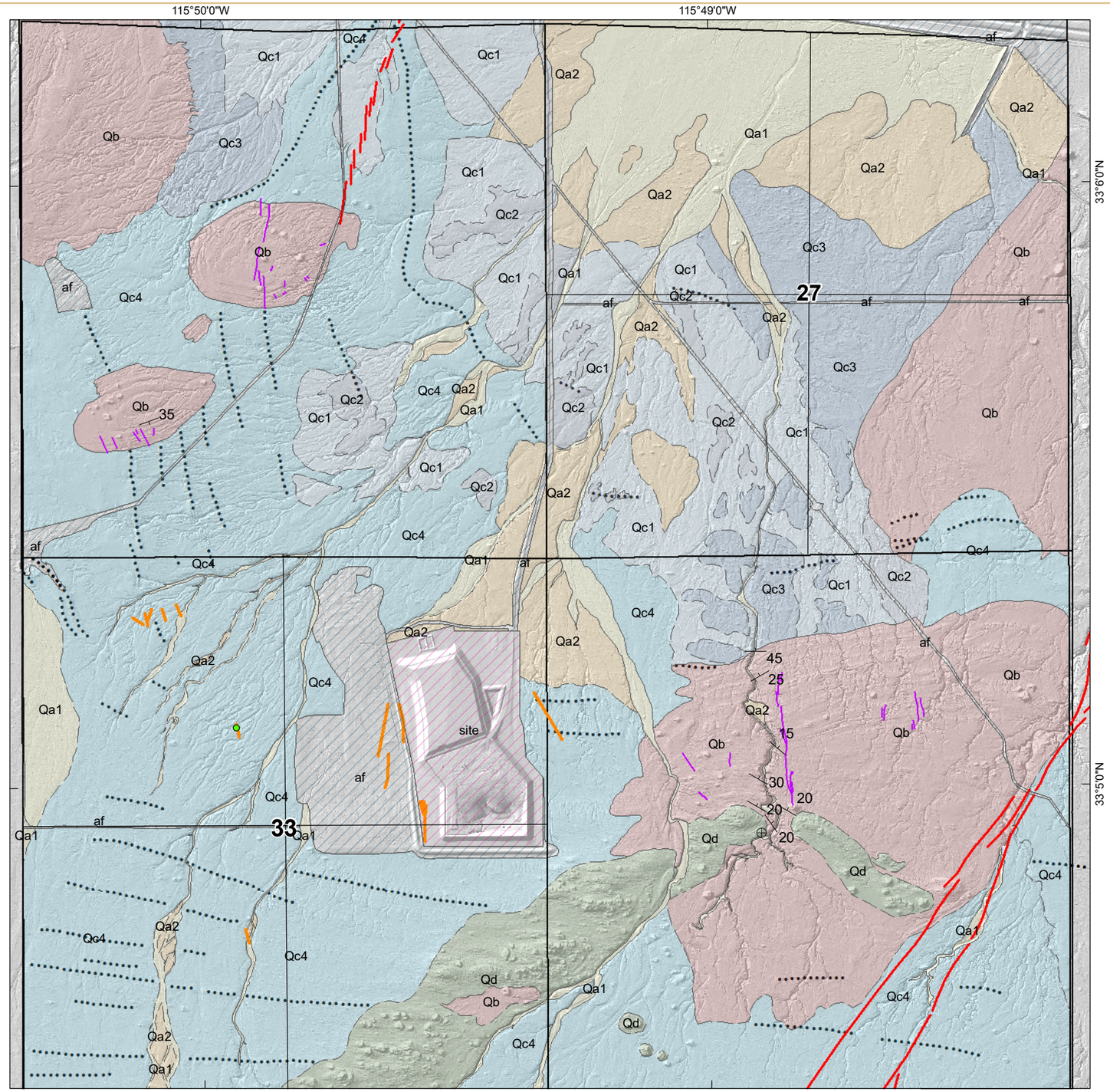
Section, with quadrants

Extent of Fugro (2018c) LiDAR and imagery data.
Hillshade image shown is a representation of LiDAR data.

EXTENT OF 2018 LIDAR AND IMAGERY DATA FIGURE 7

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\07_D-19_LiDAR_Extent.mxd; j.holmberg; 8/15/2018

Figure 8: Geophysical Line GL-1 Showing Proposed Fault Trenches contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.



Legend

Geologic Units

- DVC Cell 1, 2, 3
- af — Disturbed ground
- Qa1 — Active channel and alluvial fan deposits
- Qa2 — Inactive alluvial fan and terrace deposits
- Qc1 — Lake Cahuilla Deposits - light gray silt
- Qc2 — Lake Cahuilla Deposits - sand
- Qc3 — Lake Cahuilla Deposits - tan silt
- Qc4 — Lake Cahuilla Deposits - silt and sands with beach ridges
- Qd — Aeolian deposits
- Qb — Brawley Formation

Bedding Attitude

- ⊕ Horizontal
- 25 Inclined (labeled with dip)

Faults

- Late Quaternary (this study)
- Active, historic rupture (Treiman, 1989 and USGS/CGS, 2006)
- F3 — Active (Balderman, 2002, and this study)

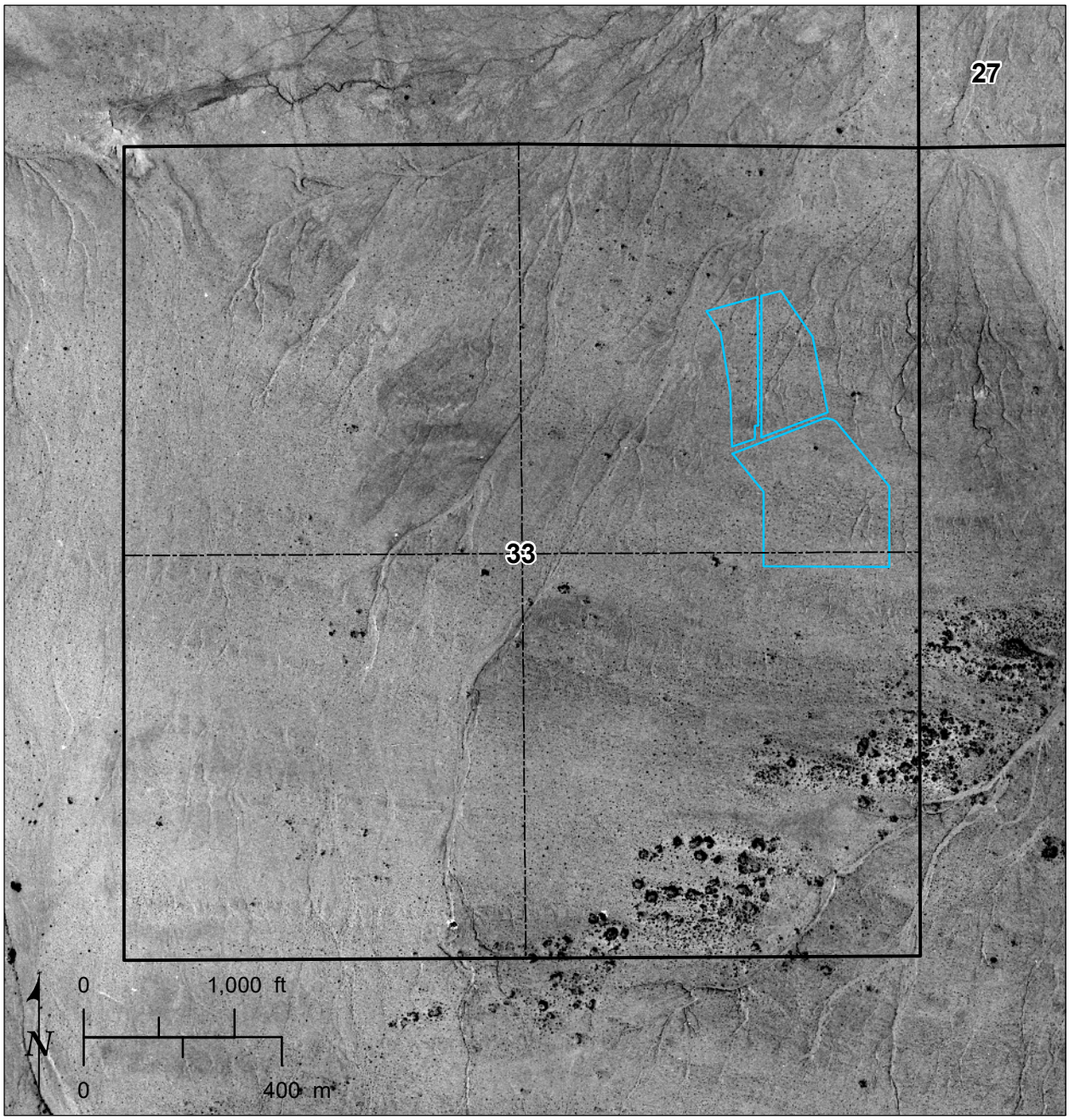
- Beach ridges, Lake Cahuilla
- 5-ft. topographic contour (Fugro 2018, LiDAR)
- Sections 27 and 33, with quadrants

0 2,000 ft.
0 500 m
N

SURFICIAL GEOLOGIC MAP

FIGURE 9

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\09_D-22_Surficial Geologic Map.mxd; j.holmberg; 8/16/2018



Imagery from University of California, Santa Barbara (C-15152 5-26).

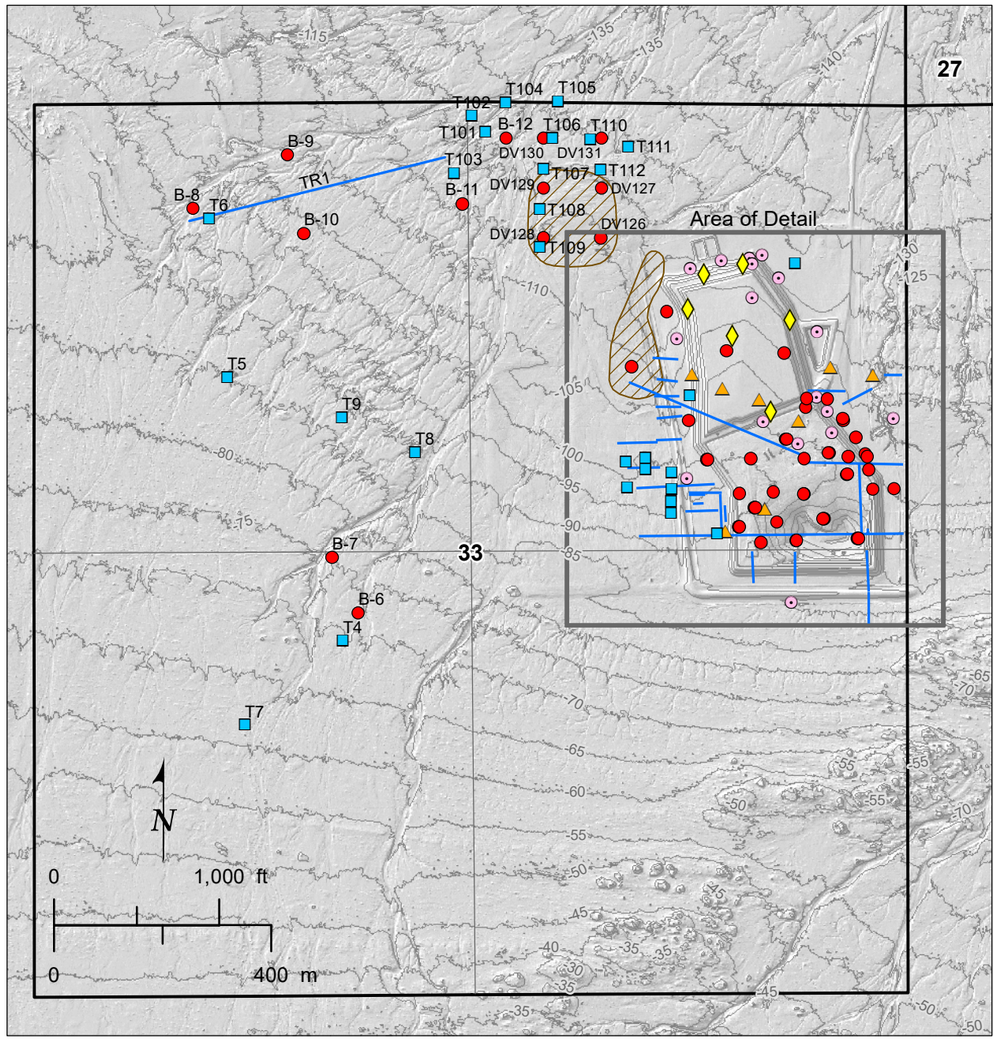
Legend

Section owned by CalEnergy, with quadrants

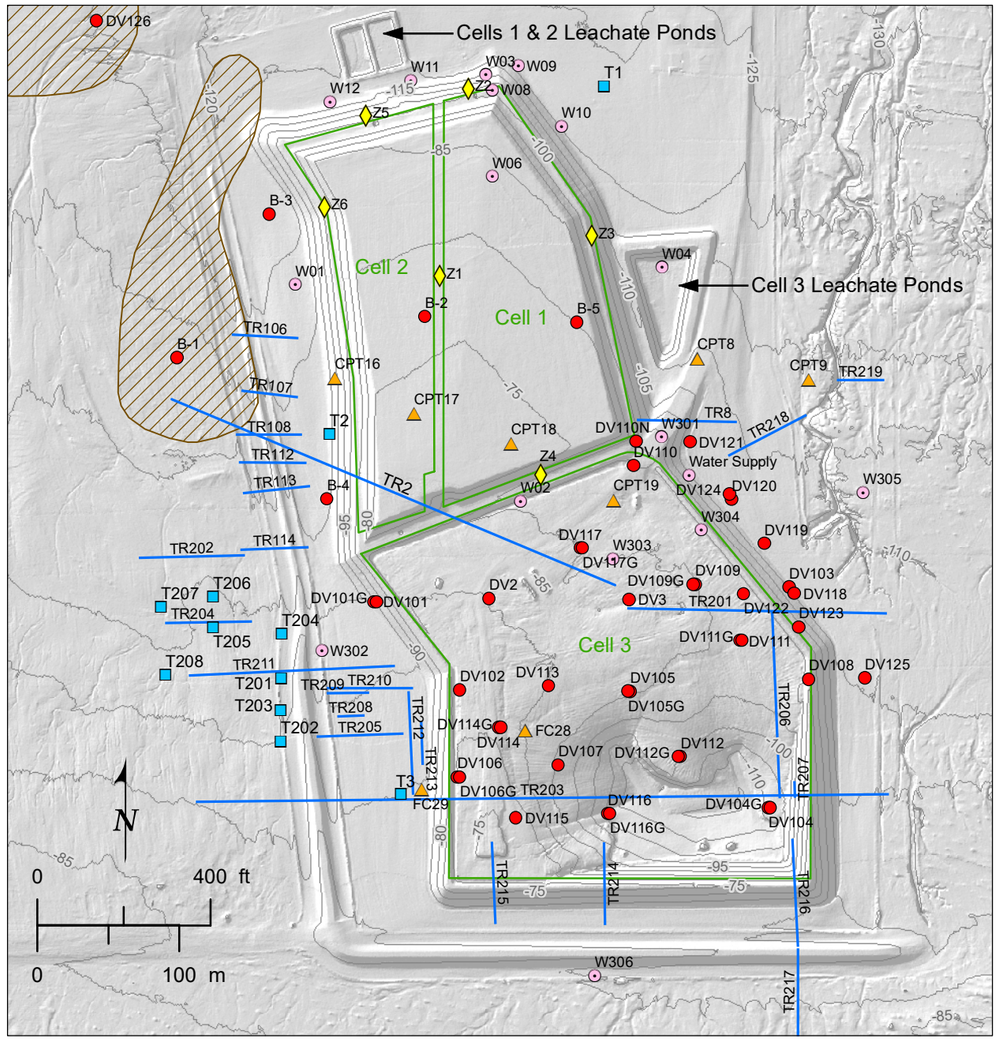
DVC monofill facility

HISTORICAL AERIAL IMAGERY OF SECTION 33, 1950 FIGURE 10

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\10_D-35_Historical_Aerial.mxd; j.holmberg; 8/15/2018



A. Overview of Site Exploration



B. Detail of Monofill Area

Legend

Approximate borrow areas for Cells 1 and 2

Section owned by CalEnergy, with quadrants

5-foot interval topographic contour (Fugro, 2018 LiDAR)

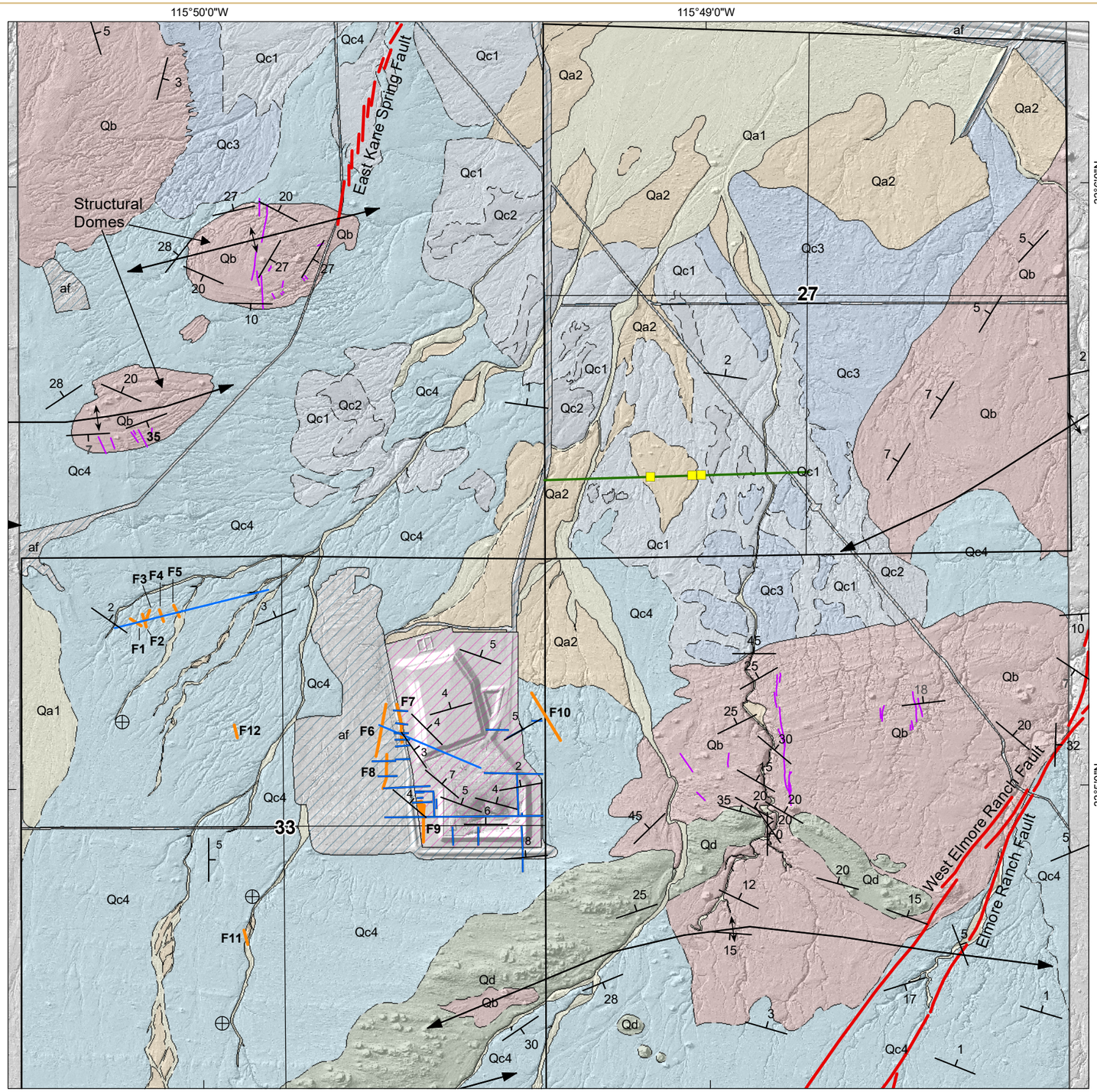
Past Explorations, 1988-2002

- Test pit
- Boring
- Neutron tube
- Well
- CPT
- Trench

Hillshade base from Fugro 2018 LiDAR.
See Table 4 for source information.

HISTORICAL SITE DATA AND INVESTIGATIONS

FIGURE 11



Legend

- Seismic lineament projection
- Horizontal bedding (Balderman, 2002)
- 27 — Strike/dip measurement (Balderman, 2002; Dibblee, 2008; this study)
- Anticline showing directions of plunge (Dibblee, 2008)
- Trench (Balderman, 1988 and 2002)
- Geophysical line (Fugro, 2018b)

Faults

- Historical fault, 1987 rupture (USGS/CGS, 2006; Treimen, 1989)
- F3 — Active fault, number keyed to text (Balderman, 2002 and this study)
- Quaternary fault (this study)

- DVC Cells 1, 2, 3

Geologic Units (this study)

- af — Disturbed ground
- Qa1 — Active channel and alluvial fan deposits
- Qa2 — Inactive alluvial fan and terrace deposits

Lake Cahuilla Deposits

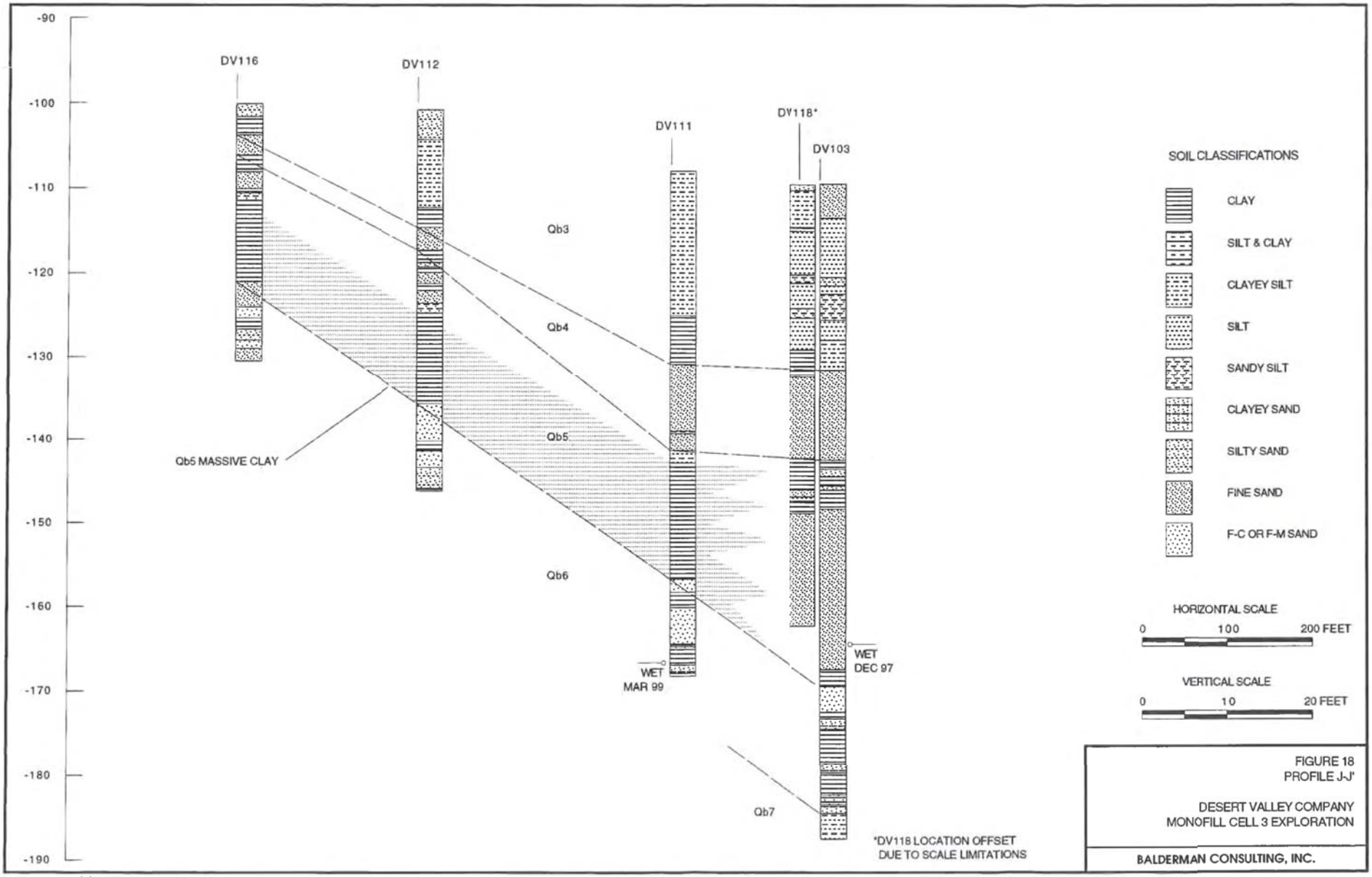
- Qc1 — Light gray silt
- Qc2 — Sand
- Qc3 — Tan silt
- Qc4 — Silt and sands with beach ridges
- Qd — Aeolian deposits
- Qb — Brawley Formation

0 1,000 ft.
0 400 m
N

GEOLOGIC STRUCTURE AND FAULTS

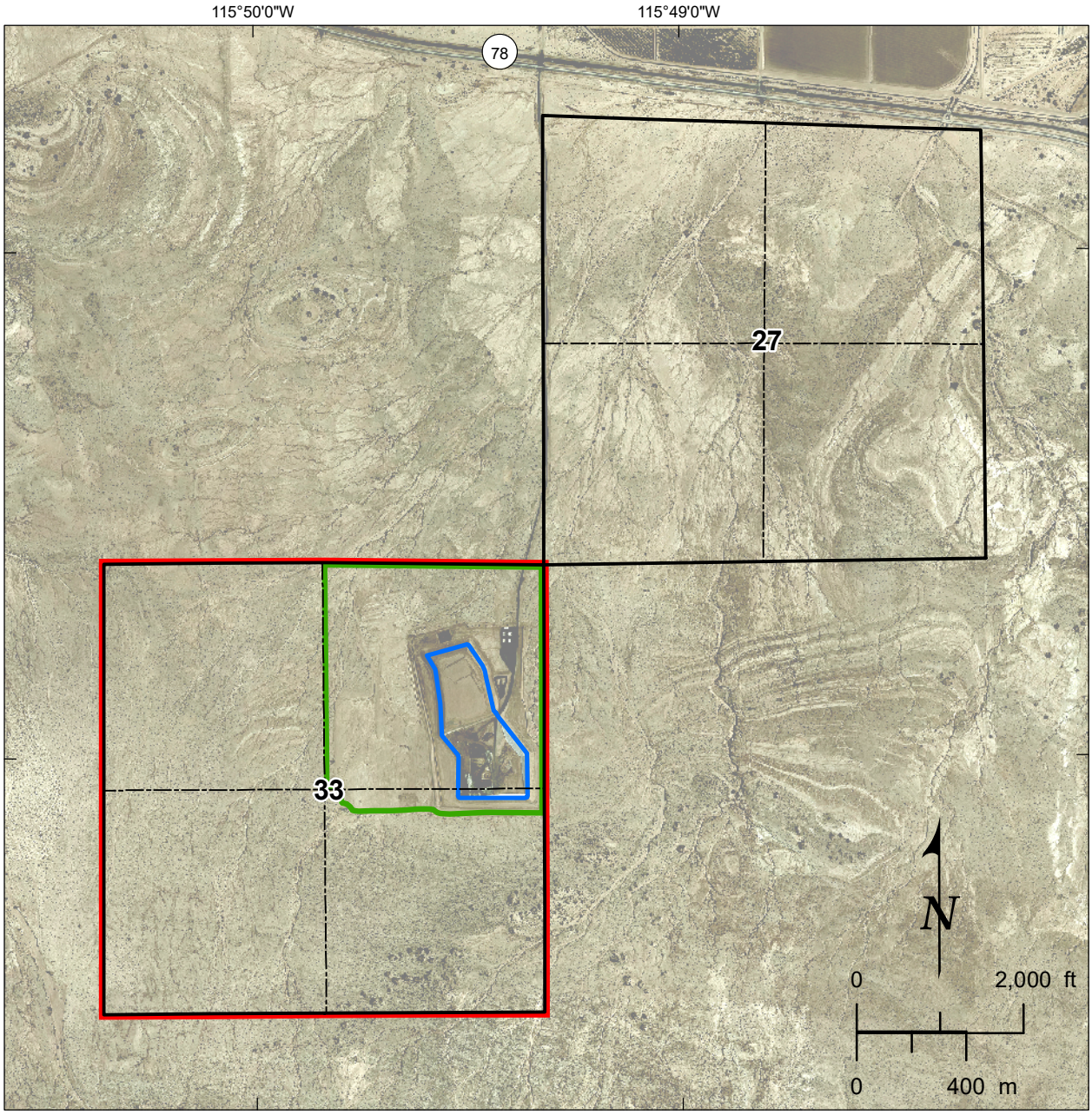
FIGURE 12

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\12_D-34_Geologic Structure and Faults.mxd; j.holmberg; 8/15/2018



Source: Balderman, 2002.

CROSS-SECTION J-J' SHOWING FACIES CHANGE IN UNIT QB5 FIGURE 13



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

Sections owned by CalEnergy, with quadrants

Conditional Use Permit, 2005 (640 acres)

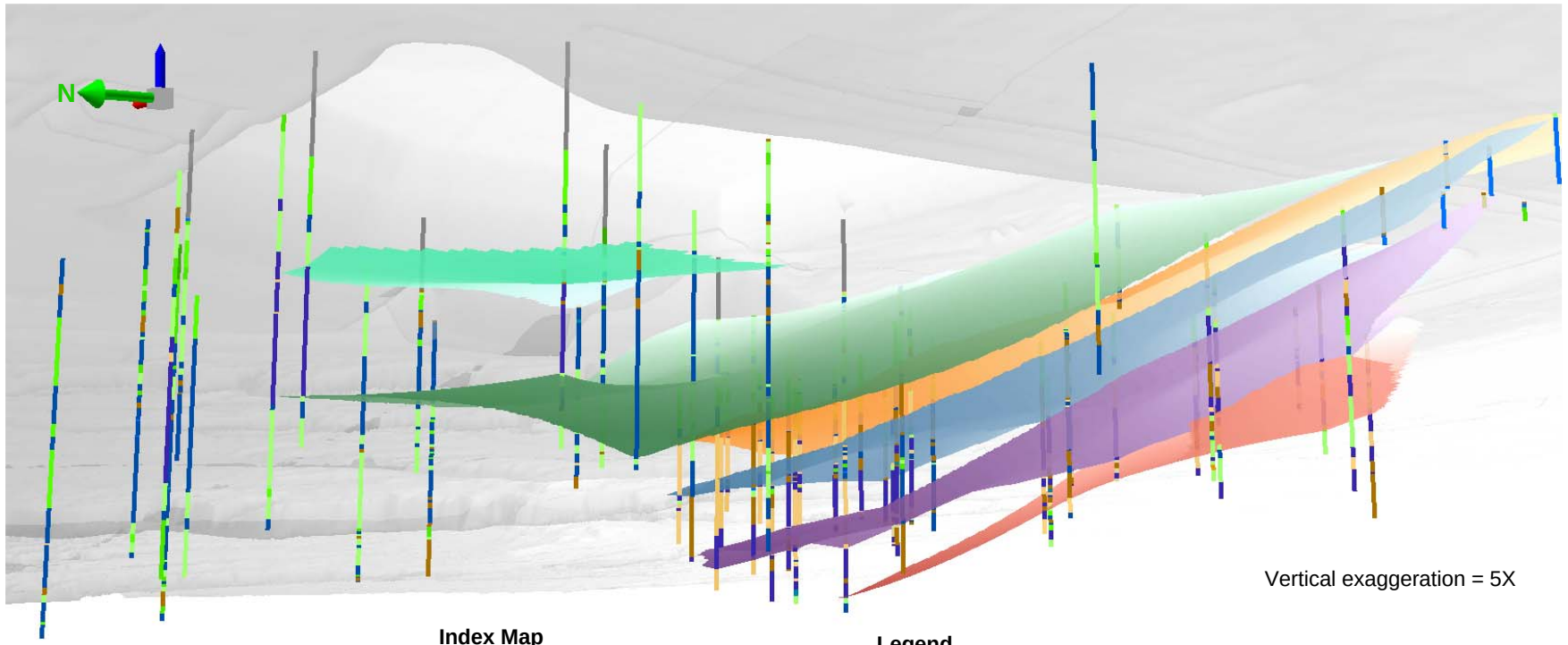
Solid Waste Facility Permit, 2015

Total (181.5 acres)

Disposal (28.9 acres)

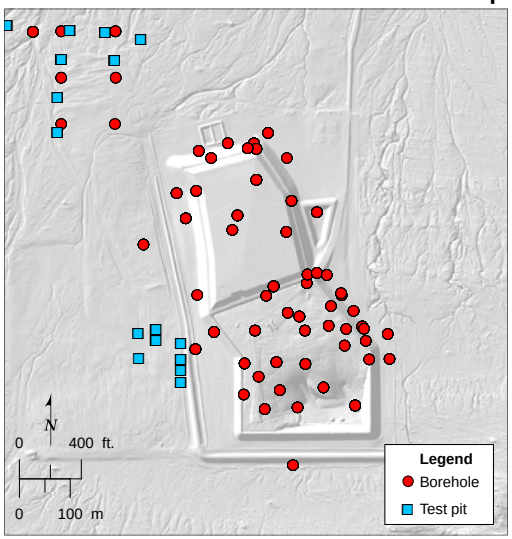
CURRENT DVC PERMITS FIGURE 14

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\14_D-37_Current_DVC_Permits.mxd; j.holmberg; 8/15/2018



Index Map

VIEW A



Legend

Stratigraphic Contacts

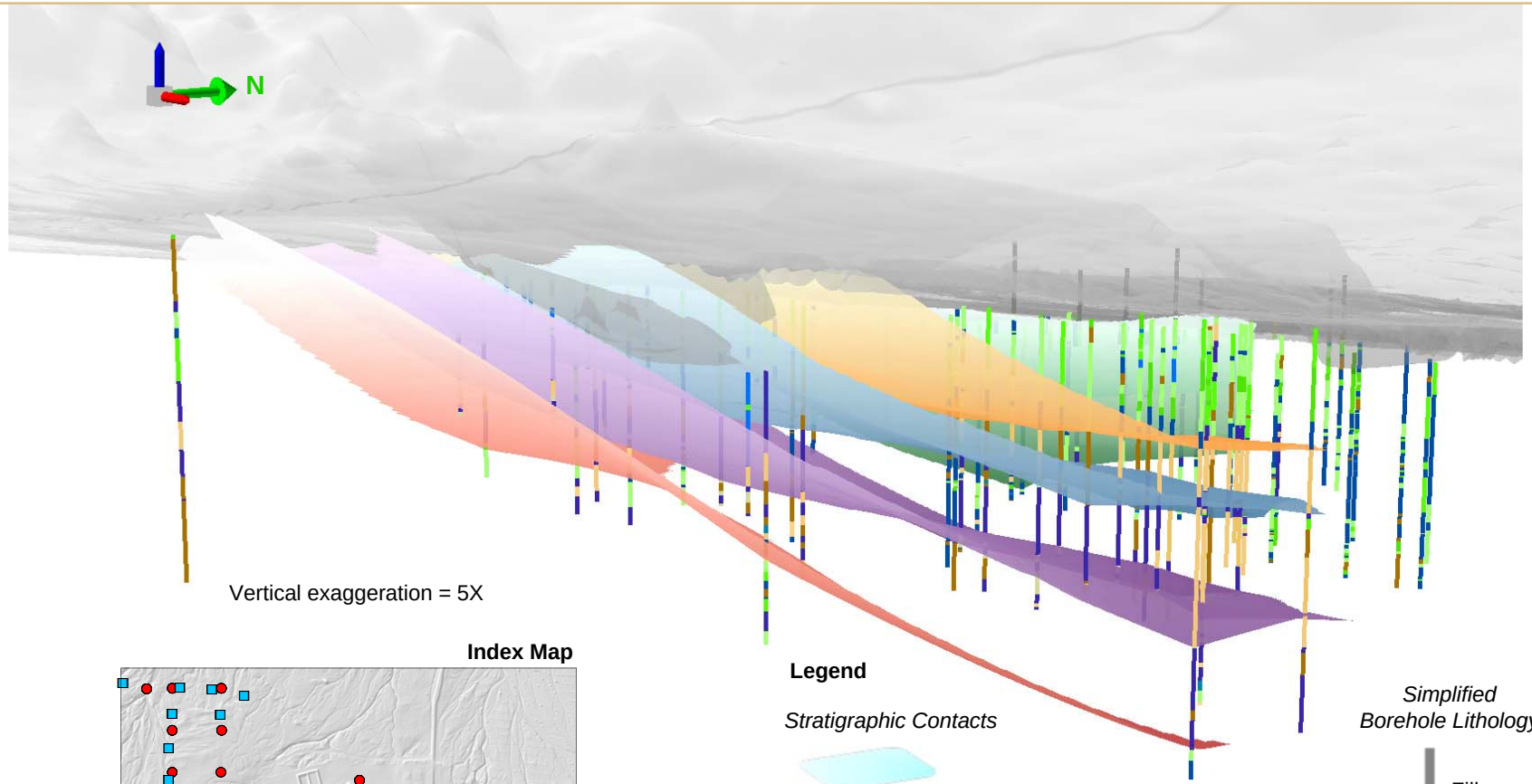
Qb2
Qb3
Qb4
Qb5
Qb6
Qb7

Simplified Borehole Lithology

Fill
Silt
Sand
Clay

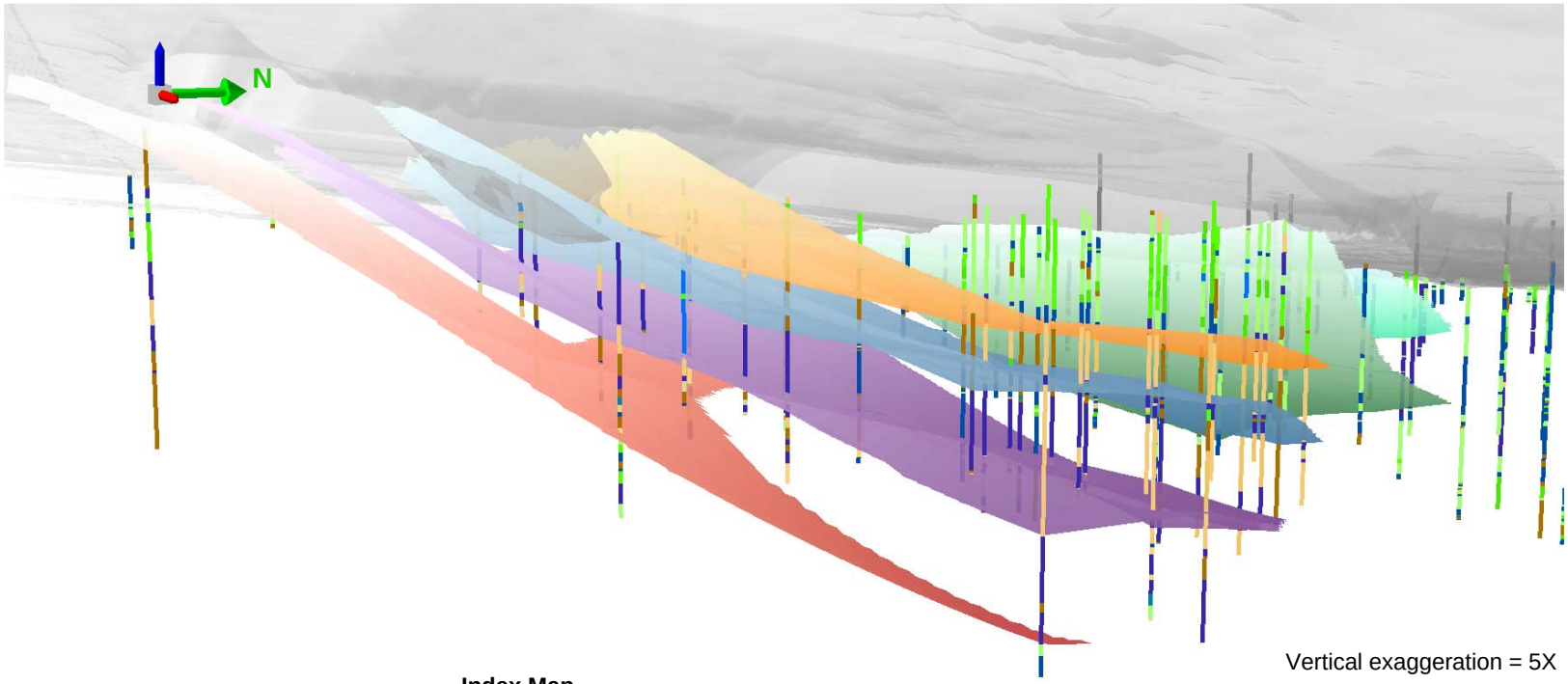
3D MODEL, VIEW A

FIGURE 15



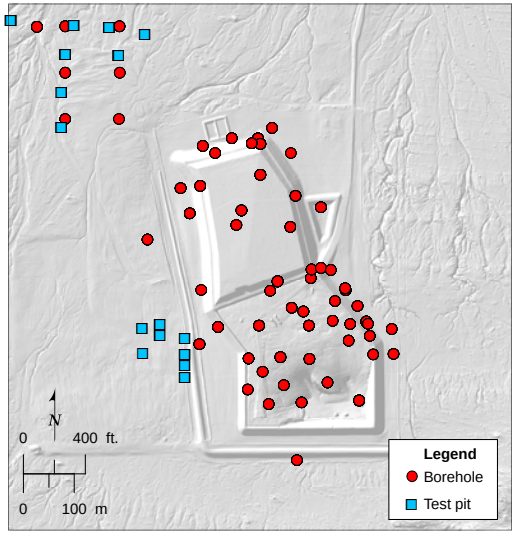
3D MODEL, VIEW B

FIGURE 16



Vertical exaggeration = 5X

Index Map



VIEW C

Legend

Stratigraphic Contacts

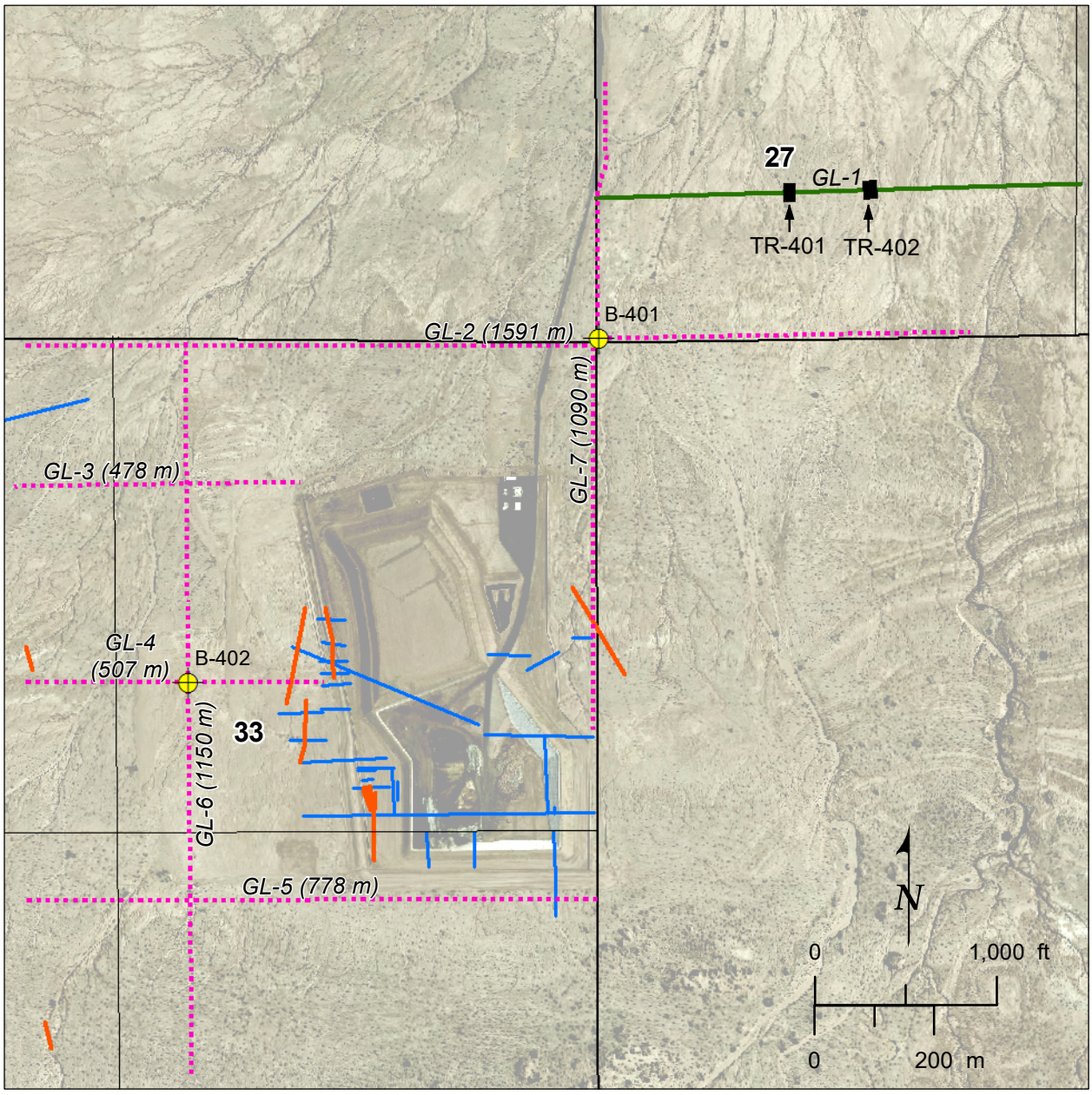
Qb2
Qb3
Qb4
Qb5
Qb6
Qb7

Simplified Borehole Lithology

Fill
Silt
Sand
Clay

3D MODEL, VIEW C

FIGURE 17



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

B-401 — Proposed borehole

GL-3 (478 m) — Proposed geophysical line

GL-1 — Completed geophysical line, 2018

Quarter section

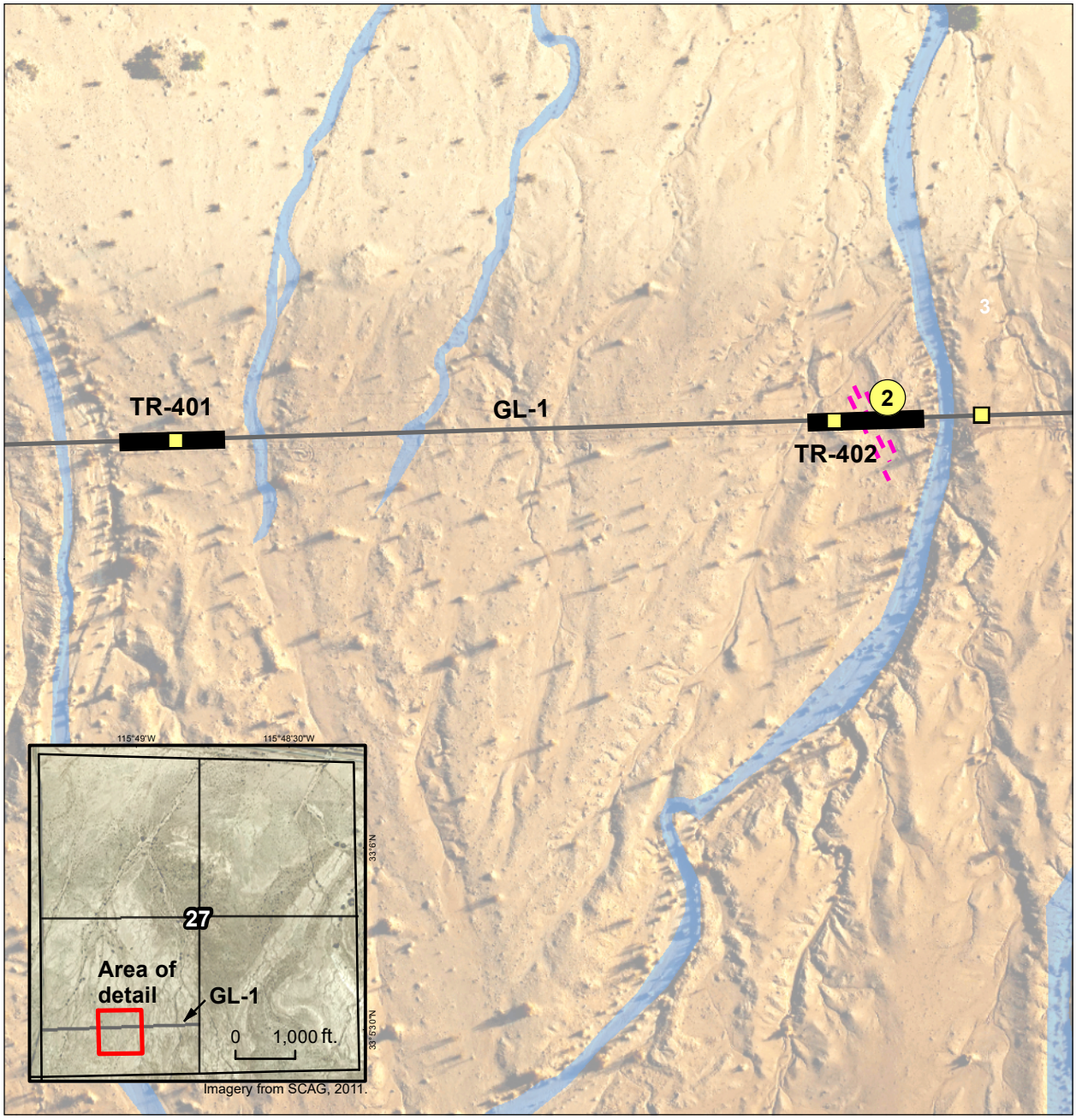
TR-401 — Proposed trench

Fault (Balderman, 2002, this study)

Trench (Balderman, 1988, 2002)

PROPOSED GEOPHYSICAL CAMPAIGN FIGURE 18

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\18_D-36_Proposed_Geophysical_Campaign.mxd; j.holmberg; 8/15/2018



Imagery from Fugro USA Land, Inc., 2018.

Legend

- Geophysical line (GL-1)
- Proposed trench
- Jurisdictional drainage
- Seismic lineament projection
- Field stop
- Fracture set

0 200 ft.
0 50 m
N

LOCATION OF PROPOSED TRENCHES TR-401 AND TR-402

FIGURE 19

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\19_D-45_Proposed_Trenches.mxd; j.holmberg; 8/15/2018

APPENDIX A
REPORT OF GEOLOGIC FIELD RECONNASANCE, DVC CELL 4 PROJECT

A.1 INTRODUCTION

Fugro USA Land, Inc. conducted field-based reconnaissance and geologic mapping for the CalEnergy's DVC proposed Cell 4 monofill project to observe and document geologic and geomorphic features in order to assess suitability with respect to geologic siting requirements. This work builds on previous desktop studies and geophysical investigations conducted by Fugro USA Land, Inc. (Fugro Report 04.72170065-PR-001 and 04.72170065-PR-002), and provides input into the Phase 2 review of site geology (Fugro Report 04.72170065-PR-003). This memo documents the activities performed and observations made during a two-day field reconnaissance and summarizes resulting interpretations and conclusions.

Specific goals of this fieldwork were to verify and refine the results of recently completed desktop mapping of Sections 27, 28, 33, and 34 (T12S, R11E), examine features that may serve as strain markers for tectonic and non-tectonic deformation, document the characteristics of the various stratigraphic units exposed in the area, and to mark and assess suitability of potential fault trenching locations. Documentation of stratigraphic framework of geologic units is key to understanding the geologic history of the area, both to determine composition of units upon which the facility will bear, and to assess potential for geologic hazards such as fault rupture.

A.1.1 Field Activities

Geologic field reconnaissance and mapping was conducted by geologists Kelley Shaw and John Niles on July 10th and 11th, 2018. Field activities included mapping of geologic contacts, and characterization of sedimentological and structural features observed in key stratigraphic units. A map of field traverses is presented in Figure 1. A summarized daily log in presented in Table 1.

Table A.1. Log of Daily Activities

Date	Field Activities
July 10, 2018	The field party arrived at CalEnergy in Calipatria at 6:00 am to participate in safety orientation. Following the safety training, field team travelled to the DVC Monofill site to meet with site representative Sam Rubin to start field reconnaissance of the eastern portion of the field area. The field team conducted geologic mapping, including the measurement a stratigraphic section along a prominent drainage. To avoid heat exposure, the field team took a break from 2:00 pm – 5:00 pm. Finally, the field team located and marked purposed trench locations, and made observations and measurements of geologic features. Departed the site at 7:45 pm.
July 11, 2018	The field party spent the morning conducting a traverse of western portion of the field area. Recorded observations of surficial geology and outcrops exposed in drainages. The field team travelled to the mapped surface ruptures associated with of the 1987 Superstition Hills earthquake sequence to observe and document present-day characteristics of those ruptures. To avoid heat exposure, the field team took a break from 12:00 pm – 5:00 pm. Upon returned to the field area, the field team a portion traversed one of the potential locations for Cell 4, finally departing at 6:50 pm to avoid an oncoming dust storm.

A.2 METHODS

Geologic field mapping activities included conducting geologic traverses, recording qualitative geologic observations, collecting quantitative geologic data, documenting observations with photographs, and surveying precise locations of specific features.

Field observations were recorded in three ways:

1. Electronically on a rugged tablet computer (Toughbook) equipped with GPS capability and GIS software, and loaded with project-specific GIS files including preliminary geologic and geomorphic mapping and custom LiDAR derived maps,
2. By hand in a field notebook and/or marked on paper map sheets, and
3. Use of cell phone cameras to photograph key geologic observations.

Additionally, geologists carried a handheld GPS unit to confirm locations, mark waypoints, and to provide a supplementary log of the team's progress.

Measurement of stratigraphic thickness was facilitated by the use a 6-foot wooden folding rule and Brunton compass. Structural orientation data (strike and dip) were measured using a Brunton compass. Alignments of potential fault trenches, based on the results of a geophysical survey completed in the spring of 2018, were located using GPS, and were marked using a fiberglass tape measure and flagged with wooden stakes at either end (Photos 1A and 1B).

A.3 FIELD OBSERVATIONS

Field observations presented in this section include descriptions of stratigraphic units, a geologic map and generalized geologic cross section based on both desktop and field reconnaissance, observations of structural and stratigraphic relations, observations of brittle deformation, and liquefaction features. Where applicable, observations are illustrated on annotated photographs (Photo 1 through 6). An updated geologic map is presented in Figure 3.

A.1.2 Stratigraphy

An approximately 700-foot-thick section of the Brawley Formation was measured along a north-south transect in a prominent, incised channel in the central area of Section 4 (Figure 2). Channel sidewalls, oriented approximately perpendicular to the general strike of Brawley Fm. strata, provided nearly continuous exposure of the Brawley Formation strata, allowing for observation constituent grain size, color, cementation, sedimentary structure, bedding orientation and thickness, and discontinuities, from the lowest observed stratigraphic position exposed in the northern limb of an east-west oriented open anticline (Photo 2A), to the upper bounding contact with the overlying Lake Cahuilla deposits (Photo 2B). Some uncertainty in measured thickness may exist due to areas of poor exposure at channel level caused by erosion of poorly consolidated sand subunits of the Brawley Fm. Where measured, the Brawley Formation comprises at least 700 feet of moderately-dipping (15°-30°), generally west-striking fluvial, lacustrine and aeolian sands, and lacustrine silts and clays. Subunits within the Brawley Formation were divided based on constituent sedimentological characteristics, including grain size and cementation.

Where observed in a channel wall exposure north of the measured section, approximately 7 feet of horizontal to shallow-dipping (0°-5°) Lake Cahuilla deposits of fine-grained sands and silts unconformably overly the Brawley Formation (Photo 3A). Deposits of medium- to coarse-grained sand with abundant gastropod shells were observed in beach ridge deposits (Photo 3B).

Alluvial deposits are widely distributed throughout the field area, and are divided into two subunits: Qa1 and Qa2, representing active and inactive deposits, respectively (Table 2). Active, Qa1 deposits consist of locally derived, fluvial and aeolian sands and silts and are inset to all older stratigraphic units. Inactive, Qa2 deposits consist of locally derived fluvial and aeolian sands and silts, as well as granitic and volcanic gravels presumably derived from the Vallecito Mountains to the west.

A.1.3 Geologic Mapping

Prior to the site visit, a preliminary Quaternary geologic map was produced from interpretation of high resolution orthoimagery, LiDAR derived products including digital terrain model, hillshade model and elevation contours, and previously published geologic map products. Surficial units were delineated based on a combination slope, aspect, texture, tone, and imagery characteristics. Following field-based geologic mapping, this map was supplemented and revised based on observations made in the field including relative elevation, topography, lithology, stratigraphic superposition, and weathering characteristics.

The field area is underlain by four primary surficial geologic units: alluvial deposits (Qa), aeolian deposits (Qd), Lake Cahuilla deposits (Qc), and Brawley Formation (Qb) (Figure 3). These units have been subdivided based on relative age (e.g., Qa1, Qa2), or compositional differences (e.g., Qc(a), Qc(b), etc.) (Table 2).

Table A.2. Description of Surficial Units

Unit	Description
Qa1	Active channel and alluvial fan deposits – Consists of loose sands and silts in channels and on alluvial fans. Where incised into older deposits, channels are flanked by fluvial scarps ranging from a few cm to meters high. Channels are commonly lined with vegetation. Channel deposits are readily identified in aerial imagery by their light color. On alluvial fans, active deposits are characterized by strong bar and swale topography and debris flow levees.
Qa2	Inactive Alluvial fan and terrace deposits – Adjacent to active washes and composed of poorly-sorted sand and silt. subrounded to subangular gravel to cobble clasts, Surface shows remnant to weak bar and swale topography.
Qc(a)	Lake Cahuilla deposits – Silts, light gray, almost white on aerial imagery, with horizontal to gently-dipping bedding. Forms gently sloping surfaces.
Qc(b)	Lake Cahuilla deposits – Sands. Forms gently sloping surfaces, horizontal to gently-dipping bedding
Qc(c)	Lake Cahuilla deposits – Silts, appearing tan to brown on aerial imagery. Forms gently sloping surfaces, horizontal to gently-dipping bedding.
Qc(d)	Lake Cahuilla deposits– Silts and sands. Horizontal to gently dipping beds where observed in stream banks. The surface is characterized by bands of linear to gently curving ridges composed of coarser grained material (sands and gravels), interpreted as beach ridges that mark the gradual shrinking of the lake.

Unit	Description
Qb	Brawley Formation – Sands, silts, and clays, planar bedded, dipping 0 to 35 degrees. On aerial imagery this unit is recognized by contrasting parallel tonal bands. Where observed in the field, these beds are composed of fine sand to clay. Sandier units appear darker on the imagery, are vegetated, and are more easily eroded. Silt dominated units are generally lighter in color on the imagery.
Qd	Dunes – Aeolian deposits including *coppice dunes* (mounds up to 3 meters in height composed of fine sand and silt surrounding large creosote and mesquite bushes)

A.1.4 Fractures

Alignments of systematically north-northwest-trending, gypsum-filled fracture sets were observed and documented at three locations within the field area (Photo 4A; Figure 3, Field Stops 2, 3, and 4). These fractures varied in width (0.5 cm to 4 cm), and are filled with crystalline gypsum. The tabular and coarse crystalline nature of the gypsum is consistent with deposition from mineral-rich groundwater rather than from infiltrating rainwater in a near-surface soil environment, thus the gypsum is assumed to have been deposited in fractures during a lake high-stand then subsequently exposed by erosion.

North-northwest (330°) trending parallel fracture sets were observed projecting across the geophysical line GL-1 near the proposed Trench 2 site (Photo 4A, 4B; Figure 3, Field Stop 2). These fractures intersect with the surface projection of a seismic lineament previously interpreted from the geophysical data for line GL-1 (Fugro report 04.72170065-PR002).

In the northwest field area, a system of intersecting fracture sets with similar gypsum veining to those previously described were observed in the Lake Cahuilla deposits (Photo 4C; Figure 3, Field Stop 4). This fracture system is in-line with the projection of surface ruptures associated with the of the 1987 Elmore Ranch and Superstition Hills earthquake sequence along the East Kane Springs fault (Hudnut et al., 1989); however, gypsum precipitation in fractures likely indicates that these features represent long-term strain markers.

A.1.5 Faults

A previously unreported fault in Lake Cahuilla deposits was observed in a 3-foot-high channel wall exposure approximately 2,000 feet to the west of the existing monofill site (Photo 6A; Figure 3, Field Stop 5). Four fault planes with orientations: 350°,63°NE; 342°,73°NE; 330°,71°NE; and 345°,90° were observed offsetting stratigraphy within a one-foot wide fault zone. Cumulative vertical offset of 1.4 feet was measured from the basal contact of a gray silt unit. A subdued scarp trending approximately 340° was observed projecting away from the exposure. Apparent style of motion is down-on the east, with no evidence of lateral movement.

A.1.6 Liquefaction features

Soft-sediment deformation of fine-grained Lake Cahuilla deposits was observed within at least one interval of exposed strata (Photo 2A, 6A, Figure 3, Field Stop 6). These features are tentatively interpreted to be seismically induced soft-sediment deformation features, or *seismites*.

An approximately 6-inch-wide, subvertical, clastic dike striking approximately 200° was observed cross-cutting Brawley Formation strata (Photo 6B; Figure 3, Field Stop 7). This feature did not displace north-dipping Brawley Fm. strata it juxtaposed, so a tentative interpretation of seismically-induced fracturing related to liquefaction, and subsequent fluid-flow and deposition of mobilized sediment is favored here.

A.4 CONCLUSIONS

Field activities within Sections 27, 28, 33, and 34 documented primary surficial and stratigraphic units and identified multiple locations of gypsum-filled fractures which could serve as potential strain markers for identification of active faulting. Evidence of surface faulting was observed at one location where strata were exposed in an incised wash. Systematic fracturing of Quaternary deposits was observed at multiple locations. Deformation tentatively interpreted as seismically-induced liquefaction features was observed in Lake Cahuilla deposits.

Two fault trenches were sited in Section 27 along geophysical line GL-1 to investigate potential active surface faulting at locations where there is geophysical evidence of faulting at depth. Both trenches were marked in the field with wooden stakes. Trench 1 is 67 feet long, and Trench 2 is 74 feet long. Neither trench crosses a jurisdictional drainage.

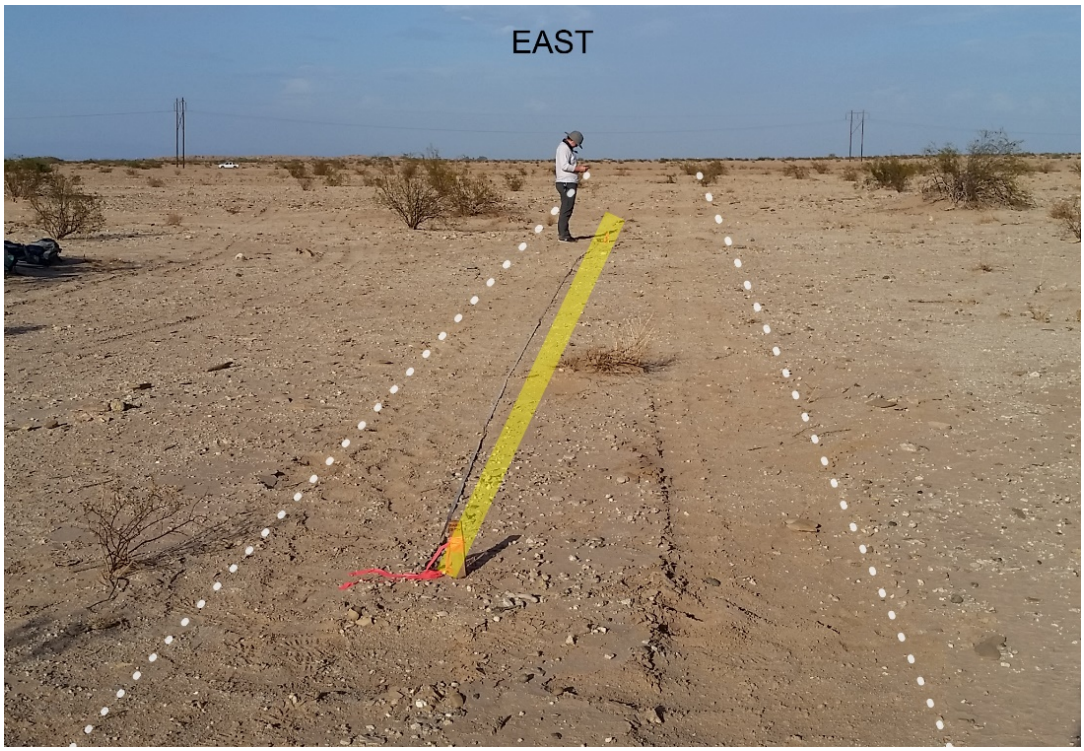


Photo 1A. Location of proposed Trench 1 (yellow line). Dotted white lines bound corridor of geophysical line GL-1

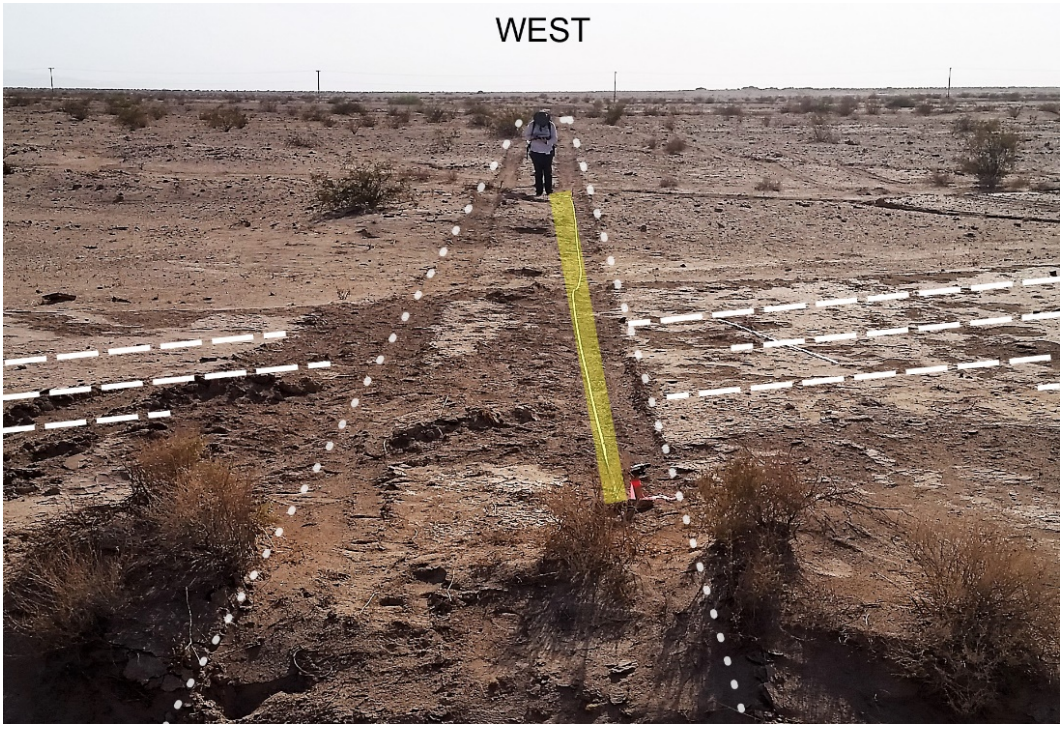


Photo 1B. Location of proposed Trench 2 (yellow line). Dotted white line shows corridor of geophysical line GL-1. Dashed white lines schematically show traces of gypsum-filled fractures.

Photo 2A. Exposure of gray clay in Brawley Formation (Qb) in core of anticline (see Figure 1, Field Stop 1 for location); dashed white line indicates the upper bounding contact of clay.

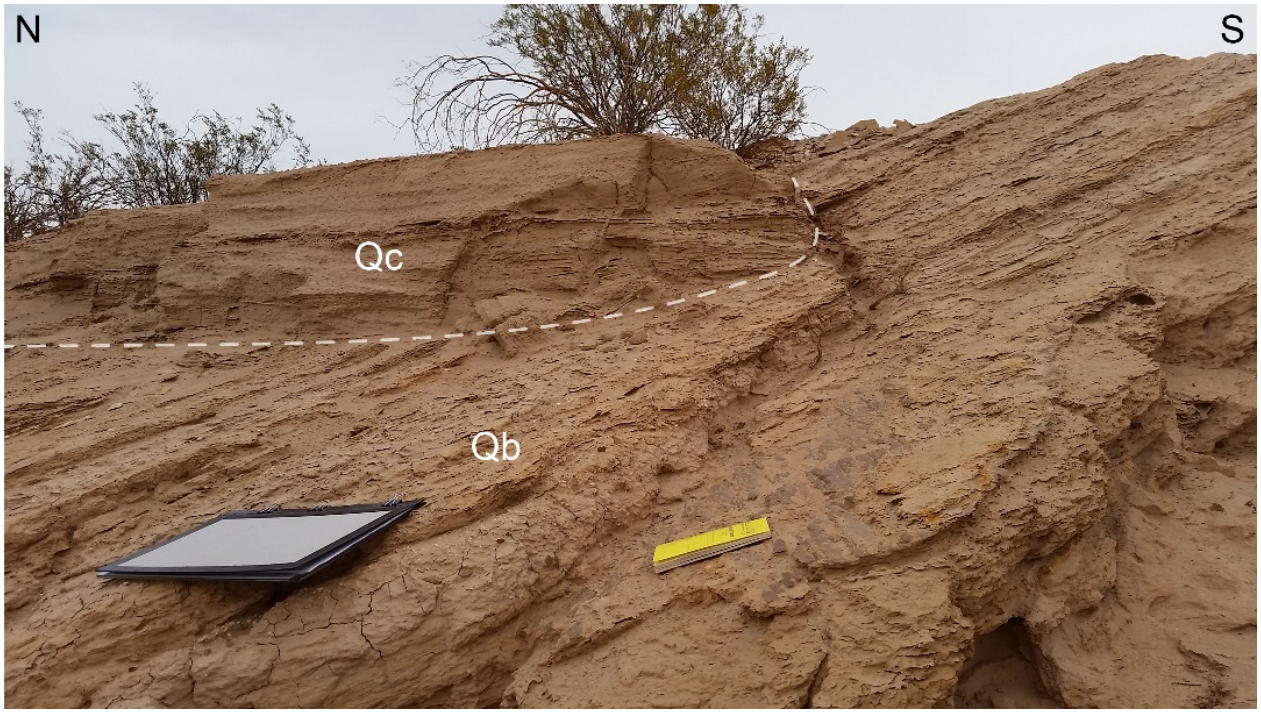


Photo 2B. Exposure of unconformable contact (dashed white line) between Lake Cahuilla deposits (Qc) and Brawley Formation (Qb).

Photo 3A. Outcrop of flat-lying sands and silts of the Lake Cahuilla deposits. See Figure 1, POI 7 for location. See Photo 6A for detail of soft-sediment deformation.

Photo 3B. Poorly-sorted sand and shell-rich Lake Cahuilla beach ridge deposits.

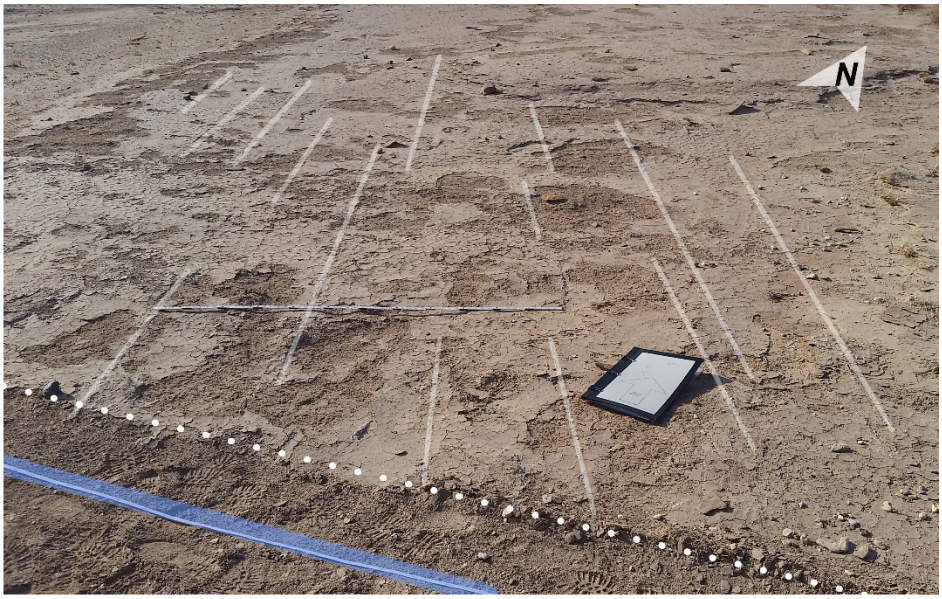


Photo 4A. NNE-trending gypsum-filled fractures (traced by white lines) in Lake Cahuilla deposits, adjacent to and projecting into geophysical line GL-1 (dotted white line) and proposed Trench 2 (blue line); six-foot ruler for scale. See Figure 1, Field Stop 2 for location.

Photo 4B. Detail of north-northeast-trending gypsum-filled fracture set (white arrows point at fracture tips) adjacent to and projecting into geophysical line and proposed Trench 2. See Figure 1, Field Stop 2 for location.

Photo 4C. Surface geometry of a gypsum-filled fracture system (dashed white lines) in Lake Cahuilla deposits proximal to 1987 surface ruptures associated with the Superstition Hills earthquake sequence. See Figure 1, Field Stop 4 for location.

Photo 5. Faulting of Lake Cahuilla deposits. Four fault surfaces (dashed white lines) displace a bedding contact (yellow line), showing cumulative vertical displacement of approximately 1.4 feet. Arrows show direction of movement. See Figure 1, Field Stop 5 for location.

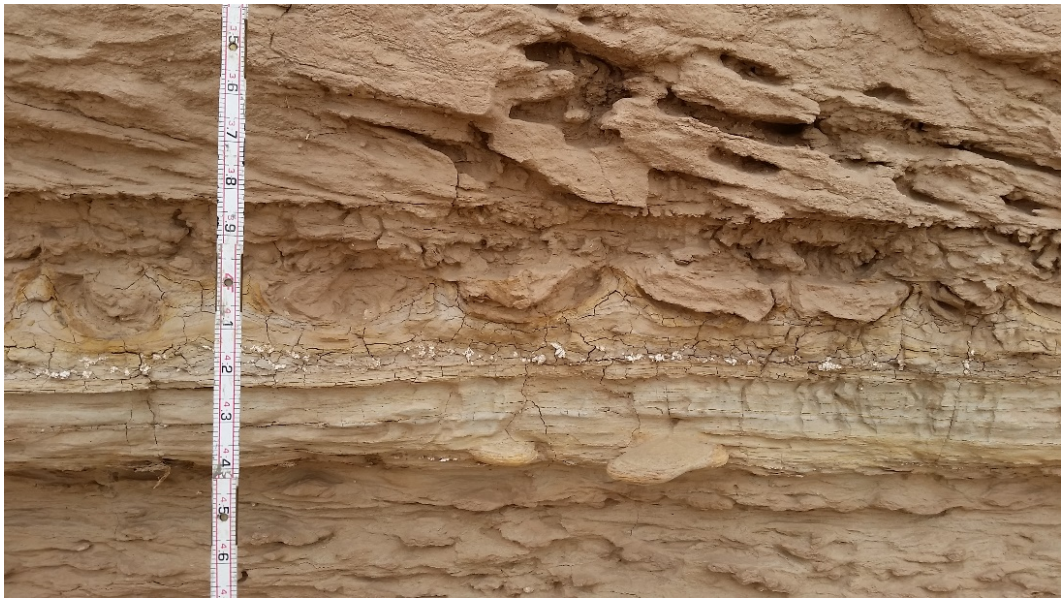
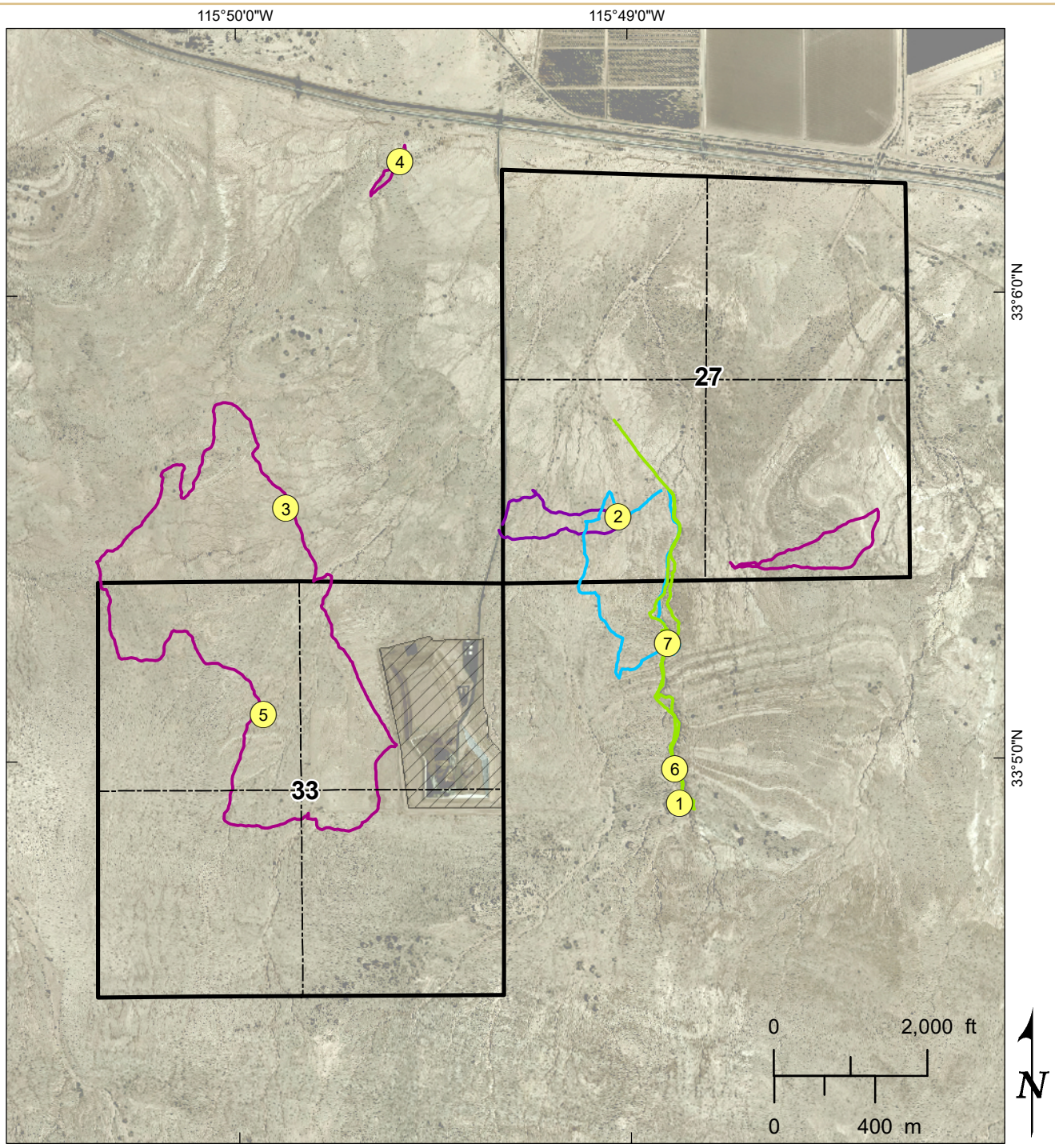


Photo 6A. Seismically-induced soft-sediment deformation, or *seismites*, observed in fine-grained Lake Cahuilla deposits, displaying cuspate, concave up geometry (arrow). See Figure 1, Field Stop 7 for location.

Photo 6B. An approximately 6-inch wide, subvertical clastic dike in Brawley Formation striking approximately 200°. Six-foot ruler for scale. See Figure 1, Field Stop 6 for location.

A.5 REFERENCES

Hudnut, K., Seeber, L., Rockwell, T., Goodmacher, J., Klinger, R., Lindvall, S. and McElwain, R., 1989. Surface ruptures on cross-faults in the 24 November 1987 Superstition Hills, California, earthquake sequence. *Bulletin of the Seismological Society of America*, *79*(2), pp.282-296.



Imagery from Southern California Association of Governments (SCAG), 2011.

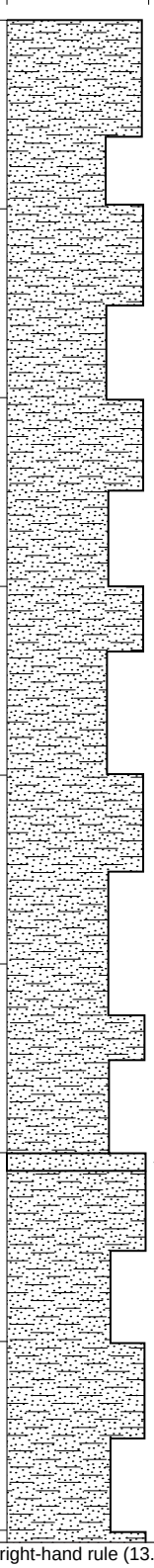
Legend

- Monofill development
- Sections 27 and 33, with quadrants
- 1 Field Stops
- GPS Track 7/10/18 - Morning
- GPS Track 7/10/18 - Afternoon
- GPS Track 7/11/18 - Morning
- GPS Track 7/11/18 - Afternoon

FIELD MAPPING TRACK LOG FIGURE A-1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Appendix_A\A-1_(D20)_FieldReport_GPS.mxd; j.holmberg; 8/15/2018

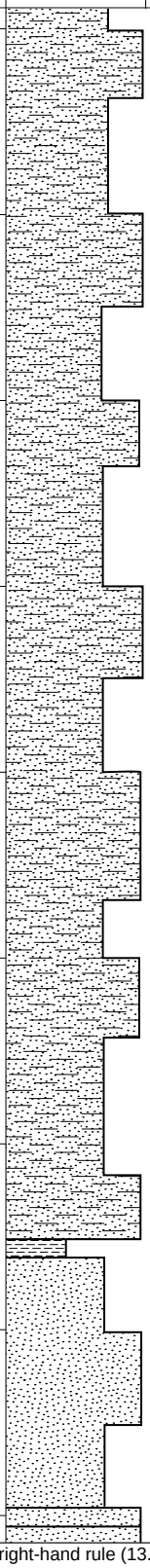
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175'	720 710 700 690 680 670 660 650 640		S/D 225/15 NW	Interbedded SILTS and SANDS, light grayish brown. Well cemented fine sand.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION OF BRAWLEY FORMATION FIGURE A-2, SHEET 1

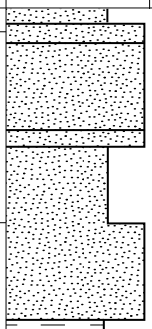
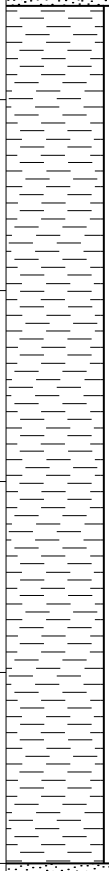
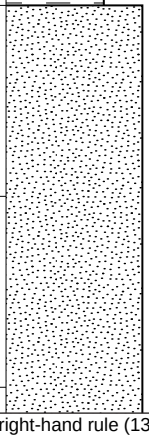
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175' (cont.)	640 630 620 610 600 590 580 570 560			Interbedded SILTS and fine SAND, light grayish brown. (continued) 1-foot thick clay bed, light gray.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 2

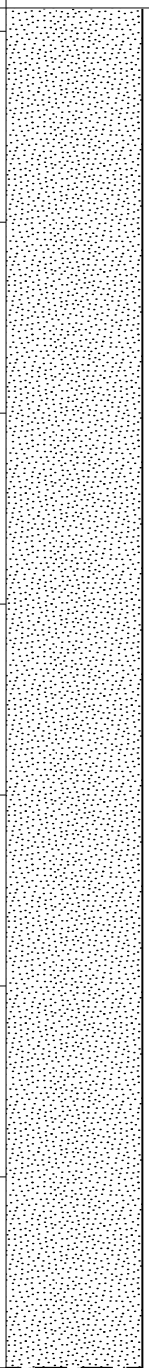
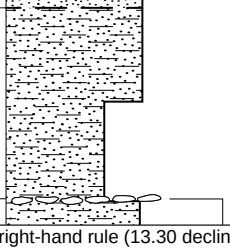
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175' (cont.)	560 – 550		S/D 240/25 NW	Interbedded SILTS and fine SAND, light grayish brown. (continued) Well cemented, partially continous fine sand layers, 9-10 cm thick.
45'	540 – 500			SILT, light brown to light grayish brown, thinly bedded to laminated.
90'	500 – 480			Fine grained SANDS. Poor exposure at wash level.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 3

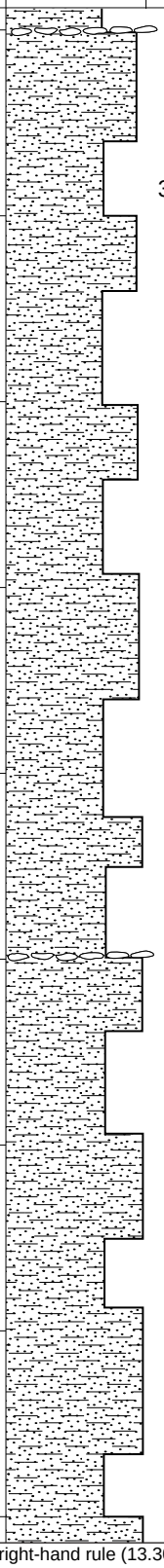
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
90' (cont.)	480 470 460 450 440 430 420			Fine grained SANDS. Poor exposure at wash level. (continued)
110'	410 400			Interbedded fine sands and silts. 3-5 feet thickly bedded. Planar laminated.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 4

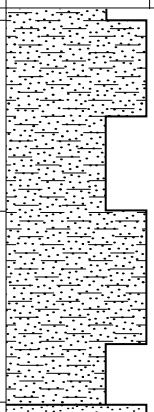
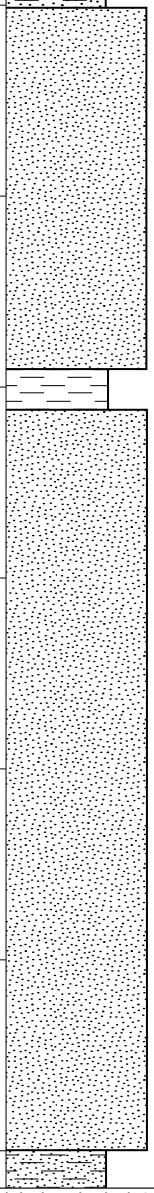
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
110' (cont.)	400		S/D 310/15 NE	Interbedded fine SAND and silt. 3-5 feet thickly bedded. Planar laminated. (continued) Large/huge concretions similar to below
	390			
	380			
	370			
	360			
	350			Large/huge discontinuouse concretions, elongate, ellipsoid. Cemented calcium carbonate, light brown.
	340			
	330			
	320			

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 5

Clay | Silt | Fine sand | Medium sand | Coarse sand

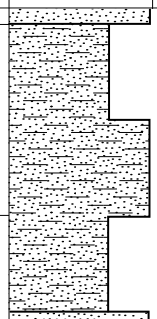
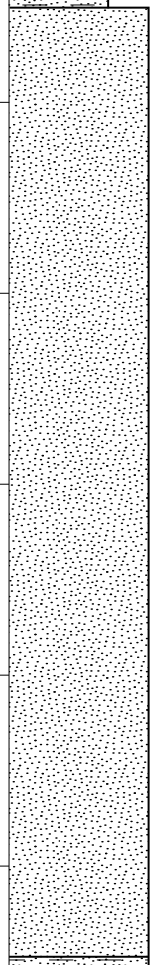
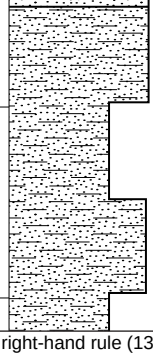
THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
110' (cont.)	320 – 310 – 300			Interbedded fine SANDS and SILTS. 3-5 feet thickly bedded. Plannar laminations. (continued)
60'	300 – 290 – 280 – 270 – 260 – 250 – 240			Fine-grained SANDS, light grayish brown. 2-foot bed of silts, contact is not planar, erosional.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 6

CALENERGY OPERATION CORPORATION
PHASE 2: SITE GEOLOGIC REVIEW, DVC CELL 4 PROJECT
BRAWLEY, CA

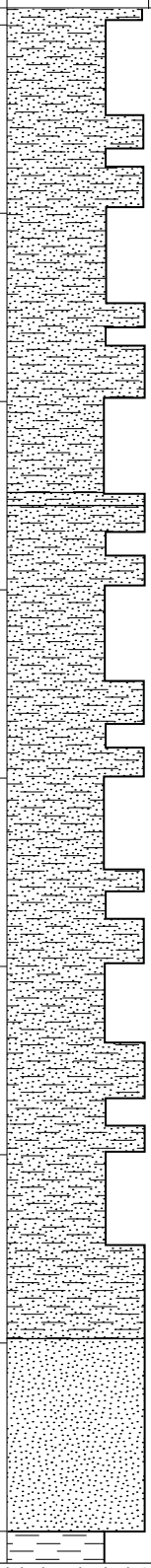
Clay Silt Fine sand Medium sand Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
15'	240 – 230			Interbedded fine SAND and SILT, thick-bedded silts.
50'	230 – 180			Fine-grained SAND, light grayish brown. Planar bedding.
85'	180 – 160			Interbedded fine-grained SANDS and silts. Light grayish brown to grayish brown silts moderately fractured

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 7

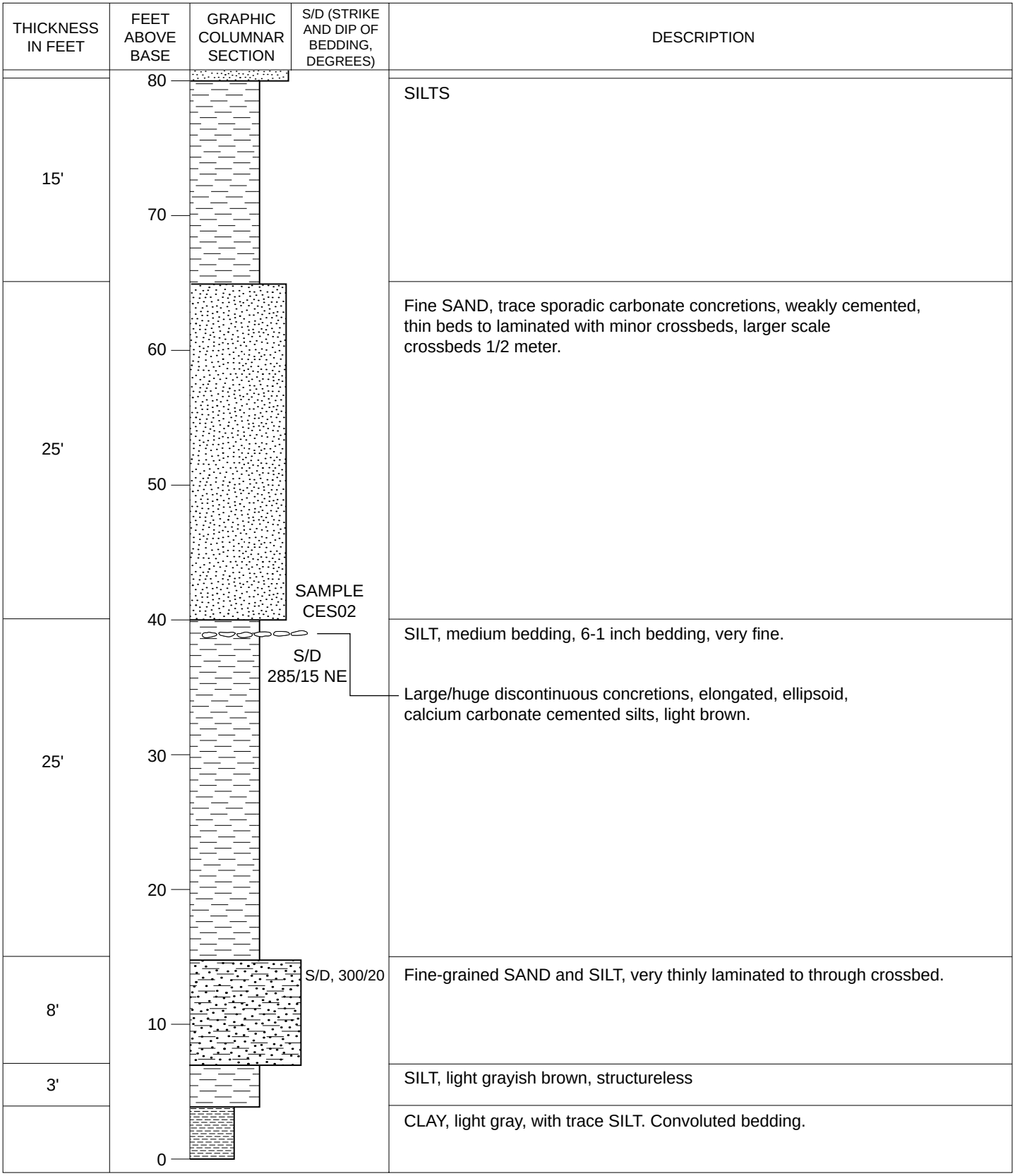
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
85' (cont.)	160			Interbedded fine-grained SANDS and silts. (continued) Light grayish brown to grayish brown silts moderately fractured
	150			
	140			
			S/D 300/30 NE	7 cm-wide discontinuous well cemented calcium carbonate fine-grained sand layer.
	130			
	120			
	110			
	100			
			S/D 280/18 NE	
	90			
10'				Fine-grained SAND.
	80			SILTS

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 8

Clay | Silt | Fine sand | Medium sand | Coarse sand



Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 9

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C-2 General Plan Amendment Request

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IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

September 4, 2019

Mr. Jim Minnick
Planning & Development Services Director
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

Subject: **Revision - General Plan Amendment, Desert Valley Company CUP No. 05-0020**

Dear Mr. Minnick:

The purpose of this letter is to revise CalEnergy's original request to amend the General Plan's land-use designation of portions of land in Section 27 and Section 33 per the description below. In a letter dated October 10, 2018, CalEnergy viewed Section 33 and Section 27 as potential sites of construction to expand the DVC with a new solid waste disposal Cell 4. At the time the two areas in Section 27 and Section 33 were under consideration for development. However, after conducting several evaluatory siting studies throughout 2019, CalEnergy narrowed down its focus to Section 33, therefore, it is no longer necessary to modify the land-use designation of land in Section 27.

Table 1 - Legal Descriptions, Description of Current Land Use and Status

Site	Current Siting Description & APN	Current Zoning	Requested Zone Change	Status
1	Section 27: Township 12 South, Range 11 East, Southwest ¼, APN 019-110-012	A-2 (General Agricultural Zone)	M-2 (Medium Industrial)	No longer under consideration
2	Remainder of Section 33: Township 12 South, Range 11 East, APN 019-100-004 (see Attachment 1)	S-2 (Open Space/Preservation)	M-2 (Medium Industrial)	Area west of the DVC under consideration

A. Description of Current Land Use - Remainder of Section 33: Township 12 South, Range 11 East, SBBM - APN 019-100-004 (See Attachment 1 for the Land Use Map of Section 33):

CALENERGY
OPERATING CORPORATION
7030 Gentry Road, Calipatria, California 92233
Phone: 760-348-4200 Fax: 760-348-7868

Approximately three-quarters of the parcel (458.5 acres) is designated Recreational/ Open Space. CalEnergy is requesting an amendment so that the remaining area consisting of 458.5 acres in Section 33 is designated "Special Purpose Facility".

Suitable land uses under said designation with an approved Conditional Use Permit include the development of Class II solid waste facilities. In the past General Plan amendments were obtained for the section of the parcel occupied by the Desert Valley Company Monofill i.e. the northeast quarter of Section 33 and the northernmost 20 acres of the southeast quadrant of Section 33. Collectively, the land use designation of approximately 181.5 acres has been changed from "Recreational/Open Space" to "Special Purpose Facility" in Section 33 (Township 12 South, Range 11 East, SBBM - APN 019-100-004).

Local Setting of Proposed Sites

The proposed project is located in Imperial County, approximately fifteen miles west of the City of Westmorland, California. According to the Imperial County Planning and Development Services GIS data the remainder of Section 33 is surrounded by properties designated for recreational/open space, government/special public use and special purpose facilities (DVC). Areas designated for agricultural use border the westbound lane of Highway 86 which is located approximately 1.2 miles north of the northeast portion of Section 33. Government/special public use land abuts the southern boundary of the Section 33 parcel. All other land immediately surrounding the prospect site is designated recreational/open space.

As always, should you have any questions regarding or require additional information, please do not hesitate to contact me (760) 348-4275 or by email at Anetha.Lue@calenergy.com .

Sincerely,

D. Anetha Lue Digitally signed by D. Anetha Lue
Date: 2019.09.05 10:36:59 -07'00'

Anetha Lue
Director, IPP Environmental Services

Enclosure

cc Michael Abraham, Imperial County Planning and Development Services
Patricia Valenzuela, Imperial County Planning and Development Services
Jorge Perez, Imperial County Public Health Department
Lenie Sarion
Yanqiu Wu
Jon Trujillo
Sam Rubin
Osvaldo Flores
Environmental File

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Attachment 1 – Land Use Map of Section 33

CALENERGY
OPERATING CORPORATION
7030 Gentry Road, Calipatria, California 92233
Phone: 760-348-4200 Fax: 760-348-7868

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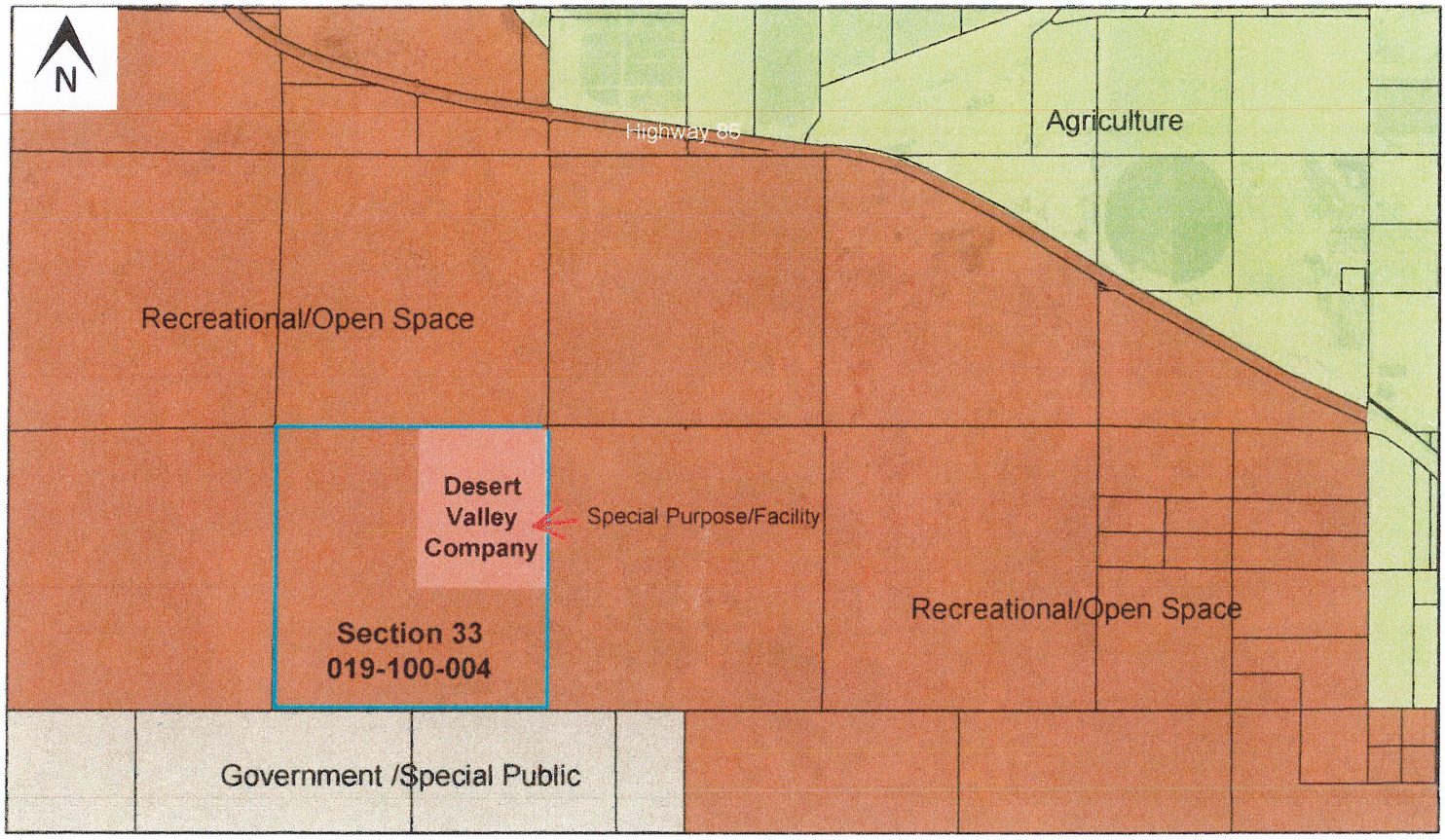
Land Use Map - General Plan Amendment, Section 33



Assessor's Parcels (General Plan)
Agriculture
Government /Special Public
Recreational /Open Space
Special Purpose Facility

1:36,112
0 0.25 0.5 1 mi
0 0.4 0.8 1.6 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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C-3 General Plan Amendment Request

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September 4, 2019

Mr. Jim Minnick
Planning and Development Servcies Director
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

Subject: **Revision - Change of Zone Application, Desert Valley Company CUP No. 05-0020**

Dear Mr. Minnick:

This letter revises CalEnergy's orginal request - dated October 10, 2018, to change the zone designation of two (2) land spaces formerly viewed as potential construction sites for the expansion of the Desert Valley Company monofill. After conducting several evaluatory siting studies throughout 2019, CalEnergy has narrowed down its focus to the area located in Section 33 (see Table 1). As such it is no longer necessary at this time to modify the zone designation of the south west quarter of Section 27. The table below provides descriptions of both sections once under consideration and their present status based on the outcome of the completed siting studies.

Table 1

Site	Current Siting Description & APN	Current Zoning	Requested Zone Change	Status
1	Section 27: Township 12 South, Range 11 East, Southwest ¼, APN 019-110-012	A-2 (General Agricultural Zone)	M-2 (Medium Industrial)	No longer under consideration
2	Remainder of Section 33: Township 12 South, Range 11 East, APN 019-100-004 (see Attachment 1)	S-2 (Open Space/Preservation)	M-2 (Medium Industrial)	Area west of the DVC under consideration

As part of this revision, the following documents have been updated and are enclosed as Attachments 1:

1. Change of Zone Application for Section 33
2. Site Plan (Section 33)

CALENERGY
OPERATING CORPORATION
7030 Gentry Road, Calipatria, California 92233
Phone: 760-348-4200 Fax: 760-348-7868

3. Quitclaim Deed and the Policy of Title Insurance for Sections 27 and 33 (in lieu of the Preliminary Title Report)

As always, should you have any questions regarding or require additional information, please do not hesitate to contact me (760) 348-4275 or by email at Anetha.Lue@calenergy.com .

Sincerely

D. Anetha Lue Digitally signed by D. Anetha Lue
Date: 2019.09.05 10:32:14 -07'00'

Anetha Lue
Director, IPP Environmental Services

Enclosure

cc Michael Abraham, Imperial County Planning and Development Services
Patricia Valenzuela, Imperial County Planning and Development Services
Jorge Perez, Imperial County Public Health Department
Lenie Sarion
Yanqiu Wu
Jon Trujillo
Sam Rubin
Osvaldo Flores
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Attachment 1 - Section 33 Change of Zone Application Packet

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CHANGE OF ZONE

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black & blue) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Desert Valley Company	EMAIL ADDRESS Lenie.Sarion@calenergy.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4200
3. ENGINEER'S NAME CA. LICENSE NO. CalEnergy Operating Corporation	EMAIL ADDRESS Lenie.Sarion@calenergy.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4296

5. ASSESSOR'S PARCEL NO. Section 33, NW, SW and SE Quads - APN 019-100-004	ZONING (existing) S-2	ZONING (proposed) M-2
6. PROPERTY (site) ADDRESS 3301 West Highway 86		SIZE OF PROPERTY (in acres or square foot) 458.5 acres

7. GENERAL LOCATION (i.e. city, town, cross street)
Approximately 12 miles west of the city of Westmorland, CA, and 1 mile south of Highway 86.

8. LEGAL DESCRIPTION
Township 12 South, Range 11 East, Southwest 1/4, Northwest 1/4 & Southeast 1/4of Section 33

8. DESCRIBE CURRENT USE ON / OF PROPERTY (list and describe in detail)
Property is undeveloped/vacant at this time.

9. PLEASE STATE REASON FOR PROPOSED USE (be specific)
Planned expansion (construction of Cell 4) of the Desert Valley Company monofill facility (Class II landfill disposal site). No additional ancillary facilities have been planned at this time.

10. DESCRIBE SURROUNDING PROPERTY USES Areas surrounding the northwest, southeast and southwest portions of Section 33 are vacant except for the area currently occupied by the Desert Valley Company monofill i.e. the northeast quarter of Section 33).

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Lenie Sarion — Print Name
9/4/2019 — Date
Lenie A. Sarion Digitally signed by Lenie A. Sarion Date: 2019.09.04 17:01:37 -07'00' — Signature

REQUIRED SUPPORT DOCUMENTS

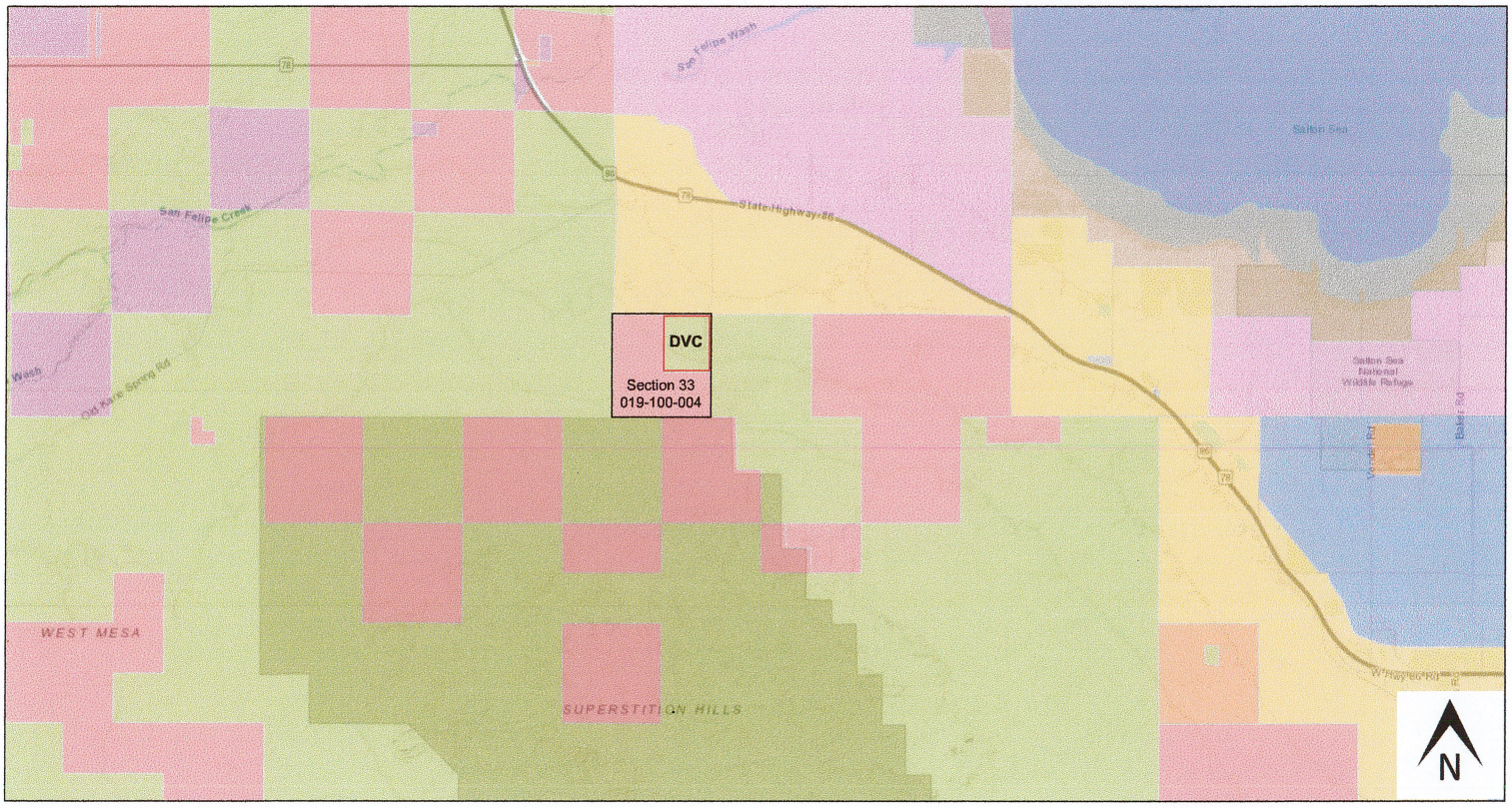
A. SITE PLAN
B. PRELIMINARY TITLE REPORT (6 months or newer)
C. FEE
D. OTHER

APPLICATION RECEIVED BY:		DATE	
APPLICATION DEEMED COMPLETE BY:		DATE	
APPLICATION REJECTED BY:		DATE	
TENTATIVE HEARING BY:		DATE	
FINAL ACTION: ☐ APPROVED ☐ DENIED		DATE	

REVIEW / APPROVAL BY OTHER DEPT'S required.
☐ P. W.
☐ E. H. S.
☐ A. P. C. D.
☐ O. E. S.
☐ _____
☐

ZC #

Site Plan, Desert Valley Company – Change of Zone Request (Section 33)



Land Zoning
September 4, 2019

MILITARY, A-3, A-2, A-2-R, M-2, S-2, BLM, S-1, GS, STATE

1:72,224

0 0.75 1.5 3 mi
0 1 2 4 km

Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Legal Description of Section 33 (Owned by Desert Valley Company)

1. Section 33: Township 12 South, Range 11 East, Northeast 1/4 of Section 33.

Permitted Area of Disposal within Section 33, Northeast 1/4

DVC Active Disposal Site encompasses **28.9 acres**

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PLANNING & DEVELOPMENT SERVICES

BOOK 1641 PAGE 1410

Order No. 106756
Escrow No. 38930-CS
Loan No.

RECORDING REQUESTED BY
TICOR TITLE INSURANCE COMPANY
OF CALIFORNIA

WHEN RECORDED MAIL TO:

Desert Valley Company
11770 Bernardo Plaza Court
Suite 366
San Diego, CA 92128

90-2012
DOLORES PROVENCIO
COUNTY RECORDER

REG	$ 7
RIF	$ 5
MC	$ 1
NIL	$
TOTAL	$ 13

FEB 5 10 30 AM '90

OFFICIAL RECORDS
IMPERIAL COUNTY, CALIF

BOOK 1641 PAGE 1410

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENT TO:
(Same)

Change of Name

DOCUMENTARY TRANSFER TAX $ NONE-

..... Computed on the consideration or value of property conveyed; OR
..... Computed on the consideration or value less liens or encumbrances remaining at time of sale.

Magma Power Company
Signature of Declarant or Agent determining tax — Firm Name
Continental Escrow Company

QUITCLAIM DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

MAGMA POWER COMPANY, A NEVADA CORPORATION,

does hereby REMISE, RELEASE AND FOREVER QUITCLAIM to

DESERT VALLEY COMPANY, A CALIFORNIA CORPORATION,

the real property in the City of , State of California, described as
County of IMPERIAL

All of Section 27 and Section 33 in Township 12 South, Range 11 East, S.B.M., County of Imperial, State of California, according to Official Plat thereof.

(APN 19-100-04, 19-110-01 Easement 19-050-06)

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Dated December 20, 1989

MAGMA POWER COMPANY,
A NEVADA CORPORATION,
BY: Arnold L. Johnson
Arnold L. Johnson, President
BY: Jonathan S. Fish
Jonathan S. Fish, Treasurer

STATE OF CALIFORNIA }ss.
COUNTY OF }ss.

On ,

before me, the undersigned, a Notary Public in and for said State,

personally appeared

,

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same.

WITNESS my hand and official seal.

Signature

(This area for official notarial seal)

MAIL TAX STATEMENTS AS DIRECTED ABOVE

1085 (6/82)

CAT. NO. NN00737
TO 1945 CA (8-84)
(Corporation)

TICOR TITLE INSURANCE

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO } ss.

On January 2, 1990 before me, the undersigned, a Notary Public in and for said State, personally appeared ARNOLD L. JOHNSON personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument as the President, and Jonathan S. Fish personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument as the ~~Secretary~~ TREASURER of the Corporation that executed the within instrument and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature Thomas C. Hinrichs

OFFICIAL SEAL
THOMAS C. HINRICHS
NOTARY PUBLIC • CALIFORNIA
SAN DIEGO COUNTY
My comm. expires SEP 14, 1993

(This area for official notarial seal)

STAPLE HERE

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EXHIBIT "A"

ALL THAT CERTAIN LAND SITUATED IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1

ALL OF SECTION 33 IN TOWNSHIP 12 SOUTH, RANGE 11 EAST, S.B.M., COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO OFFICIAL PLAT THEREOF;

EXCEPTING THEREFROM ALL THE OIL, GAS, OIL SHALE, COAL, PHOSPHATE, SODIUM, GOLD, SILVER, GEOTHERMAL ENERGY AND ALL OTHER MINERAL DEPOSITS CONTAINED THEREIN, AS CONVEYED TO NANCY SUGDEN WINANS BY DEED RECORDED OCTOBER 31, 1980 IN BOOK 1460, PAGE 1063 OF OFFICIAL RECORDS.

PARCEL 2

ALL OF SECTION 27, IN TOWNSHIP 12 SOUTH, RANGE 11 EAST, S.B.M., COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO OFFICIAL PLAT THEREOF, INCLUDING, WITHOUT LIMITATION, ALL THE OIL, GAS, OIL SHALE, COAL, PHOSPHATE, SODIUM, GOLD, SILVER, URANIUM, THORIUM AND THEIR ORES, GEOTHERMAL ENERGY, AND ALL OTHER MINERALS, METALS, ORES AND OTHER SUBSTANCES (COLLECTIVELY HEREINAFTER REFERRED TO AS "MINERALS") CONTAINED THEREON, THEREIN OR THEREUNDER;

EXCEPTING AND RESERVING UNTO THE GRANTOR HEREIN, AS AN EXPENSE-FREE ROYALTY INTEREST AND NOT AS A MINERAL INTEREST, FOR A PERIOD OF NINETY-NINE (99) YEARS FROM THE DATE OF RECORDATION OF THIS DEED, AN UNDIVIDED **THIRTY-SEVEN PERCENT (37%)** INTEREST IN A ROYALTY, WHICH ROYALTY SHALL IN THE AGGREGATE BE EQUAL TO ONE PERCENT (1%) OF THE PROCEEDS RECEIVED FROM THE SALE OF INDIGENOUS MINERALS PRODUCED FROM SAID LAND; PROVIDED, HOWEVER, THAT:

(A) NO ROYALTY SHALL BE PAID WITH RESPECT TO MINERALS BROUGHT TO SAID LAND AT ANY TIME AFTER RECORDATION OF THIS DEED, NOR SHALL ANY ROYALTY BE PAID WITH RESPECT TO ANY MINERALS NOT EXISTING ON, IN OR UNDER SAID LAND AS OF THE DATE OF RECORDATION HEREOF;

(B) THE TERM "PROCEEDS" AS USED HEREIN SHALL MEAN THE ACTUAL PRICE RECEIVED AT AND AS OF THE WELLHEAD OR THE ENTRANCE TO THE MINE, AS THE CASE MAY BE; AND IF THE MINERALS ARE NOT SOLD AT THE WELLHEAD OR AT THE ENTRANCE TO THE MINE, BUT ARE DELIVERED OR SHIPPED TO ANOTHER LOCATION OR ARE USED OR PROCESSED THROUGH AN ELECTRICAL GENERATING FACILITY OR OTHER PLANT OR FACILITY, THEN:

1. IN THE EVENT THE MINERALS ARE PROCESSED THROUGH AN ELECTRICAL GENERATING FACILITY THAT SELLS ELECTRICITY TO A PUBLIC OR PRIVATE UTILITY COMPANY, A MUNICIPAL CORPORATION, A MUNICIPAL UTILITY DISTRICT, OR ANY OTHER PURCHASER OF ELECTRICITY (EACH OF THE FOREGOING, AN "ELECTRICITY PURCHASER"), AND THE POWER PURCHASE CONTRACT WITH THE ELECTRICITY PURCHASER DIVIDES THE PAYMENT INTO "ENERGY" AND "CAPACITY" COMPONENTS, THEN THE TERM "PROCEEDS" AS USED HEREIN SHALL MEAN AND BE DEEMED TO BE AN AMOUNT EQUAL TO FORTY PERCENT (40%) OF THE "ENERGY" (AS OPPOSED TO THE "CAPACITY") COMPONENT (AS THE SAME IS ESTABLISHED IN THE POWER PURCHASE CONTRACT WITH THE ELECTRICITY PURCHASER) OF THE PAYMENTS RECEIVED FROM THE ELECTRICITY PURCHASER IN CONNECTION WITH SUCH SALE OF ELECTRICITY;

2. IN ALL CASES OTHER THAN THOSE TO WHICH THE PRECEDING PARAGRAPH B(1) IS APPLICABLE, THE TERM "PROCEEDS" AS USED HEREIN SHALL MEAN AND BE DEEMED TO BE THE NET AMOUNT REMAINING AFTER DEDUCTING FROM THE ACTUAL REVENUES RECEIVED FROM SUCH SALE, ALL COSTS, EXPENSES AND FEES, WHETHER CAPITALIZED OR EXPENSED, DIRECTLY OR INDIRECTLY INCURRED IN CONNECTION WITH SUCH DELIVERY, SHIPMENT, USE

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OR PROCESSING AND THE OPERATION, MAINTENANCE, REPAIR AND OWNERSHIP OF SUCH PLANT OR FACILITY, INCLUDING, WITHOUT LIMITATION, (i) PROPERTY, EXCISE AND SEVERANCE TAXES, (ii) ADMINISTRATIVE, OPERATING AND OTHER OVERHEAD COSTS, (iii) CONSULTANTS', ATTORNEYS', CONSTRUCTION, MANAGEMENT, TECHNOLOGY, INCENTIVE AND TRANSMISSION FEES, (iv) RENTALS OF EQUIPMENT AND PROPERTY, (v) EASEMENT FEES, ROYALTIES, AND OTHER INSTALLMENT CONSIDERATION, (vi) THE COST OF COMPLIANCE WITH LAW, (vii) DEPRECIATION OR AMORTIZATION (CALCULATED ON A STRAIGHT-LINE BASIS OVER A 20-YEAR LIFETIME WITH NO SALVAGE VALUE) OF CAPITAL ITEMS (INCLUDING, WITHOUT LIMITATION, EXPLORATION AND TEST UNITS, TECHNOLOGY DEVELOPMENT, UTILITY AND TRANSMISSION LINE INSTALLATIONS, DESIGN, ENGINEERING AND CONSTRUCTION OF IMPROVEMENTS, EQUIPMENT, ACQUISITION OF REAL PROPERTY AND OTHER RIGHTS, AND ORGANIZATIONAL, TRANSACTIONAL AND FINANCING ITEMS), (viii) AN INVESTMENT RETURN ON THE UNDEPRECIATED OR UNAMORTIZED PORTION OF SUCH CAPITAL ITEMS, WHICH INVESTMENT RETURN SHALL BE FIFTEEN PERCENT (15%) PER ANNUM, AND (ix) RESERVES; AND

(C) IF PART OR ALL OF SAID LAND IS POOLED OR UNITIZED WITH OTHER LANDS, THEN SUCH ROYALTY INTEREST SHALL BE BASED ON AN ALLOCATION OF A FRACTION OF THE PROCEEDS RECEIVED FROM THE SALE OF INDIGENOUS MINERALS PRODUCED FROM THE POOL OR UNIT, THE NUMERATOR OF WHICH SHALL BE THE ACREAGE OF THE POOLED OR UNITIZED PORTION OF SAID LAND, AND THE DENOMINATOR OF WHICH SHALL BE THE TOTAL ACREAGE OF ALL THE LANDS IN SUCH POOL OR UNIT.

PARCEL 3 (THE "EASEMENT")

AN EASEMENT AND RIGHT-OF-WAY OVER, ALONG, ACROSS AND UNDER:

THAT PORTION OF PARCEL 2 OF PARCEL MAP NO. M-1830, FILED JUNE 28, 1988 IN BOOK 7, PAGE 77 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF IMPERIAL COUNTY, CALIFORNIA, LYING WITHIN A STRIP OF LAND 40 FEET IN WIDTH, THE WESTERLY LINE OF WHICH IS MEASURED AT RIGHT ANGLES TO AND PARALLEL WITH THE HEREINAFTER DESCRIBED EASTERLY LINE OF SAID 40-FOOT WIDE STRIP OF LAND. THE EASTERLY LINE OF SAID 40-FOOT WIDE STRIP OF LAND IS DESCRIBED AS COMMENCING AT THE MOST SOUTHEASTERLY CORNER OF SAID PARCEL 2 OF PARCEL MAP NO. M-1830; THENCE NORTHERLY ALONG THE EAST LINE OF SAID PARCEL 2 OF PARCEL MAP NO. M-1830 TO A POINT OF INTERSECTION WITH THE CENTER LINE OF THAT CERTAIN STATE HIGHWAY 86 (ALSO KNOWN AS U.S. HIGHWAY 99), AS DESIGNATED AND DELINEATED ON PARCEL MAP M-1830.

EXCEPTING THEREFROM ANY PORTION THEREOF LYING WITHIN THE SAID STATE HIGHWAY 86.

THE WESTERLY LINE OF SAID 40 FOOT WIDE STRIP OF LAND SHALL BE SHORTENED OR PROLONGATED, AS THE CASE MAY BE, SO AS TO INTERSECT THE SOUTHERLY LINE OF SAID STATE HIGHWAY 86 AND THE SOUTHERLY LINE OF PARCEL 2 OF SAID PARCEL MAP M-1830.

THE EASEMENT SHALL BE FOR THE PURPOSE OF PROVIDING A RIGHT-OF-WAY FOR INGRESS, EGRESS, UTILITIES AND OTHER SERVICES TO AND FROM THE REAL PROPERTY DESIGNATED IN THIS DEED AS PARCEL 1 AND PARCEL 2 (TOGETHER, THE "FEE PARCELS") AND SAID STATE HIGHWAY 86. THE EASEMENT SHALL BE APPURTENANT TO AND FOR THE BENEFIT OF THE FEE PARCELS, AND SHALL BE AN ENCUMBRANCE UPON SAID PARCEL 2 OF PARCEL MAP NO. M-1830 (SAID PARCEL 2 OF PARCEL MAP NO. M-1830 BEING HEREINAFTER REFERRED TO AS THE "SERVIENT TENEMENT"). THE EASEMENT INCLUDES THE RIGHT TO KEEP SUCH RIGHT-OF-WAY FREE FROM BRUSH, WOOD GROWTH AND ANY OTHER OBSTRUCTIONS AND TO CONSTRUCT TEMPORARY OR PERMANENT ROADS, STRUCTURES, DITCHES, UTILITY INSTALLATIONS AND ANY APPURTENANCES THERETO, AND TO REPAIR, REPLACE, MAINTAIN, OPERATE, ENLARGE, CHANGE AND IMPROVE THE SAME, AS WELL AS ALL RIGHTS INCIDENTAL THERETO. THE EASEMENT IS NON-EXCLUSIVE; PROVIDED, HOWEVER, THAT NO USE OR IMPROVEMENT OF ANY PORTION OF THE SERVIENT TENEMENT BY GRANTOR OR GRANTOR'S SUCCESSORS OR ASSIGNS, OR BY ANY THIRD

PERSON OR ENTITY, SHALL IMPEDE, INTERFERE WITH OR INCREASE THE COST OF GRANTEE'S USE OR ENJOYMENT OF THE EASEMENT. THE FEE PARCELS MAY BE SUBDIVIDED, REZONED, DEVELOPED AND IMPROVED FOR ANY USES WHATSOEVER, AND NO AMOUNT OR TYPE OF DEVELOPMENT, USE OR IMPROVEMENT THEREOF OR OF THE EASEMENT SHALL CONSTITUTE A NUISANCE OR AN OVERBURDENING OF THE EASEMENT. IF THE ROADBED OF SAID STATE HIGHWAY 86 IS RELOCATED FROM ITS PRESENT LOCATION OR ACCESS THERETO BECOMES DIFFICULT, IMPRACTICAL OR PROHIBITED AT THE LOCATION CONTEMPLATED HEREIN, THEN THE EASEMENT SHALL BE RELOCATED TO SUCH OTHER PORTION OR PORTIONS OF THE SERVIENT TENEMENT AS WILL PROVIDE THE FEE PARCELS WITH SIMILAR ACCESS RIGHTS TO AND FROM SAID STATE HIGHWAY 86. GRANTEE SHALL PAY THE COSTS OF CONSTRUCTING ANY IMPROVEMENTS IT ELECTS TO LOCATE UPON THE EASEMENT, AND SHALL PAY ITS PROPORTIONATE SHARE OF THE MAINTENANCE AND REPAIR OF SUCH IMPROVEMENTS. IN THE EVENT OF ANY CONTROVERSY, CLAIM OR DISPUTE RELATING TO THE EASEMENT, THE PREVAILING PARTY SHALL BE ENTITLED TO RECOVER FROM THE LOSING PARTY ITS REASONABLE COSTS, EXPENSES AND ATTORNEYS' FEES. THE EASEMENT SHALL BIND AND INURE TO THE BENEFIT OF THE RESPECTIVE HEIRS, PERSONAL REPRESENTATIVES, SUCCESSORS, AND ASSIGNS OF GRANTOR AND GRANTEE.

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Ticor Title Insurance Company
of California
6300 Wilshire Boulevard
P O Box 92792
Los Angeles CA 90009

TICOR TITLE INSURANCE

Policy of Title Insurance

California Land Title Association Standard Coverage Policy

SUBJECT TO THE EXCLUSIONS FROM COVERAGE, THE EXCEPTIONS FROM COVERAGE CONTAINED IN SCHEDULE B AND THE CONDITIONS AND STIPULATIONS, TICOR TITLE INSURANCE COMPANY OF CALIFORNIA, a California corporation, herein called the Company, insures, as of Date of Policy shown in Schedule A, against loss or damage, not exceeding the Amount of Insurance stated in Schedule A, sustained or incurred by the insured by reason of:

1. Title to the estate or interest described in Schedule A being vested other than as stated therein;
2. Any defect in or lien or encumbrance on the title;
3. Unmarketability of the title;
4. Lack of a right of access to and from the land;

and in addition, as to an insured lender only:

5. The invalidity or unenforceability of the lien of the insured mortgage upon the title;
6. The priority of any lien or encumbrance over the lien of the insured mortgage, said mortgage being shown in Schedule B in the order of its priority;
7. The invalidity or unenforceability of any assignment of the insured mortgage, provided the assignment is shown in Schedule B, or the failure of the assignment shown in Schedule B to vest title to the insured mortgage in the named insured assignee free and clear of all liens.

The Company will also pay the costs, attorneys' fees and expenses incurred in defense of the title or the lien of the insured mortgage, as insured, but only to the extent provided in the Conditions and Stipulations.

TICOR TITLE INSURANCE COMPANY OF CALIFORNIA

By William T. Seitz President

Attest Eisele E. Everlach Secretary

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TICOR TITLE INSURANCE

Schedule A

Policy No.	:	106756
Date of Policy	:	February 5, 1990 at 10:30 AM
Amount of Insurance	:	$720,000.00
Premium	:	$1,890.00

1. Name of Insured:

Desert Valley Company

2. The estate or interest in the land which is covered by this policy is Fee Simple.

3. Title to the estate or interest in the land is vested in:

Desert Valley Company,
A California Corporation

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106756

TICOR TITLE INSURANCE

Schedule B

This policy does not insure against loss or damage,(and the Company will not pay costs, attorneys' fees or expenses) which may arise by reason of:

Part I

All matters set forth in paragraphs numbered 1 (one) to 7 (seven) inclusive on the inside cover sheet of this policy under the heading of Schedule B Part I.

Part II

1. General and special county taxes for the fiscal year 1989-1990,
Total amount : $1,211.80
First installment : $605.90 paid
Second installment : $605.90 unpaid
Parcel No. : 19-100-04

General and special county taxes for the fiscal year 1989-1990,
Total amount : $1,211.80
First installment : $605.90 paid
Second installment : $605.90 unpaid
Parcel No. : 19-110-01

General and special county taxes for the fiscal year 1989-1990,
Total amount : $196.58
First installment : $98.28 paid
Second installment : $98.29 unpaid
Parcel No. : 19-050-06 (affects easement)

2. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Chapter 3.5 (commencing with Section 75) of the Revenue and Taxation Code of the State of California.

3. The effect of the following recital as contained in the deed
From : Southern Pacific Railroad Company
To : Southern Pacific Land Company
Recorded : April 1, 1912 in Book 30 Page 235 of deeds
Affecting : The herein described and other lands
"Excepting and reserving from the foregoing conveyance:

Second: A right of way of lawful width for any and all County roads heretofore lawfully established and now in public use upon and across any of said lands."

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4. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes,
In favor of : State of California
(No representation is made as to the present ownership of said easement)
For : right of way for the State Highway
Recorded : July 28, 1923, in Book 3, Page 341 of Official Records.

Affects : A strip of land 120 fet in width lying 50 feet on the Northerly and Easterly side and 70 feet on the Southerly and Westerly of a center line (the description contained in said instrument is eight pages in length. Reference is made to the record thereof for further particulars) (affects Sections 21 and 27, Township 12 South, Range 11 East, and other lands)

5. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes,
In favor of : State of California
(No representation is made as to the present ownership of said easement)
For : ditches and levees
Recorded : March 2, 1929, in Book 266, Page 1 of Official Records.

Affects : Portions of Sections 21 and 27, in Township 12 South, Range 11 East, and other lands (Reference being made to the record thereof for further particulars)

6. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes,
In favor of : Southern California Telephone Company
(No representation is made as to the present ownership of said easement)
For : Telephone and Telegraph lines
Recorded : March 16, 1946, in Book 655, Page 290 of Official Records.

Affects : A strip of land 10 feet in width, the center line of which is described as beginning in the North line of the Northeast Quarter of Section 27, Township 12 South, Range 11 East, at a point approximately 472.60 feet West of the Northeast corner of said Section 27; Thence South 82°02'45" East distant approximately 477.0 feet to a point on the East line of said Section 27, approximately 64.50 feet Southerly of the Northeast corner of said Section 27.

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7. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes,
In favor of : Imperial Irrigation District
(No representation is made as to the present ownership of said easement)
For : Power transmission lines
Recorded : February 17, 1949, in Book 738, Page 128 of Official Records.

Affects : That portion of Section 27, Township 12 South, Range 11 East, lying within a strip of land 50 feet in width, the center line of which is described as follows:
Beginning at a point in the South line of said Section 27, that is distant thereon 581.50 feet East from the Southwest corner of the Southeast Quarter of said Section 27; Thence North 39°03'45" West, 5,105.40 feet to a point in the West line of said Section 27, that is distant thereon 1,329.90 feet South from the Northwest corner of said Section.
(also affects other lands)

8. An easement affecting the portion of said land and for incidental purposes
As reserved by : Paul E. Williams and Mabel Twain Williams
(No representation is made as to the present ownership of said easement)
For : underground pipe line
Affects : The East 5 feet of Section 21, Township 12 South, Range 11 East, lying South of the State Highway; and the South 5 feet of the Southeast Quarter of said Section 21.
Recorded : December 10, 1957, in Book 981, Page 157 of Official Records.

9. The terms, covenants, conditions and provisions contained in a reservation of a royalty interest, and as to the various interests as set forth in those certain deeds
Executed By : Lionel Steinberg and William Steinberg, co-executors, and Mary Steinberg Pichey, co-executrix of the Estate of Louise Steinberg, deceased, et al.
Recorded : February 12, 1990 as Instruments Numbered 90-02203 to 90-02207 inclusive and Instruments Numbered 90-02209 to 9002211 inclusive.
Affects : Section 27, Township 12 South, Range 11 East

10. The terms, covenants, conditions and provisions contained in a reservation of royalty interest, as set forth in that certain deed
Executed By : Nancy Sudgen Winans, An Unmarried Woman
Recorded : February 12, 1990 as Instrument Numbered 90-02208
Affects : Section 33, Township 12 South, Range 11 East and Section 27, Township 12 South, Range 11 East

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Schedule C

The land referred to herein is described as follows:

All that certain land situated in the unincorporated area of the County of Imperial, State of California, described as follows:

Parcel One:

All of Section 33, Township 12 South, Range 11 East, S.B.M., according to the official plat thereof.

Parcel Two:

Section 27, Township 12 South, Range 11 East, S.B.M., according to the official plat thereof.

Parcel Three:

An easement and right-of-way for ingress, egress, utilities and other services over, along, across and under that portion of Parcel 2 of Parcel Map No. M-1830, filed June 28, 1988 in Book 7, Page 77 of Parcel Maps, in the office of the County Recorder of Imperial County, California, lying within a strip of land 40 feet in width, the Westerly line of which is measured at right angles to and parallel with the hereinafter described Easterly line of Parcel 2 of Parcel Map M-1830; the Easterly line of said strip of land 40 feet in width, is described as commencing at the most Southeasterly corner of said Parcel 2 of Parcel Map No. M-1830; thence Northerly along the East line of said Parcel 2, to a point of intersection with the center line of that certain State Highway 86, as designated and delineated upon Parcel Map M-1830.

Excepting therefrom any portion thereof lying within the said State Highway 86.

The Westerly line of said 40 foot wide strip of land parallel be shortened or prolongated so as to intersect the Southerly line of said State Highway 86 and the Southerly line of Parcel 2 of said Parcel Map M-1830.

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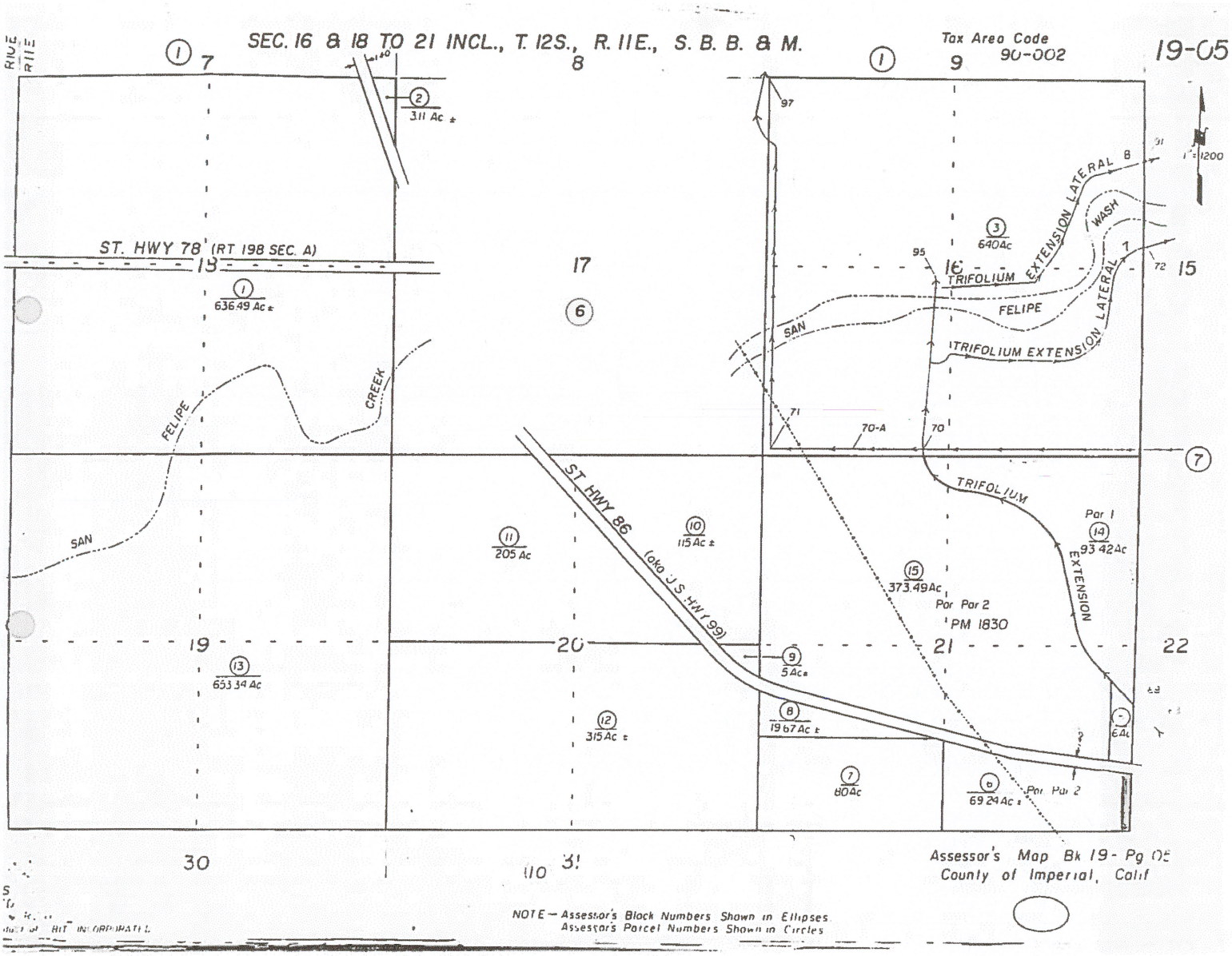

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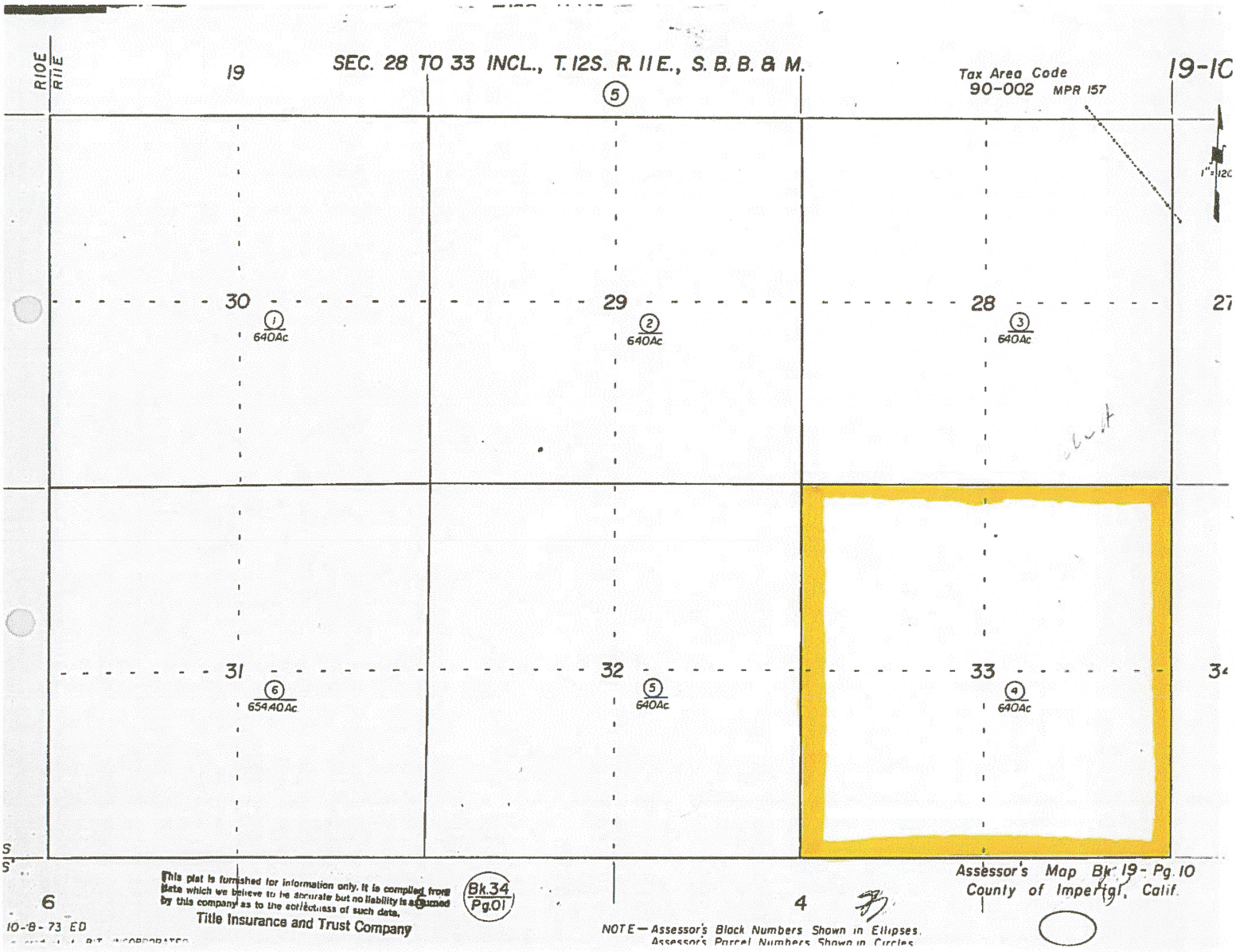

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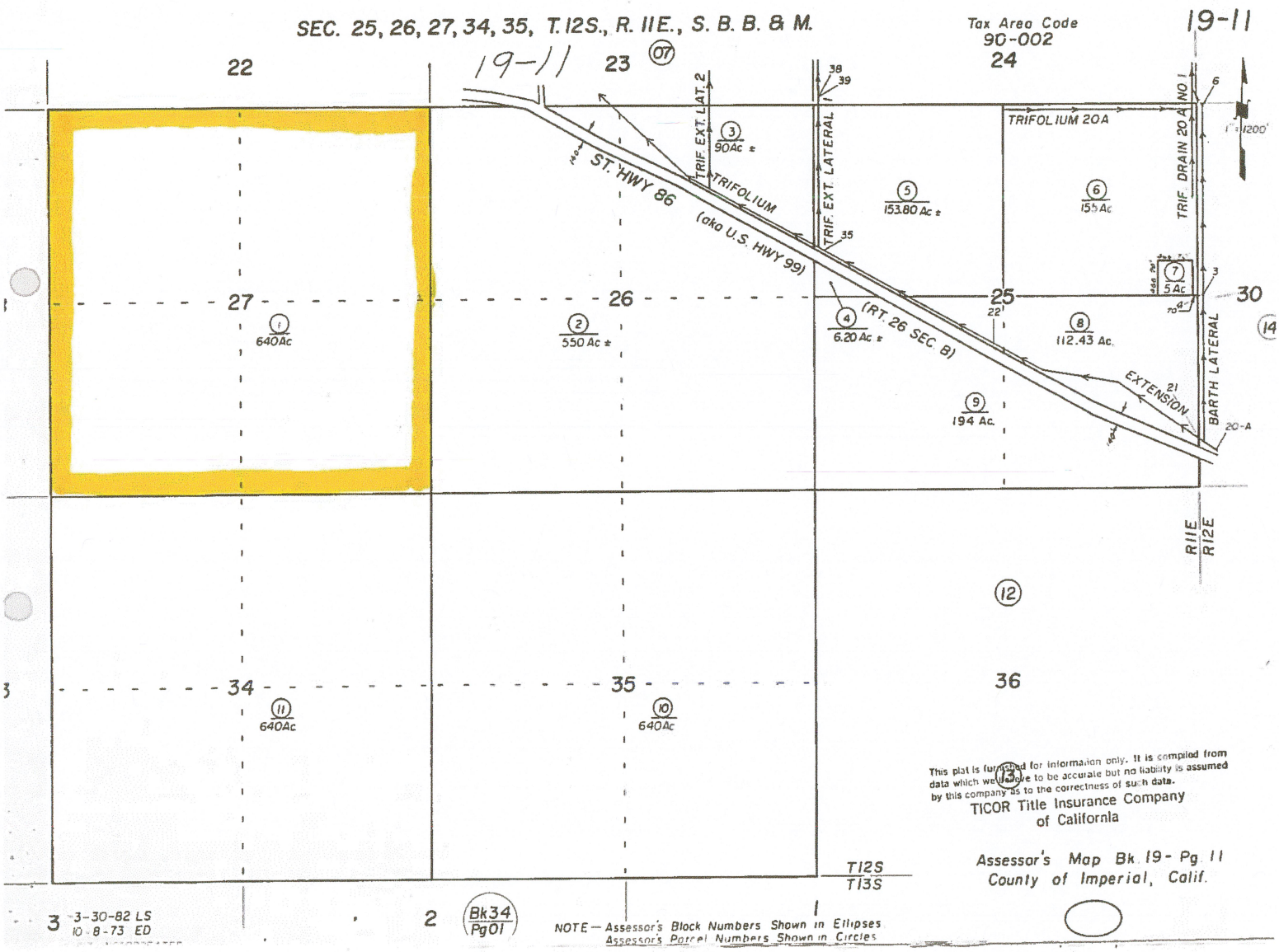

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C-4 Water Well Conditional Use Permit

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March 17, 2021

Mr. Jim Minnick
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

Subject: Desert Valley Company (DVC) Water Well Conditional Use Permit Application
Conditional Use Permit 05-0020

Dear Mr. Minnick:

Enclosed please find revised Conditional Use Permit application for the development of a new ground water well at Desert Valley Company. The project description is being enclosed separately and aims to supplement information submitted on January 22, 2021.

Should you have any questions or require additional information, please contact Osvaldo Flores at (760) 348-4212 or by email at Osvaldo.flores@calenergy.com .

Sincerely,

Bryan Whitcomb
General Manager

Enclosure - Attachments
CUP Application & Project Description

cc: Patricia Valenzuela – Imperial County Planning and Development Services
Diana Robinson – Imperial County Planning and Development Services
Jenny Wu
Jon Trujillo
Sam Rubin
Osvaldo Flores
Environmental File

Attachment A - Conditional Use Permit Application & Project Description

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Desert Valley Company	EMAIL ADDRESS Bryan.Whitcomb@bherenewables.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4200
3. APPLICANT'S NAME Desert Valley Company	EMAIL ADDRESS Bryan.Whitcomb@bherenewables.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4200
4. ENGINEER'S NAME CA. LICENSE NO. N/A	EMAIL ADDRESS N/A	
5. MAILING ADDRESS (Street / P O Box, City, State) N/A	ZIP CODE N/A	PHONE NUMBER N/A

6. ASSESSOR'S PARCEL NO. 019-100-04	SIZE OF PROPERTY (in acres or square foot) 640 acres	ZONING (existing) S-2/M-2
7. PROPERTY (site) ADDRESS 3301 West Highway 86		
8. GENERAL LOCATION (i.e. city, town, cross street) Approximately 15 miles west of Westmorland, CA		
9. LEGAL DESCRIPTION APN 019-100-004, Township 12 South, Range 11 East, Section 33		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)

See attachment for detailed description of proposed use of groundwater well. ---

11. DESCRIBE CURRENT USE OF PROPERTY: Vacant/Present facility footprint: NE quadrant and ~18 acres of the SE quadrant of Section 33.
12. DESCRIBE PROPOSED SEWER SYSTEM: Existing
13. DESCRIBE PROPOSED WATER SYSTEM: Existing
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM: Existing

15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 8 DVC Employees plus contractors.

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Bryan Whitcomb — Print Name
3/17/2021 — Date
Signature

Print Name — Date
Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY: _____ DATE _____
APPLICATION DEEMED COMPLETE BY: _____ DATE _____
APPLICATION REJECTED BY: _____ DATE _____
TENTATIVE HEARING BY: _____ DATE _____
FINAL ACTION: ☐ APPROVED ☐ DENIED DATE _____

REVIEW / APPROVAL BY OTHER DEPT'S required.
☐ P. W.
☐ E. H. S.
☐ A. P. C. D.
☐ O. E. S.
☐ _____
☐ _____

CUP # _____

Conditional Use Permit - Desert Valley Company (DVC) Water Well Conditional Use Permit Application (CUP)

1. **Purpose:** Conditional Use Permit for New Ground Water Well for Desert Valley Company Monofill

   Application specifics:

   - Request new Conditional Use Permit in support of construction projects and daily operations.
   - Request increase of operational annual ground water allowance of 8.5 acre-feet/year to 11 acre-feet/year. Increase in operational annual allotment has been assumed and evaluated by the Water Supply Assessment. Congruent with CUP 05-0020, operational groundwater use will remain restricted to non-potable dust control and sanitary use only.
   - Request to retain existing well as a reserve well. Reserve well is to remain subject to annual ground water allowance.

2. **Location of Project:** 3301 W. Highway 86, Brawley, California

3. **Proposed site of construction to coincide with the project site withing proposed area of expansion under assessment:** Township 12 South, Range 11 East, Section 33, APN 019-100-004

4. **Project Background:**

   The DVC Monofill Facility includes two closed cells, Cell 1 and Cell 2, and a currently active cell, Cell 3. The project requiring installation of higher yield well involves the permitting and construction of a new cell, Cell 4. Conditional Use Permit No. 05-0020 limits the facility to Class 2 waste disposal activities such that only certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California can be accepted. Solid Waste Facility Permit No. 13-AA-0022 specifies the wastes that can be accepted at the facility.

At present, water for existing operations at Desert Valley Company is provided by an onsite groundwater supply well installed in 2005. The Imperial County Planning and Development Services has established various operational guidelines through the water well attachment to Conditional Use Permit No. 05-0020. The permit limits the amount of ground water per year to 8.5 acre-feet/year and restricts its use to non-potable dust control and sanitary use only.

5. Description of Proposed Groundwater Use & Project Water Demand:

Project water demand would include water needed for dust control and construction of Cell 4 (1), the capping and closure of existing Cell 3(2) and future daily operational water demand e.g. dust control and makeup water for mixing with the soil seal (3). Please note, the closure of Cell 3 is unrelated to the CEQA analysis and/or permitting process pertaining to the establishment of Cell 4. The closure of Cell 3 will be conducted in accordance with local, state and federal regulations.

a. Construction water demand for the Cell 4 expansion and the closure of Cell 3: Cell 4 will be constructed in two phases e.g. Phase 1 (Cell 4a) and Phase 2 (Cell 4b), therefore the water use estimate produced by the Water Supply Assessment was prepared for Cell 4a. Closure of Cell 3 will be initiated within thirty days after Cell 3 reaches final elevation. Based on current projection Cell 3 will reach capacity in 2027.

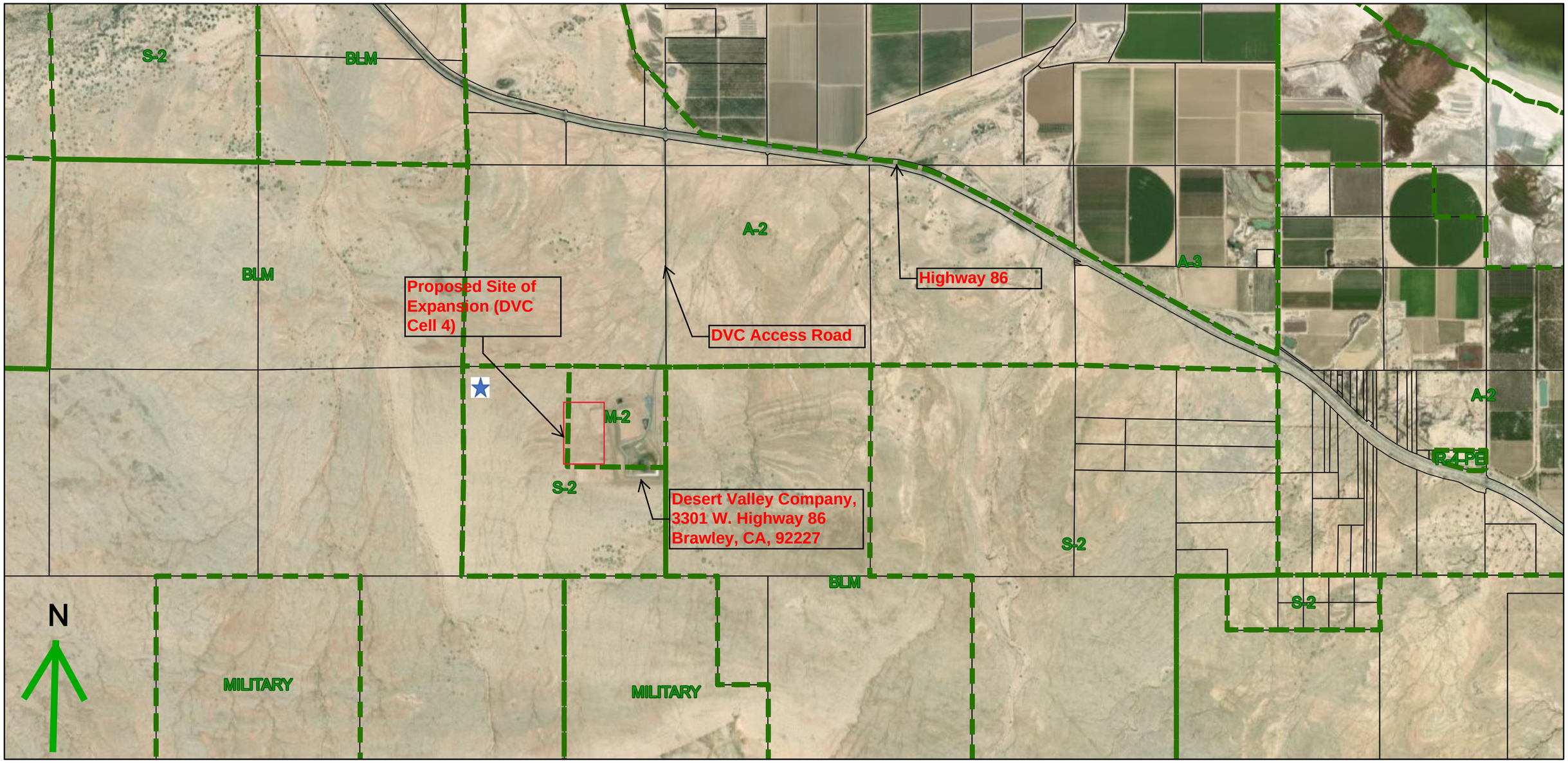
Construction activities from the installation of Cell 4 and the closure of Cell 3 are inter-related but will not occur contemporarily because Cell 4a will begin receiving waste before Cell 3 reaches capacity. It is feasible that water use for closure activities and day-to-day operational water demand could overlap for four (4) to six (6) months during the construction of the Cell 3 cap. It is expected that the temporary increase in water demand from these construction projects will outstrip the yield of the of the supply well making it necessary to design a new well capable of meeting anticipated water demand. The water well design and construction will abide with local, state and federal standards.

Construction Water Use Estimates:

- Expected total water demand for the construction of Cell 4a: 75 – 100 acre-feet
- Expected total water demand for the closure of Cell 3: 30-40 acre-feet

b. Operational water use e.g. day to day use: Expected maximum demand for groundwater is 11 acre-feet per year. Groundwater use at the DVC has ranged from 3.58 acre-feet/year to 8.02 acre-feet/year.

DVC Water Well Site Map - DVC Groundwater Well Conditional Use Permit Application



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Land Use Zoning

Assessor's Parcels

Desert Valley Company, APN 019-100-004,
Township 12 South, Range 11 East, Section 33

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Esri, HERE, Garmin, USDA FSA, GeoEye, Maxar

Web AppBuilder for ArcGIS
USDA FSA, Maxar | Esri, HERE, Garmin |

Attachment A - Conditional Use Permit Application submitted January 22, 2021

January 22, 2021

Mr. Jim Minnick
Imperial County Planning and Development Services
801 Main Street
El Centro, CA 92243

Subject: Desert Valley Company (DVC) Water Well Conditional Use Permit Application

Dear Mr. Minnick:

Enclosed please Conditional Use Permit application for the development of ground water well to supply water needed during the construction of Cell 4, closure of Cell 3 and subsequent operation of Cell 4. Future location of the well is to coincide with the current project site or within the proposed area of expansion (DVC Cell 4) under assessment. Presently, water for existing non-construction operations at Cell 3 is provided by an onsite groundwater well. Site specific conditions, limiting water supply to 8.5 acre-feet per year for the existing ground water well are found in Conditional Use Permit (CUP) No. 05-0020.

To assist with your review additional documents are being included with the application:

1. Cell 4 Water Supply Assessment
2. Hydrology and Water Quality Assessment Report

Should you have any questions regarding or require additional information, please contact Osvaldo Flores at (760) 348-4212 or by email at Osvaldo.flores@calenergy.com .

Sincerely,

Bryan Whitcomb
General Manager

Enclosure - Attachments
CUP Application
Cell 4 Water Supply Assessment
Hydrology and Water Quality Assessment Report
Application Fee ($500)

cc: Patricia Valenzuela – Imperial County Planning and Development Services
Diana Robinson – Imperial County Planning and Development Services
Jenny Wu
Jon Trujillo
Sam Rubin
Osvaldo Flores
Environmental File

Attachment A - Conditional Use Permit Application

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Desert Valley Company	EMAIL ADDRESS Bryan.Whitcomb@bherenewables.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4200
3. APPLICANT'S NAME Desert Valley Company	EMAIL ADDRESS Bryan.Whitcomb@bherenewables.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 7030 Gentry Road	ZIP CODE 92233	PHONE NUMBER 760-348-4200
4. ENGINEER'S NAME CA. LICENSE NO. N/A	EMAIL ADDRESS N/A	
5. MAILING ADDRESS (Street / P O Box, City, State) N/A	ZIP CODE N/A	PHONE NUMBER N/A

6. ASSESSOR'S PARCEL NO. 019-100-04	SIZE OF PROPERTY (in acres or square foot) 640 acres	ZONING (existing) S-2/M-2
7. PROPERTY (site) ADDRESS 3301 West Highway 86		
8. GENERAL LOCATION (i.e. city, town, cross street) Approximately 15 miles west of Westmorland, CA		
9. LEGAL DESCRIPTION APN 019-100-004, Township 12 South, Range 11 East, Section 33		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)

In addition to the expansion of the Desert Valley Company with the construction of solid waste unit Cell 4 at 3301 W. Highway 86, Brawley, California, a groundwater well is being proposed. Well design will be subject to anticipated water demand from discrete construction projects e.g. installation of Cell 4 at 75 -100 acre-feet and the closure of Cell 3 (30 - 40 acre-feet). After construction, long term water demand from day to day operations will be up to 11.21 acre-feet/ year. Well will be likely drilled to approximate depth of 605 feet.

11. DESCRIBE CURRENT USE OF PROPERTY: Vacant/Present facility footprint: NE quadrant and ~18 acres of the SE quadrant of Section 33.

12. DESCRIBE PROPOSED SEWER SYSTEM: Existing

13. DESCRIBE PROPOSED WATER SYSTEM: Existing

14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM: Existing

15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? 8 DVC Employees plus contractors.

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Bryan Whitcomb — Print Name
1/22/2021 — Date
Signature

Print Name — Date
Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE
C. OTHER
D. OTHER

APPLICATION RECEIVED BY: _____ DATE _____
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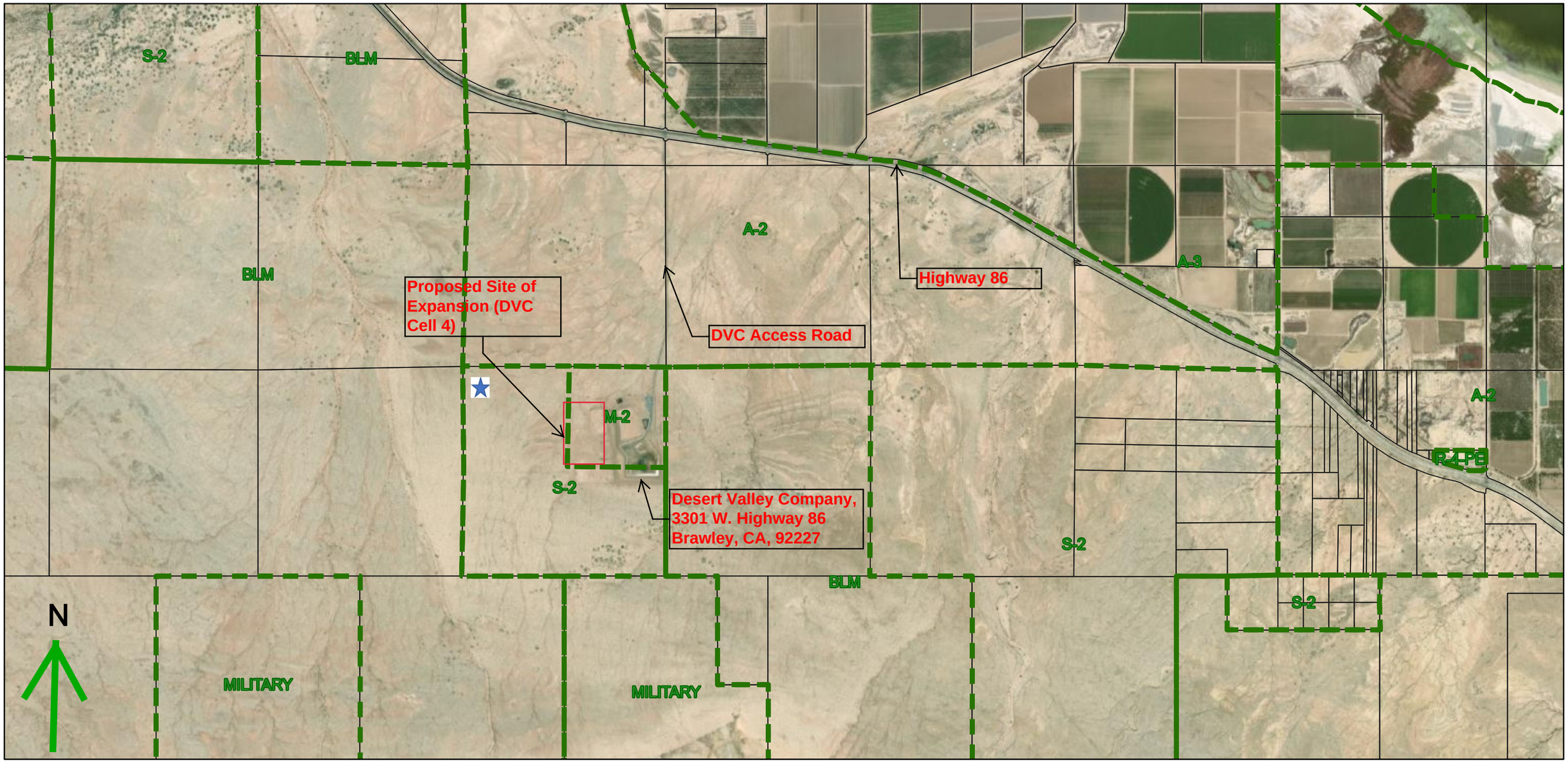
CUP # _____

DVC Water Well Site Map - DVC Groundwater Well Conditional Use Permit Application



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Land Use Zoning

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Esri, HERE, Garmin, USDA FSA, GeoEye, Maxar

Web AppBuilder for ArcGIS
USDA FSA, Maxar | Esri, HERE, Garmin |

Attachment B- Cell 4 Water Supply Assessment

(included as Appendix N of the EIR Volume II Technical Appendices)

Attachment C – Hydrology and Water Quality Assessment Report

(Included as Appendix L of the EIR Volume II Technical Appendices)

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D Conceptual Design Report

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CalEnergy Operating Corporation

DVC Monofill Cell 4 Conceptual Design Report

July 25, 2019

Prepared by:

Steven D, Burden, PE

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

CalEnergy Operating Corporation
DVC Monofill Cell 4 Conceptual Design Report

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1.0 Introduction 1
2.0 General Site Design 1
3.0 Final Height of Fill Areas 2
4.0 Construction Description 2
5.0 Cell Closure Cover 2
6.0 Equipment – Number and Types 2
7.0 Traffic 3
8.0 Noise and Vibration Control Provisions 3
9.0 Leachate Controls 3
10.0 Leachate Monitoring System 4
11.0 Erosion and Sedimentation Controls 4
12.0 Drainage Facilities – Drainage Plan 4
13.0 Gas Monitoring 5
14.0 Revegetation 5

Drawings
G-1 – Cell 1-4 Site Plan
G-2 – Cell 4A and 4B Site & Grading Plan
G-3 – Section

CalEnergy Operating Corporation
DVC Monofill Cell 4 Conceptual Design Report

1.0 Introduction

Veizades & Associates, Inc. (VEIZADES) has been engaged by CalEnergy/Desert Valley Company to develop conceptual civil site and grading plans for the proposed Cell 4 expansion of the DVC Monofill facility. The plans will be utilized as part of the CEQA document for the project. The project goal is to develop a phased expansion of the Monofill facility which will include two cells, one to be initially constructed and the second one to be available prior to close of the first cell. This Conceptual Design Report includes the basis for the site plan, access, grading, drainage and construction of the units and to address several items in the CEQA checklist. Since permitting of the facility has not yet been completed, the conceptual details provided herein might be modified/tailored to conform to other project constraints or requirements.

2.0 General Site Design

A Site Plan has been developed for Cell 4A and 4B (Drawing No. G2) and an Overall Site Plan for the entire Monofill Facility Cells 1-4 (Drawing G1). Cell 4A, with an overall area of 24 acres, will be constructed first and the 21-acre Cell 4B will be constructed approximately two years prior to Cell 4A reaching its capacity. Cell 4A will have an approximate capacity of 1.4 million cubic yards and Cell 4B's capacity will be 1.2 million cubic yards.

Access to Cell 4A and then to 4B will be from a new 20-ft wide paved road that will start adjacent to the existing site buildings at Cells 1 and 2 and will follow along the 10-ft wide existing maintenance road on the east and south sides of Cell 3, crossing the Cell 3 diversion channel and terminating at the southeast corner of Cell 4A. Access to Cell 4B will be an extension of the access from Cell 4A to the southeast corner of Cell 4B.

A common 1.2-acre Leachate Collection Pond will be constructed adjacent to Cell 4B. The pond will also be used intermittently for stormwater removal from the active cell when stormwater build-up prohibits disposal of the geothermal waste material. Rainfall that accumulates during a rain event evaporates in the active cell or in the Leachate Pond when moved there.

Construction laydown, material stockpiling and borrow areas are shown on the site plan. They include the area between existing Cells 1-3 and Cell 4, and the Cell 4B area during construction and operation of Cell 4A.

The area to be filled for each cell will be the perimeter dikes which will be approximately 20 ft higher than the existing grades at the site. Material will be cut from the interior of the cell in order to construct the engineered fills for the dikes, protective cover and cap material for cell closure. The area at the bottom of the cells will be over-excavated and remixed with enough onsite clay to provide a 3-4 ft thick base layer with a permeability less than 1x10-7 cm/sec. A geotechnical investigation including borings will be performed to provide soil properties for designing the

engineered fills, checking slope stability and identifying clay and other materials within the excavations.

The leachate collection, leak detection and liner will be constructed with geosynthetic materials and high-density polyethylene geomembranes. The original ground at the site slopes downward to the north and there is an approximate 20 ft drop in elevation form south to north of each cell. The bottom of the constructed cells will also slope downward from south to north.

3.0 Final Height of Fill Areas

The perimeter dikes will be approximately 20 ft high from existing grades. The total height of fill at cell capacity will be approximately 30 ft above existing ground or 10 ft above the top of dike elevations.

4.0 Construction Description

Drawing G2 shows the limits of grading for the cells, leachate pond and access road. The final grading plan will provide for enough cut within the cell perimeters to construct the fills for the dikes, protective cover over the leachate collection/leak detection layers and cap material for cell closures. Material may need to be stockpiled within the construction laydown/stockpile/borrow areas for the cap material.

Grading of the cells will include:

- Dust control using on-site well water
- Clearing and grubbing
- Cutting/stockpiling of dike fill material
- Over-excavation, moisture conditioning and re-compaction of the cell bottom materials
- Construction of the engineered fills for the dikes
- Installation of the bottom liner, geosynthetic liner, leak detection layer, leachate collection layer, protective synthetic cover and soil protective cap

5.0 Cell Closure Cover

The final cover for the cells will include a geosynthetic clay liner, a 40 mil HDPE Liner, non-woven geotextile fabric, 1 ft of cap soil and 1 ft of cap soil with clay binder. The top surface will be graded to collect drainage at the north end of the cells.

6.0 Equipment – Number and Types

Equipment that will be used to grade the cells, roads and drainage diversion/swale will be typical grading equipment including dozers, compacters, loaders, earthmoving scrapers and water trucks. Equipment noted below has been used on similar projects and other equivalent manufacturers may be used:

Quantity	Grading Equipment
1-3	Tractor/Scraper
1-2	Paddle Wheel Scraper
1	CST 140H Motor Grader
1	CAT D9 Dozer
1	CAT D6 Dozer
1-2	4000-GAL Water Truck
1	8000-GAL Water Pull
1	825C Sheepsfoot Compactor
1	CAT CP 433E Vibratory Sheepsfoot Compactor
1	Deere 210 LE Loader
1	CAT 430D Backhoe Loader
	Paving Equipment
1	CAT AP -1055B Asphalt Paving machine
1-2	SAKAI SW-850 Asphalt Compactor
1	CAT PS-200B Rubber Tire Compactor
1	IR DD-22 Vibratory Drum Compactor

7.0 Traffic

Access to the site is via State Highway 86 to a 1.5-mile paved access road. Construction traffic to the site will include:

- Mobilization/demobilization of construction equipment included in the list above.
- Contractor personnel of 15 to 25 for an approximate 1-year construction duration.
- Truck loads for base rock and asphalt for construction access road and new paved road. (Approximately 50 truck trips).
- Truck loads for synthetic liner materials. (Approximately 200 truck trips).

8.0 Noise and Vibration Control Provisions

All construction equipment will be equipped with exhaust mufflers in compliance with current State of California requirements. The construction equipment will not create vibrations outside of the construction zone. Vibratory sheepsfoot compaction equipment will create minor vibrations within 100 to 200 ft when in operation.

9.0 Leachate Controls

Desert Valley Company has elected to construct the liner system for the Class II Facility to Class I standards. Each cell will include a multi-layer leachate collection and liner system designed and constructed per State of California Title 23, Division 3, Chapter 15, Article 4; **Construction Standards for Class I Units.** The system shown on attached Drawing G3 includes a leachate liner and collection layer and a leak detection layer. They will be installed over a bottom geosynthetic clay liner and a 3-4 ft thick layer of compacted material with a permeability less than 1x10-7 cm/sec. The leachate collection and leak detection layers will slope to a 4-inch PVC collection pipe that will slope downward from the south to north end of the cell. The pipe will run

up to the top of the north dike where a pump collection point will be installed to remove leachate if present. A similar leak detection pipe will be installed in the leak detection layer with a pump removal point adjacent to the leachate collection pipe on the north dike for each cell. The leachate or leakage fluid will be pumped to the leachate pond where it will evaporate.

10.0 Leachate Monitoring System

The leachate monitoring system will consist of periodic operation of the leachate collection pump to check for the presence of leachate and to quantify the flowrate. The leak detection system will also be checked for leakage below the leachate collection system.

11.0 Erosion and Sedimentation Controls

Erosion and sedimentation controls to be implemented during construction and operation of the new units will be developed during the final engineering of the grading plans for the sites. A Notice of Intent will be filed with the Water Quality Control Board and a Storm Water Prevention Plan (SWPP) will be prepared for each phase (Cell 4A & 4B) of the project. The SWPPs will include erosion and sedimentation Best Management Practices (BMPs) to prevent erosion of the new facilities during construction and operation of the units.

Items that will be addressed in the SWPPs will include:

- Erosion protection of graded areas including slopes, roads and drainage swales/ditches.
- Site perimeter runoff sedimentation control – Swales and ditches that discharge runoff from the site to existing drainages will contain fiber rolls or other devices to collect any sediment before leaving the site.
- Monitoring of natural drainages downstream of the site.
- Application of a polymer sealer to the outer surfaces of the slopes to prevent erosion.

12.0 Drainage Facilities – Drainage Plan

The Preliminary site plan on Drawing G2 includes preliminary drainage features for the site. They include the diversion and reconnection of existing natural drainages that enter the site and the routing of stormwater within the new facilities.

There will be a diversion berm and swale constructed along the southern and eastern boundaries of the Cells 4A and 4B that will direct the flows from the natural drainages around the new cell. The berm and swale will be designed for a 100-year storm intensity/duration. The berm and swale will be similar to the one constructed for Cells 1-3.

There will also be a swale constructed on the east side of the diversion berm to pick up sheet flow from the site drainage from the west side dikes of the new cells. The east side of the cells will sheet flow to the existing drainage swale between Cells 1-3 and Cells 4A and 4B.

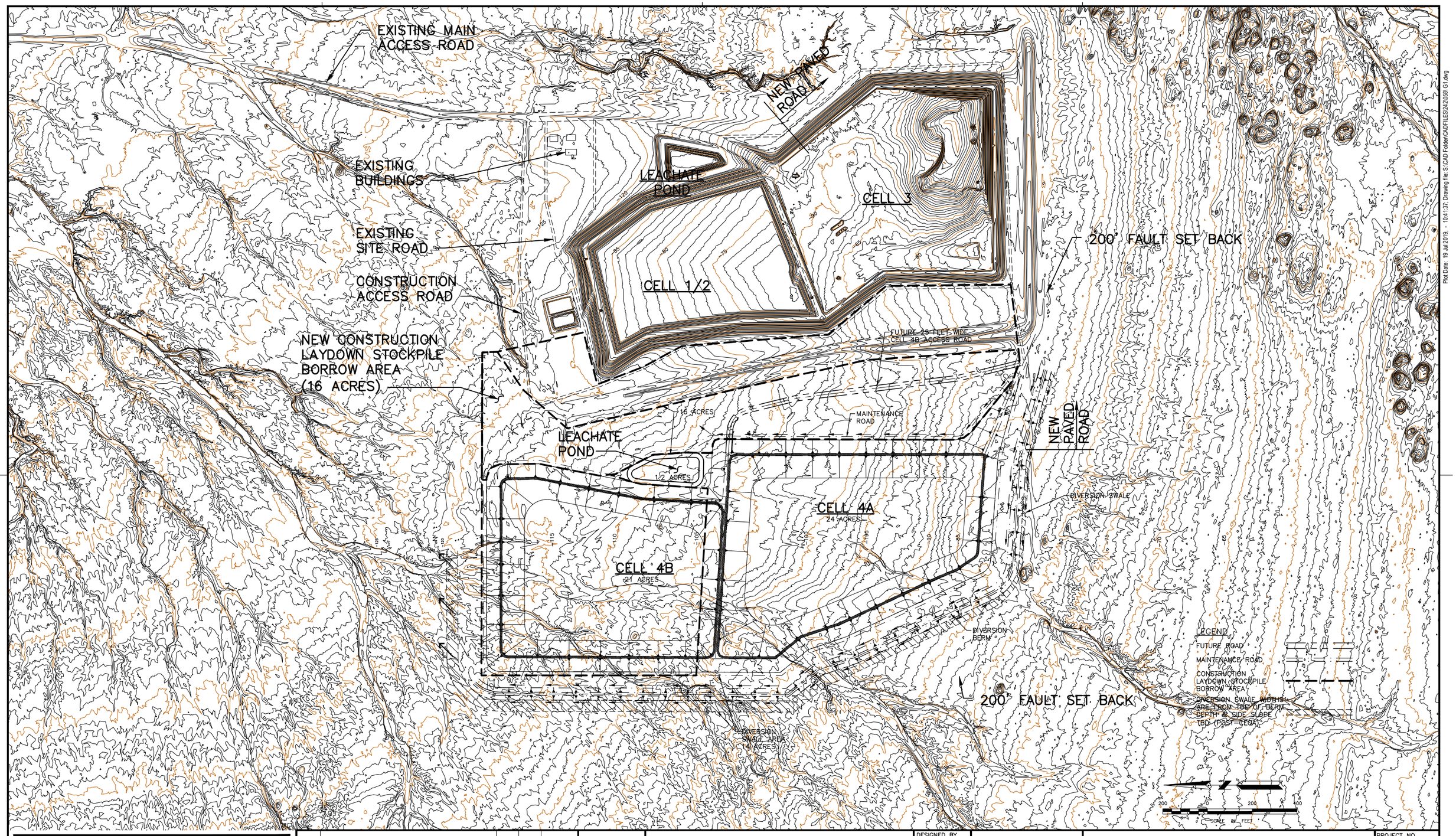
Rainfall that falls within the cell will be collected at the southern low end of each cell and either evaporate there or be transported to the leachate pond.

13.0 Gas Monitoring

Gas monitoring wells will be installed after the closure of each unit. A series of drilled PVC pipes will be installed into the landfills to monitor and release the presence of any gas generated within the fill.

14.0 Revegetation

All finished slopes and the final cap will be treated with a polymer sealer to prevent erosion. Graded areas used for laydown, stockpiling and borrow will be revegetated with a hydroseed mix including tackifier, fertilizer and a straw cover.



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NO.	REVISIONS	BY	APPR.	DATE
A	ISSUED FOR REVIEW			

WARNING

IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE

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1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET • SUITE 400 • SAN FRANCISCO • CA 94103
TEL: 415. 394.8855 FAX: 415. 394.8866

DESIGNED BY	
CHECKED BY	
DRAFTED BY	
APPROVED BY	
DATE	
SCALE	1"=200'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DVC MONOFILL

CELL 1–4 SITE PLAN

PROJECT NO.	242–058
CONTRACT NO.	
CADFILE NO.	–
SHEET NO.	G1
REV. NO.	△

Plot Date: 19 Jul 2019, - 10:41:37, Drawing file: S:\CAD Folder\CADFILES\242058\ G1.dwg

CONSTRUCTION ACCESS ROAD

EXISTING SITE ROAD

FUTURE 25 FEET WIDE CELL 4B ACCESS ROAD

DRAINAGE DITCH

25' WIDE ACCESS ROAD

DIVERSION SWALE APPROX. 15' WIDE

16 ACRES

MAINTENANCE ROAD

LEACHATE POND
1.2 ACRES

CELL 4A

LEACHETE CLEAN-OUT BOX

LEACHETE PUMP BOX

24 ACRES

TBD

CELL 4B

LEACHETE CLEAN-OUT BOX

LEAD-OUT PUMP BOX

21 ACRES

RE-CONNECT FLOWS TO THE JURISDICTIONAL DRAINAGES

DIVERSION BERM

DIVERSION SWALE APPROX. 35' WIDE

DIVERSION SWALE APPROX. 50' WIDE

DIVERSION SWALE AREA 14 ACRES

100 0 100 200
SCALE IN FEET

LEGEND

FUTURE ROAD

MAINTENANCE ROAD

CONSTRUCTION LAYDOWN STOCKPILE BORROW AREA

DIVERSION SWALE WIDTH ARE FROM TOE OF BERM. DEPTH & SIDE SLOPES TBD (POST-CEQA)

Plot Date: 19 Jul 2019, - 12:36:51; Drawing file: S:\CAD Folder\CADFILES\242058\ G2.dwg

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DESIGNED BY	
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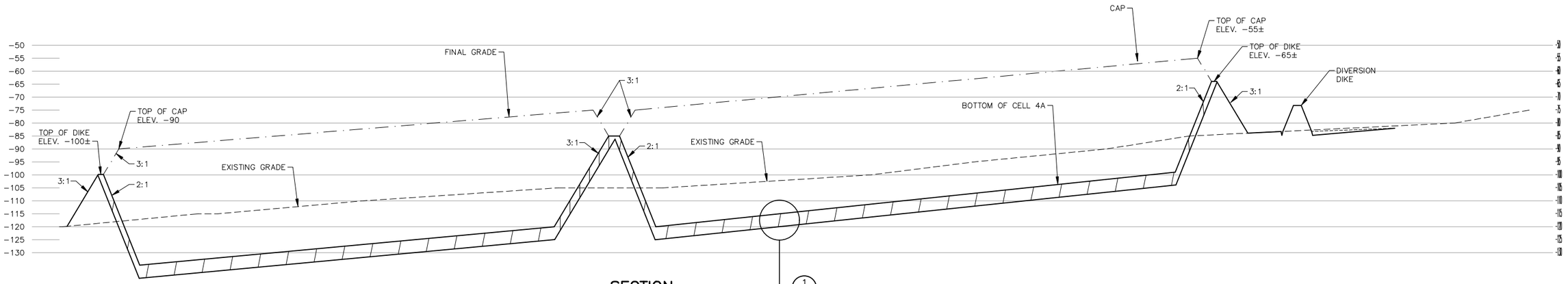
DRAFTED BY	
APPROVED BY	
DATE	
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DVC MONOFILL

CELL 4A / 4B SITE GRADING PLAN

PROJECT NO.	242-058
CONTRACT NO.	
CADFILE NO.	-
SHEET NO.	G2
REV. NO.	



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1"=20' VERT.

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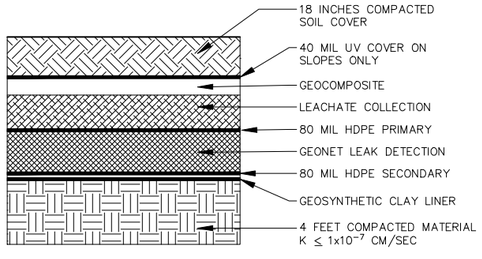

DETAIL 1 / –
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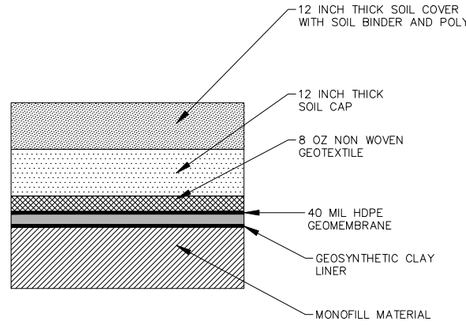

DETAIL 2 / –
NO SCALE

LEGEND

FINAL GRADE
EXISTING GRADE
OVER-EXCAVATE AREA

THESE DRAWINGS ARE INSTRUMENTS OF PROFESSIONAL DESIGN SERVICES PERFORMED BY VEIZADES & ASSOCIATES INC. FOR THIS SPECIFIC PROJECT REFLECTING THE UNIQUE REQUIREMENTS OF THE PROJECT. ANY UNAUTHORIZED CHANGES OR USE OF THESE DRAWINGS, INCLUDING ANY INFORMATION CONTAINED THEREIN, FOR ANY OTHER PROJECT IS PROHIBITED. THE CLIENT AGREES TO INDEMNIFY VEIZADES & ASSOCIATES, INC. AGAINST ANY CLAIMS OR DAMAGES ARISING FROM SUCH UNAUTHORIZED CHANGES OR USE. VEIZADES & ASSOCIATES, INC. IS THE AUTHOR OF THESE DRAWINGS AND RETAINS ALL RIGHTS INCLUDING COPY RIGHTS.

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DESIGNED BY
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SCALE 1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DVC MONOFILL

SECTION

PROJECT NO. 242-058
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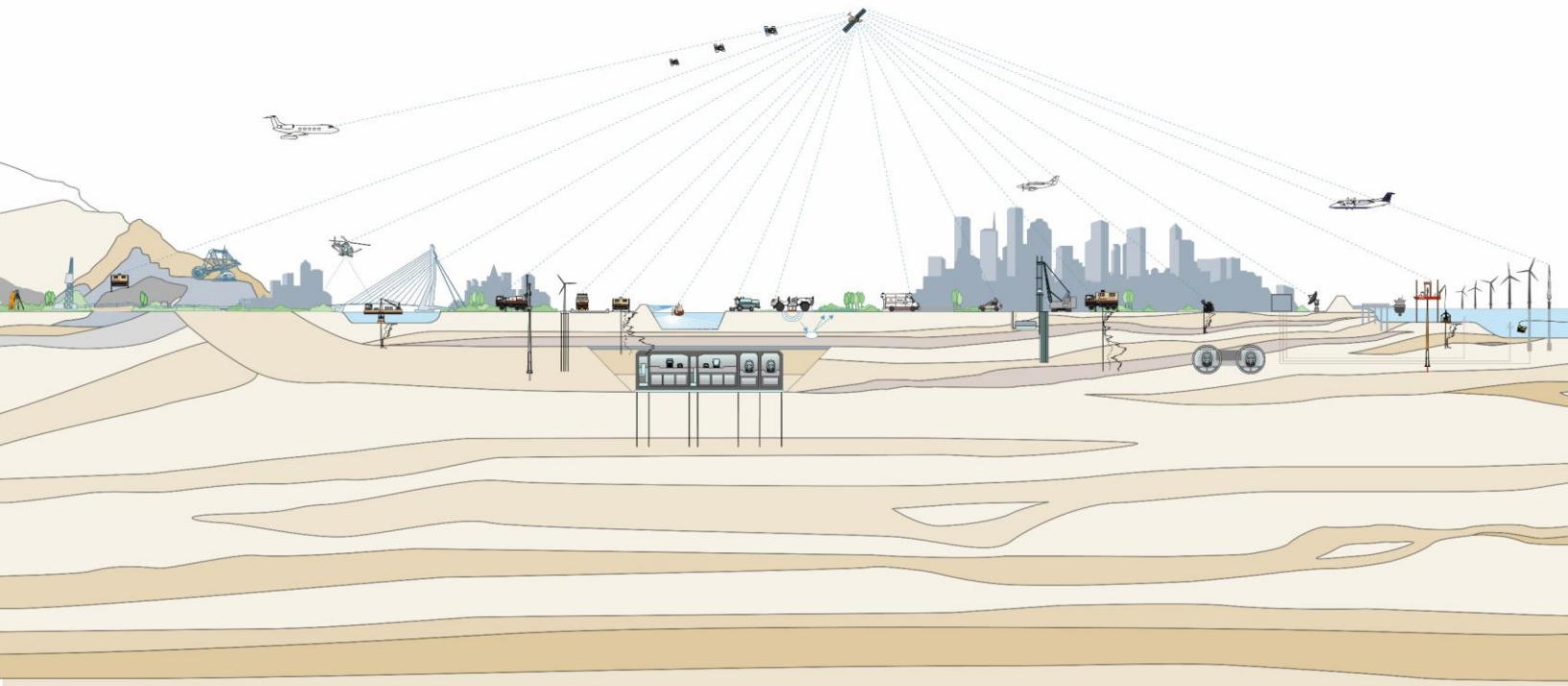
FUGRO
Siting Analysis
Desert Valley Company Monofill
DVC Cell 4 Project
Brawley, California

July 30, 2019
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-007(Rev.00)

CalEnergy Operating Corporation



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Prepared for:

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

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Attention: Ms. Yanqiu Wu

Siting Analysis
Desert Valley Company (DVC) Monofill, DVC Cell 4 Project
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present this draft siting analysis report for the proposed Desert Valley Company (DVC) Monofill DVC Cell 4 solid waste facility. This work was authorized under a general services contract between CalEnergy Operating Corporation and Fugro USA Land, Inc., effective October 18, 2017, under Purchase Agreement #245885, and change order No. 4, approved on October 12, 2018.

The report provides a summary of the technical data relevant to siting, an analysis of the DVC property using site screening criteria, identification of candidate sites, and selection of a preferred site for proposed Cell 4.

It has been our pleasure to perform this study for CalEnergy's DVC Cell 4 project. We look forward to continuing to serve CalEnergy in future phases of this project. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

John H. Niles
Senior Staff Geologist

Kelley A. Shaw, P.G.
Project Geologist

Janet Sowers, Ph.D., P.G.
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Distribution: One electronic copy to Ms. Yanqiu Wu

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1. INTRODUCTION

CalEnergy owns and operates the Desert Valley Company (DVC) Class II Monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Three cells have thus far been constructed, beginning with Cell 1 in 1990. Cells 1 and 2 have been filled and closed and Cell 3, completed in 2004, is projected to reach its capacity in the year 2025. Proposed Cell 4, with a capacity of at least 1,300,000 cu yd. (same as Cell 3), would need to be operational before Cell 3 can be closed. Cell 3 occupies approximately 20 acres including the surrounding berm, thus a similar acreage is targeted for Cell 4.

CalEnergy owns Section 33 and diagonally adjacent Section 27 (Figure 1), herein referred to as the DVC property. Fugro conducted siting studies to identify a suitable site within the DVC property for the construction of Cell 4. CalEnergy has requested that two 20-acre sites be identified to allow for long-term development, resulting in a target site area of 40 acres. Based on an initial constraints analysis and review of existing site data (Fugro, 2018a, 2018e), two study areas, one in each section, were selected as the focus of siting investigations (Figure 1).

The purpose of this report is to review site-specific geologic and resources data, apply screening criteria to identify candidate sites, and to propose a preferred 40-acre site for Cell 4. Site-specific data include historical data collected for siting and design of Cells 1, 2, and 3 from 1988 to 2005, and geologic and environmental resources data collected by Fugro from 2018 to 2019.

1.1 Background

Selection of an appropriate site for Cell 4 involves consideration of multiple factors including geology, biology, drainage, cultural resources, access, groundwater, water supply, and operations. Some factors require mandatory consideration through federal, state, or local regulations. These regulations may restrict development if certain factors are present or may require mitigation of other factors which adds cost and time to the project. Non-regulatory factors may otherwise affect project cost, operations, or schedule.

Two primary geologic factors considered in site selection for Cell 4 are addressed by the California Code of Regulations (CCR Title 27, Division 2). These are: (1) the absence of active faulting, and (2) the presence of low permeability strata (e.g., clay) beneath the landfill. The regulations require that a Class II landfill be set back at least 200 feet from any known Holocene fault, the criteria used to classify a fault as active. Thus, the presence of an active fault within the landfill footprint would constitute a fatal flaw.

Regulations also require that a Class II landfill have substantial isolation from ground water. The presence of low permeability strata beneath the landfill and above the ground water table reduces the likelihood that leachate from the landfill could contaminate underlying groundwater resources. A clay liner with a hydraulic conductivity of no more than $1x10^{-6}$ cm/sec is specified (CCR, Title 27, Division 2). DVC Cells 1, 2, and 3 were sited over natural clay layers within the Brawley Formation. The presence of similar clay layers is desired for Cell 4. However, a suitable clay liner may be engineered using compacted clay borrow and synthetic materials. Thus, the lack of a thick natural clay bed beneath the footprint does not constitute a fatal

flaw. Nonetheless, the presence of clay layers in the subsurface is included as a consideration in siting for Cell 4.

1.2 Geologic Setting

The DVC property is covered by a veneer of recent alluvium and lake sediments deposited by late Holocene Lake Cahuilla, over a thick sequence of gently folded lacustrine and deltaic sediments of the early to middle Pleistocene Brawley Formation (Dibblee, 1954, 2008). Both the Brawley Formation and Lake Cahuilla deposits are weakly consolidated. Areas underlain by these deposits have been eroded to form barren to scrub-covered low-relief hills at the site. Tectonic deformation has faulted and gently folded the Brawley Formation, which is expressed as structural domes and ridges that protrude through the Lake Cahuilla deposits as low hills (Figure 2).

Lake Cahuilla deposits on the DVC property consist primarily of discontinuous bands of gravelly and coarse-grained beach ridge deposits formed by waves reworking the incoming stream alluvium along the shore of the lake. Parallel bands of beach ridges record the gradual change in the position of the shoreline as Lake Cahuilla receded to become the present-day Salton Sea. At present, a network of generally north- to northeast-trending washes dissect the landscape and cross-cut the beach ridges, depositing sandy alluvium along their courses as they flow northward to the Salton Sea.

The region is tectonically and seismically active. Active folding and faulting in the area are associated with strike-slip motion along the San Jacinto fault, the Superstition Hills fault, and other major plate-boundary faults (Figure 3). Proximal to the DVC property, Hudnut et al. (1989) documented surface ruptures associated with the 1987 Superstition Hills earthquake sequence on both the East Kane Spring and the West Elmore Ranch faults (Figure 2). These faults are northeast-trending, left-lateral faults that likely link major northwest-trending right-lateral faults (Figure 3). The mapped 1987 surface rupture traces are shown on Figure 1 along with traces of faults that were identified by field observation of shear zones or stratigraphic displacement. These known active faults are located approximately one mile from the DVC monofill at their closest approach; and their close proximity emphasizes the need for careful fault investigation at the site.

In the site area, faults have been mapped either where the 1987 earthquake sequence-related surface ruptures were documented, or where the strata of the Brawley Formation are exposed at the surface and faulting can be observed directly. As most of the DVC property is covered with a veneer of late Holocene alluvium, and lake and beach deposits, evidence for earlier faulting is difficult to discern, except where exposed in the walls of washes or where the Brawley Formation is exposed at the surface. In the immediate vicinity of the monofill, the presence of faults was addressed via fault trenching investigations conducted for Cells 1, 2, and 3 (Balderman, 1988, 1999, 2002) and for Cell 4 (Fugro, 2019d).

2. REVIEW OF DATA RELEVANT TO SITING

This section reviews key information relevant to the siting of Cell 4. Historical data collected for Cells 1, 2, and 3, are described in Section 2.1. Data collected for the Cell 4 siting studies by Fugro in 2018-2019 are described in Section 2.2.

2.1 Historical Site Data, 1988-2005

Information collected during the site investigation, design, and construction of Cells 1, 2, and 3 is very relevant to the siting of Cell 4, as subsurface geology, landscape, and other characteristics are similar throughout the DVC property. The historical information presented in this section is a summary of a more thorough review presented in the site geologic data review (Fugro, 2018e).

Table 1 lists the reports reviewed and key data. All Cell 1, 2, and 3 geologic investigation reports were authored by Morris Balderman of Balderman Consulting, Inc. Mr. Balderman was a California Registered Geologist and Certified Engineering Geologist.

Table 1. Cells 1, 2, and 3 Geologic Reports

Cell	Citation	Key Data
1, 2	Balderman, M. A., 1988, Report of Site Selection and Geologic Exploration, Monofill Project Imperial County, California, prepared for Targhee, Incorporated, Long Beach, CA, 113 pages including figures and oversized plates.	Site selection analysis, geology
1, 2	Balderman, M. A., 1989, Report of geologic investigations, Desert Valley Company Monofill project, Imperial County, California: prepared for Targhee, Incorporated, Long Beach, CA, 257+ pages including appendices of.	Geology, faulting, groundwater, test pit logs, soil tests, boring logs, trench logs, CPT, well records, water quality analyses
2, 3	Balderman, M. A., 2000, Borrow Area Investigation, Draft Report prepared for Desert Valley Company, 49 pages including map, logs, and cross sections.	Boring logs, test pit logs for potential borrow area
3	Balderman Consulting, Inc., 2002, Geologic Investigations, proposed Cell 3 area, Desert Valley Company Monofill, Imperial County, California, September 2002, prepared for McDowell & Associates, Midland, Michigan.	Fault descriptions, trench logs, boring logs, stratigraphic cross sections for Cell 3 area

2.1.1 The 1988 Site Selection Process for Cells 1 and 2

As background for the Cell 4 siting analysis, the process for identifying the DVC property and delineating the Cell 1, 2, and 3 footprints is reviewed. Balderman's (1988) report describes the site selection process and the geologic exploration of the preferred site location.

The work began with identifying site selection criteria (Balderman, 1988). These criteria included the requirements of the State of California as well as considerations of the availability and access to candidate

properties, and whether the site could be developed in a timely manner and could be operated economically. California Code of Regulations, Title 23, Section 2530 lists siting criteria for Class I and II landfills. They are:

1. Unit must be underlain by natural geologic materials having permeability of 10^{-6} cm/sec or less (e.g., clay), or an equivalent liner system. Clay is present in large quantities in the lake beds of the Imperial Valley, thus areas underlain by lake beds were targeted in the search.
2. Units must be located outside the area of the 100-year flood.
3. Units must have a 200-foot setback from any known Holocene fault. (Holocene faults were addressed at every step in the siting process.
4. Units must be designed, constructed and maintained to preclude failure from tidal waves. Tidal waves are unlikely, except along the shore of the Salton Sea, an area which would also be eliminated by the groundwater depth requirement in item 5 below.
5. Waste shall be a minimum of 5 feet above the highest anticipated ground water level. With the exception of areas near the shore of the Salton Sea, groundwater levels are deeper than 5 feet throughout the Imperial Valley.
6. Site must not be subject to rapid geological change.
7. No impact to significant cultural features, rare and endangered species, sensitive or unique habitats. (Candidate sites were generally similar in these characteristics).

A number of practical and economic siting criteria were also applied, as follows:

1. Relatively short haul distance from the waste source,
2. Areas of vacant land so as to avoid conflicting land use,
3. Privately owned property that can be purchased,
4. Minimal length of new road required,
5. Minimal number and size of washes to be crossed, and
6. Minimal need for right-of-way agreements.

Holocene faulting was addressed at the outset of the site-selection process. The initial screening identified faults that had been previously recognized in Imperial County, and specifically in the area between the Salton Sea and the Superstition Hills. In this area, five privately-owned parcels, one square mile each were identified, and field geologic mapping of these parcels was conducted. Studies soon focused on the square mile that comprised Section 33. Figure 4 shows the pre-development appearance of the Section 33 area in a 1950 aerial photograph.

In Section 33, two long trenches were excavated to screen for Holocene faults. Trench 1 was 1,590 feet long and located in the far northern part of Section 33; Trench 2 was 1,110 feet long and located in the northeastern part of Section 33 (Figure 5). The trenches were sited in areas where clay deposits were observed close to the surface in surface exposures, test pits and bucket auger holes. Trench 1 encountered several faults and many fractures; thus, this area was rejected in favor of the area near Trench 2, which encountered faulting only in the far western end of the trench. Additional trenches were excavated to determine the extent of these faults.

The northeast quarter of Section 33 was chosen as the preferred location. It was found to best meet all requirement for site selection, including the lack of active faults. In addition, this area had the following positive attributes:

1. It is closest to the highway and existing roads, reducing cost and environmental impact.
2. It is well removed from the Area of Critical Environmental Concern at San Sebastian Marsh (along San Felipe Creek, currently designated critical pupfish habitat).
3. The productive habitat in Section 33 is confined to the hill area in the southeast quadrant.
4. The hill area in the southeast quadrant diverts the natural drainage thus minimizes runoff potential at the monofill.

Cells 1 and 2 were sited to avoid an active fault that had been identified through fault trenching (See Section 2.1.3.1), and to overlie a thick clay bed later designated as Qb2 (Balderman, 2002).

2.1.2 Siting of Cell 3

The Cell 3 site was identified through exploration activities that took place in 1997, focused on the area immediately south of Cells 1 and 2 (Balderman, 2002). The Cell 3 area was chosen mainly because of the presence of the thick clay bed (Qb5) and the absence of Holocene faults. The western boundary represents the required 200-foot setback from an active fault identified through fault trench investigations. The eastern boundary represents the eastern extent of the thick clay facies of unit Qb5. The northern boundary abuts Cells 1 and 2, and the southern boundary appears to be arbitrary and set to provide the desired acreage for the disposal area.

2.1.3 Geologic Investigations for Cells 1, 2, and 3

Detailed geologic investigations were conducted for Cells 1, 2, and 3 by Morris Balderman. The results were presented in several reports, listed in Table 1. The report for Cell 3 (Balderman, 2002) incorporates much of the data from the Cell 1 and 2 investigations into the discussion and analysis of the Cell 3 data (Balderman, 1988, 1989, and 2000). The results of the combined exploration program for all three cells is presented in this section. This review focuses on the potential for surface faulting, and on the subsurface location and extent of major clay beds.

The exploration program consisted of borings, monitoring wells, neutron tubes, cone penetrometer tests (CPT), test pits, and fault trenches as listed in Table 2 and shown on Figure 5. CPT locations were not available, so are not shown on Figure 5. Explorations conducted in support of Cells 1 and 2 are documented in Balderman reports dated 1988 and 1989; those conducted in support of Cell 3 are documented in reports dated 2000 and 2002.

Table 2. Geotechnical Exploration for Cells 1, 2, and 3

Type	Count	Designations	Completed in	Reported in
Boreholes	12	B1 through B12	1988	Balderman, 1988
	4	DV2, DV3	1989	Balderman, 1989
	6	DV126 through DV131	1999	Balderman, 2000
	30	DV101 through DV125	1997-2002	Balderman, 2002
Monitoring wells and piezometers	4	W01 through W04	1989	Balderman, 1989
	6	W06, W08 through W12	1991	Balderman, 2002
	6	W301 through W306	1999	Balderman, 2002
Water supply well	1	Monofill water well	1991	Balderman, 2002
Neutron tube	6	Z1 through Z6	1991	Balderman, 2002
CPT	24?	CPT1 through CPT22 FC 28, FC29? (missing data)	1989	Balderman, 1989
Test pits	9	T1 through T9	1988	Balderman, 1988
	4	T10 through T13	1989	Balderman, 1989
	6	R-1 through R-6*	1989	Balderman, 1989
	7	T106 through T112	1993	Balderman, 2000
	10	T219 through T228	2002	Balderman, 2002
Fault trenches	2	TR1, TR2	1988	Balderman, 1988
	3	TR3, TR4, TR5	1989	Balderman, 1989
	7	TR8, TR106, TR107, TR108, TR112, TR113, TR114	1988-1993	Balderman, 2002
	19	TR201 through TR219	1997-2002	Balderman, 2002
*Located along access road				

2.1.3.1 Fault trenching

As described in the previous section, Trenches TR1 and TR2 were excavated in 1988 as part of the initial screening study for Cell 1 and 2 site selection (Figure 5). The site was selected in large part based on fault features observed in these two trenches. Several faults and many fractures were identified in TR1, whereas TR2 showed a lack of faulting in the central and eastern portions. Therefore, the site for Cells 1 and 2 was placed in the TR2 area.

Additional investigation was done to delineate the fault exposed in the west end of TR2. In 1989, three additional trenches, TR3, TR4, and TR5, were excavated to trace the fault north and south of the exposure in TR2, and to define fault length. Balderman (1989) reports that the fault on the west end of TR2 "*can be recognized by subtle surface features where the Brawley Formation is exposed between Trenches 3 and 4…*" "*The fault is a disturbed zone several feet across that appears to be nearly vertical and has an average strike of N10°E.*" Comparisons between borings B-1 and B-3 indicate that the beds on the west side of the fault are about 20 feet lower than their equivalents on the east (Balderman, 1988).

In addition, the presence of a fault on the east side of the site was suggested by a lack of correlation in CPT profiles. A trench was excavated, and a series of small breaks identified that together were interpreted as a fault zone with east-side-down displacement and a strike of N12°W. Cells 1 and 2 were sited to accommodate a 200-foot setback from the faults on the east and west sides.

Siting studies for Cell 3 included an extensive program of fault trenching, as shown on Figure 5 (Balderman, 2002). The west-side faults that had been identified in the Cells 1 and 2 area were tracked to the south and additional faults were identified. The western margin of Cell 3 was defined by a 200-foot setback from faults identified in these trenches. The main area of Cell 3 was cleared of active faulting.

2.1.3.2 Boreholes

The borehole program for Cells 1, 2, and 3 enabled geologists to establish a site stratigraphy and interpret geologic structure, to determine foundation and groundwater conditions, and to delineate the thickness and depth of clay layers. Clay layers were significant for use as borrow material for the clay liner, and to leave in-place as a natural barrier between the base of the landfill and the groundwater. Cone penetrometer tests were employed as a rapid and cost-efficient way to track stratigraphic layers between boreholes.

Cells 1 and 2 were sited over clay layer Qb2, a 10- to 28-foot-thick layer of silty clay classified as CH (fat clay). This unit is exposed at the surface west of Cells1 and 2, and dips northeastward to underlie the cell footprints. The exposed area of unit Qb2 was excavated for borrow material to create the compacted clay liner for these cells.

Cell 3 was sited over unit Qb5, a massive clay classified as CH (fat clay), which occurs as a layer 10 to 14 feet thick under the Cell 3 footprint. This unit is exposed at the surface to the west of Cell 3 and was excavated as borrow material for construction of this cell. The top of the Qb5 clay formed the floor of Cell 3. The position of the eastern margin of Cell 3 was constrained by a lateral facies change in unit Qb5 from the thick clay found beneath the cell, to a fine to medium sand east of the cell.

2.2 Cell 4 Siting Studies, 2018-2019

Fugro collected new data in 2018-2019 to inform the siting of Cell 4. These data include biologic and cultural survey, LiDAR and high-resolution aerial imagery, delineation of jurisdictional drainages, geophysical survey, field geologic mapping, calibration boreholes, and fault trenching. The reports for these studies are listed in Table 3. These datasets and key results are briefly described below. Section 2.2.1 describes environmental resources data including biologic resources, cultural resources, and jurisdictional drainages. Section 2.2.2 describes geologic data including geologic, geotechnical, geophysical, and topographic data.

Table 3. Technical Reports and Data from the Fugro 2018-2019 Siting Studies

Document No. (Citation*)	Date Issued	Title	Content
04.72170065-PR-001 (Fugro, 2018a)	2/20/2018, Revised 3/14/2018	Phase 1 Biological, Cultural, and Geological Constraints Report	Summarizes major findings and includes three appendices: (A) biological resources constraints analysis, (B) cultural resource report, and (C) geologic screening report
04.72170065-PR-002 (Fugro, 2018b)	4/25/2018	Geophysical Survey Report, Line GL-1	Reports on the results of a geophysical survey in the SW ¼ of Section 27, and presents seismic reflection, IMASW, and seismic refraction profiles. Concludes that seismic reflection is most informative for the evaluation of faulting in this setting
04.72170065-L-004 (Fugro, 2018c)	7/3/2018	Transmittal of 2018 Lidar and Imagery Data	Data package includes technical report from Flight Evolved, DTM in ArcGIS format, ortho-imagery, contour map, Google Earth kmz of hillshade image, and printable map sheets
04.72170065-L-005a (Fugro, 2018d)	8/3/2018	Transmittal of Rare Plant Survey, Section 27	Report of the results of a rare plant survey conducted in Section 27 by Hernandez Environmental Services, Inc.
04.72170065-PR-003, Rev A (Fugro, 2018e)	8/15/2018	Phase 2: Site Geologic Data Review and 3D Model	Summarizes the geologic data from previous reports for Cells 1, 2, and 3, and presents a geologic model using these data. Includes Appendix A: Field geologic mapping
04.72170065-L-005b (Fugro, 2018f)	8/16/2018	Transmittal of Jurisdictional Delineation Survey	Report and GIS data for jurisdictional delineation in Sections 27 and 33, by Hernandez Environmental Services, Inc.
04.72170065-PR-004 (Fugro, 2019a)	1/4/2019	Geophysical Screening Campaign, Lines GL-2 to GL-7	Reports on the results of a geophysical campaign in Sections 27 and 33 to identify areas of faulting using seismic reflection
04.72170065-PR-005 (Fugro, 2019b)	1/17/2019	Calibration Boreholes Data Report	Reports on the results of two boreholes each drilled to a depth of 150 feet with continuous coring, in Section 27 and Section 33. Data include detailed geologic log and downhole seismic velocity log
04.72170065-L-006 (Fugro, 2019c)	5/17/2019	Fault Setbacks Map	Transmittal of a map showing compiled Holocene faults and 200-ft setbacks
04.72170065-PR-006 (Fugro, 2019d)	6/14/2019	Fault Trenching Investigation	Reports on the results of a fault trenching investigation. Includes logs of thirteen trenches, a map of faults identified, and 200-ft setbacks
04.72170065-L-007 (Fugro, 2019e)	7/11/2019	Transmittal of Rare Plant Survey, N half Section 33	Report of the results of a rare plant survey conducted in the north half of Section 33 by Hernandez Environmental Services, Inc.
04.72170065-L-008 (Fugro, 2019f)	8/ ? /2019	Transmittal of Burrowing Owl Survey	Report of the results of a burrowing owl survey conducted in the north half of Section 33 and south half of Section 27 by Hernandez Environmental Services, Inc.

* Full citations are provided in the References section.

2.2.1 Environmental Resources Studies

Natural and cultural resources studies were conducted to identify constraints on Cell 4 siting posed by the presence of sensitive resources. Such resources may require avoidance or mitigation. The extents of these studies are shown on Figure 6, and individual studies are summarized below.

2.2.1.1 Biologic Resources Review

The initial biological resources review, conducted by Hernandez Environmental Services, was based on literature review, review of biological databases, and review of aerial photographs and topographic maps. No field data were collected.

Together, the Section 33 and Section 27 sites were judged to have the potential for the presence of 14 sensitive plant species and 26 sensitive wildlife species. The biological survey report prepared for the existing landfill (ERC, 1989) found that the site supported one sensitive plant and one sensitive wildlife species. No biological constraints are mapped, as site-specific studies have not yet been conducted, and individual habitat types have not been identified or delineated.

A potential concern is that, although neither Section 27 nor Section 33 is located within currently designated USFWS critical habitat, desert washes in the far western part of Section 33 drain west into San Felipe Creek (Figure 7). San Felipe Creek is designated critical habitat for the desert pupfish. The complete biological resources review is presented in Appendix A of Fugro (2018a).

2.2.1.2 Cultural Survey

The cultural resources review, conducted by Brian F. Smith and Associates, Inc., consisted of a review of literature, previous studies, and archaeological site records, and a field survey of 320 acres within the NW quadrant of Section 33, and the SW quadrant of Section 27 (Figure 6).

A records search indicated that 34 previously recorded resources were located within the NW quadrant of Section 33, while four were located within the SW quadrant of Section 27. The field survey resulted in the relocation of 11 of the previously recorded sites and the documentation of 10 new isolates (isolated artifacts including lithic tools, flakes, and ceramic fragments) within the two sites. Of the relocated sites and newly identified isolates, nine sites and five isolates are located within Section 33. Two relocated sites and five new isolates were documented within Section 27. A full report is provided in Appendix B of Fugro (2018a). Cultural data are plotted on Figure 8.

2.2.1.3 Rare Plant Survey

Rare plant surveys were conducted in Section 27 in 2018, and in the northern half of Section 33 in 2019 (Figure 6). Both surveys were initiated in the spring of the year to observe the plants in the growth and flowering stages. Neither survey identified rare plants that would require avoidance or mitigation. Complete rare plant survey results are presented in Fugro (2018d, 2019e).

2.2.1.4 Jurisdictional Drainage Delineation

State and Federal regulations protect certain drainages and waterways, termed "jurisdictional drainages," from impacts that affect stream function and habitat. Any alteration of a jurisdictional drainage, including fault trenching, must go through a permitting process before they may be done.

To identify and delineate these jurisdictional drainages, a survey was conducted of Sections 27 and 33 (Figure 6). The survey consisted of a combination of field traverses to identify jurisdictional drainages, and mapping of those drainages in detail in ArcGIS through interpretation of the LiDAR topographic data and high-resolution imagery. Documentation of the methods and results of the jurisdictional drainage delineation are provided in Fugro (2018f), and the data are shown in Figure 7.

2.2.1.5 Burrowing Owl Survey

Protocol burrowing owl surveys were conducted in the southern half of Section 27 and the northern half of Section 33 in the spring and summer of 2019 (Figure 6). The protocol surveys consist of four site visits conducted on four separate days between February 15 and August 7. Walking surveys were conducted within suitable burrowing owl habitat for 100 percent coverage. The location of all suitable burrowing owl habitat and potential owl burrows were recorded and mapped. No burrowing owl sign nor any owls were observed as of July 30, 2019. The results of the burrowing owl survey will be reported in Fugro (2019f).

2.2.2 Geologic, Geophysical, and Topographic Studies

Many of the Cell 4 siting studies focused on the collection of data relevant to identification of Holocene surface faults and documenting geologic structure and materials. Specific studies included the collection of high-resolution topographic data and imagery, geophysical survey, geologic mapping, borehole stratigraphic logging, fault trenching, and development of a geologic model for the site. A map showing the location of geologic data collected as part of the Cell 4 siting studies is presented in Figure 9.

2.2.2.1 High Resolution Aerial Imagery and LiDAR Topographic Data

LiDAR topographic data and high-resolution aerial imagery were collected in June of 2018. A hillshade DEM developed from the LiDAR topographic data and showing the aerial extent of the dataset is presented in Figure 10. The topographic data and aerial imagery were added to Fugro's ArcGIS database for use in geologic analyses and as a base map for other studies including Cell 4 design. Fugro transmitted the LiDAR data, imagery, and associated documentation files to CalEnergy on July 3, 2018 (Fugro, 2018c).

2.2.2.2 Geophysical Survey

Geophysical survey began in April 2018 along line GL-1, an east-west oriented line that extended across the SW ¼ of Section 27 (Figure 9). The purpose of this line was to test the ability of the method to screen the area for faults, and to focus upcoming fault trenching investigations in this potential Cell 4 site area. Shallow seismic reflection imaging along line GL-1 showed excellent resolution of generally unbroken planar stratigraphy in the imaged depths of approximately 30 to 100 meters. Three locations were identified where the reflectors appear to be displaced on the order of 1 to 2 meters.

The successful application of the method led to its use as a screening method for faulting in Section 27 and 33. Six additional seismic lines were surveyed in October 2018. Lines GL-2 through GL-5 were oriented west to east, approximately perpendicular to the known fault trends in the area (Figure 9). Lines GL-6 and GL-7 were "tie lines" oriented north-south, with GL-6 crossing GL-2 through GL-5 and GL-7 crossing GL-1 and GL-2.

Time sections were interpreted by Fugro geophysicists and geologists to delineate areas of possible faulting. Evidence for the absence of faulting was assumed where seismic profiles showed clear, continuous, and unbroken reflectors. Seismic reflection profiles and interpretations are presented in Fugro 2018b and 2019a.

The geologic structure revealed by the depth corrected seismic reflection profiles is one of generally horizontal, planar-bedded strata, consistent with the alternating beds of lacustrine, alluvial, and eolian sand, silt and clay of the Brawley Formation observed in outcrops and boreholes. Gentle warping observed in the profiles is evidence of tectonic deformation from compressive stresses.

Surface projections of interpreted seismic lineaments or anomalies were summarized in map-view as color-coded segments of the geophysical survey lines (Figure 8), and interpreted as areas of potential faulting. Segments of potential faulting were used to inform the siting of trench locations. Where coincident with the projections of documented faults, these features helped constrain the extent of fault avoidance zones

2.2.2.3 Geologic Mapping

A geologic map was made of the DVC property including adjacent Sections 28 and 32, to provide geologic context for the geologic and geotechnical studies. Following a review of the geologic literature, a draft geologic map was prepared in the office by interpreting the 2018 LiDAR and imagery data in ArcGIS. Two Fugro geologists then spent two days in the field in the summer of 2018 checking the map, looking for evidence of active faulting, and documenting the characteristics of the Brawley Formation and Lake Cahuilla deposits where they are exposed in drainage channels. A full report of geologic mapping field activities and findings is provided in Appendix A of Fugro (2018e). A draft version of the map was presented in figures of the site geologic data review (Fugro, 2018e).

In the winter and spring of 2019, during fault trenching activities, Fugro geologists made additional field traverses to evaluate interpretations derived from the geophysical campaigns, to ground-truth observations made from aerial-photography, and to help constrain the location and orientation of faulting observed in trench exposures. Observations made during these traverses and the results of the fault trenching were used to revise the geologic map. The geologic map shown in Figure 11 is updated to include the new information. Map unit descriptions to accompany the figure are provided in Table 4.

Table 4. Description of Geologic Map Units

Unit	Description
Qd	Dunes – Aeolian deposits including *coppice dunes,* mounds of fine sand and silt up to 3 meters in height surrounding large creosote and mesquite bushes.
Qa1	Active channel and alluvial fan deposits – Consists of loose sands and silts in channels and on alluvial fans. Where incised into older deposits, channels are flanked by fluvial scarps ranging from a few cm to meters high. Channels are commonly lined with vegetation. Channel deposits are readily identified in aerial imagery by their light color. On alluvial fans, active deposits are characterized by strong bar and swale topography and debris flow levees.
Qa2	Inactive alluvial fan and terrace deposits – Low terraces adjacent to active washes and composed of poorly-sorted sand and silt. Subrounded to subangular gravel to cobble clasts. Surface on aerial imagery shows remnant to weak bar and swale topography.
Qc1	Lake Cahuilla deposits – Silts, light gray, almost white on aerial imagery, with horizontal to gently-dipping bedding. Forms gently sloping surfaces.
Qc2	Lake Cahuilla deposits – Sands. Forms gently sloping surfaces, horizontal to gently-dipping bedding
Qc3	Lake Cahuilla deposits – Silts, appearing tan to brown on aerial imagery. Forms gently sloping surfaces, horizontal to gently-dipping bedding.
Qc4	Lake Cahuilla deposits – Silts and sands. Horizontal to gently dipping beds where observed in stream banks. The surface is characterized by bands of linear to gently curving ridges composed of fine to coarse sand and gravel, interpreted as beach ridge deposits that mark the gradual shrinking of the lake.
Qb	Brawley Formation – Sands, silts, and clays, planar bedded, dipping 0 to 35 degrees. On aerial imagery this unit is recognized by contrasting parallel tonal bands. Where observed in the field, these beds are composed of fine sand to clay. Sandier units appear darker on the imagery, are vegetated, and are more easily eroded. Silt dominated units are generally lighter in color on the imagery.

2.2.2.4 Calibration Boreholes

In November 2018, two 150-ft-deep, continuous soil-core borings, B-401 and B-402, were drilled in Sections 27 and 33, respectively (Figure 9). The purpose of the borings was to characterize the nature and thickness of stratigraphic units underlying site study areas, and to obtain P-wave velocity data needed to calibrate the recently collected seismic reflection survey data. Complete borehole stratigraphic data are presented in Fugro (2019b), and the P-wave data are presented in Fugro (2019a).

Detailed soil core logging was conducted to classify stratigraphic units and to provide descriptions of sedimentary and structural features. Classification of soils was based on visual estimations of grain-size distribution and other material properties in accordance with the Unified Soil Classification System (ASTM D2487 and D2488). The borings provide subsurface data bearing on stratigraphic sequence of the Brawley Formation. Soil classifications can be used to correlate units between adjacent borings, thus providing stratigraphic and structural trends. Logs of these borings with a key for soil classification are included in Appendix A of Fugro report No. 04.72170065-PR-005. Generalized logs of these two borings are presented in Figure 12.

Five samples from each boring were selected for laboratory soil analysis to help refine field-based classification and to facilitate correlation of soil properties with seismic data. All tests were performed in

general accordance with ASTM testing methods by Fugro's soil mechanics laboratory in Ventura, California. Results are included in Appendix B of Fugro report No. 04.72170065-PR-005, dated January 17, 2019.

Strata encountered in B-401 consist of interbedded clay, sand, and silt of the Brawley Formation (Figure 12). Without additional borings adjacent to B-401 in Section 27, lateral stratigraphic trends cannot be assessed. However, geophysical data for lines GL-1 and GL-2 suggest that the bedding contacts are generally planar and horizontally continuous, and dip gently to the north or northwest.

Stata encountered in B-402 also consist of interbedded clays, sands, and silts of the Brawley Formation (Figure 12). Particularly thick layers of clay were encountered in this borehole. Comparison of the B-402 stratigraphy with historical borehole data along an east-west line through the Cell 2 and 3 area show little correlation, although the several borings beneath Cell 2 and 3 area correlate well with each other (Figure 13). Correlation to B-402 is potentially complicated by the presence of the fault zone comprising faults F8, F6, and F7, and by changes in bedding strike. It is anticipated that subsurface data collected during future explorations will allow for refined stratigraphic model near B-402 (Figure 13).

2.2.2.5 Fault Trenching

Fugro conducted a fault trenching investigation to identify and delineate surface faults and establish 200-ft setbacks required for Cell 4 siting. Thirteen trenches, T-401 through T-413, were excavated and logged from February to May of 2019. Two trenches were sited in Section 27 and eleven trenches were sited in Section 33 (Figure 9). Fugro geologists produced 1:25-scale orthomosaic base images of trench wall exposures on which detailed, objective stratigraphic and structural logging was conducted. The methods and results are detailed in Fugro (2019d).

Where excavated to intersect the projections of previously mapped faults, trench exposures provided information as the continuation or termination of these features. Where encountered, trenching provided for the characterization of fault geometry (e.g., width, offset, and strike). These data, along with field and desktop-based geologic mapping, form the basis for delineating faults and, thus, fault setbacks.

All faults identified in this trenching investigation lie within Section 33 (Figure 8). Trenches in Section 27 showed no evidence of faults. Many faults in Section 33 were extensions of faults identified in previous studies for Cells 1, 2, and 3. Several are newly discovered faults.

The faults mapped in Section 33 can be grouped into three main fault systems: western, central, and eastern (Figure 8). The western fault system is a northwest-trending zone of faulting defined by faults F1 through F5, F12, and a geophysical feature in line GL-5. The central fault system is a north-trending fault system defined by F13, F6, F7, F8, and F9, and geophysical features in lines GL-2 and GL-5. Note that the 200-ft setback around the central fault system provided a constraint to the western boundary of Cells 1, 2, and 3 (Balderman, 2002) (Figure 14). A third fault system, the eastern fault system, is comprised of F11. This fault was identified in an incised wash during the investigations for Cells 1 and 2. In addition, Balderman (1989) reports that this fault was identified along the northern projection of F11 in Trench 3 which was excavated

across the northern portion of Cell 1. The extension of this fault to Trench 3 is not shown because the location of this trench was not available.

Results from the 2019 trenching efforts provide confident fault setback parameters for cell 4 siting. Setback areas were delineated for the area within 200 feet of each mapped trace (Figure 14). These setbacks constrain the potential boundaries of Cell 4. To address the likelihood that faults extend along trend beyond the mapped traces, “fault avoidance zones” are also identified. If these zones were to be considered for future siting, additional fault trenching would be required to map fault traces and establish setbacks if necessary.

The study area in Section 33 is traversed by the north-trending central fault system and a northwest-trending western fault system (Figure 8). Cell 4 may be sited in the area between these fault systems with required setbacks, as shown on Figure 14. The study area in Section 27 under consideration for Cell 4 is free of faults.

All faults identified on the DVC property were documented in trench exposures or incised washes. They were recognized on the basis of vertically displaced bedding of generally less than one meter. Evidence to quantify lateral displacement was not present. Some faults could be traced across the ground surface for a limited distance, but generally faults could not be recognized across the surface in Section 33 due to soil cover. In areas trenched extensively, individual faults were laterally discontinuous, and may continue in an en echelon pattern.

The relatively small displacements and lack of surficial expression suggest the faults identified are minor faults and do not constitute major tectonic elements of the larger fault system. None were observed to have ruptured in the 1987 Superstition Hills earthquake. Nonetheless, they should be presumed capable of future surface rupture.

3. SITING ANALYSIS

Siting of a new cell involves consideration of multiple factors, including site physical characteristics, safety, water supply, environmental impact, time for permitting, mitigation costs, construction costs, operations efficiency, and impacts to the public. In this section we begin with a search area, identify primary screening criteria, then apply these criteria to progressively eliminate areas from consideration. This process results in the identification of two candidate sites. We then compare them by additional criteria and make a siting recommendation. Figure 15 illustrates this process.

The search area for Cell 4 consists of Section 33 and Section 27, the DVC-owned property. As reviewed in Section 3.1.1, the current DVC site was chosen after investigation of several potential sites in the Imperial Valley, culminating in the purchase of Sections 27 and 33 and the construction of Cells 1, 2, and 3 in the NE 1/4 of Section 33. In the selection of the DVC site (Balderman, 1988) two types of criteria were used: those specified by the state of California, and those governed by practical and economic considerations.

3.1 Screening

A screening process was applied to eliminate unsuitable areas within the Section 27 and 33 search area and to identify candidate sites. Screening criteria, bulleted below, are used to progressively eliminate areas that would or may be unsuitable for siting of Cell 4.

Screening criteria:

- Footprint of existing cells, facilities, and roads;
- Mapped Holocene fault and 200-ft setback;
- Suspected but unmapped Holocene faults;
- Holocene faults not evaluated;
- Impact to protected watershed;
- Impact to sensitive habitat;
- Impact to view from highway;
- Distance from access road; and
- Insufficient acreage.

Table 5 lists specific areas that are eliminated using these criteria. The numbers in column 1 are keyed to Figure 16. The table shows the primary criteria that led to the elimination of each area. In some areas, more than one criterion may apply. For example, an area located greater than ½ mile from the paved road (Area 8), in addition would not have been evaluated for Holocene faults. Areas numbered 1, 2, or 3 must be eliminated from consideration for practical or regulatory reasons. Areas numbered 4 or 5 should be eliminated; further investigation may help establish more precise boundaries based on regulatory guidelines. Areas numbered 6 are temporarily eliminated due to lack of data and could be considered pending the results of field investigation.

The result of this screening process is the identification and delineation two candidate sites, Site A and Site B, each 40 acres in size, shown in Figure 16.

Table 5. Application of Screening Criteria

Number*	Area Eliminated by Screening	Explanation
1	Existing facilities	New cell cannot be located where there are existing cells, support facilities, paved roads, and power lines. Criteria assumes these facilities will not be relocated
2	Fault setback area	California regulations stipulate that a cell cannot be located within 200 feet of Holocene fault. A 200-ft setback is established around all Holocene faults identified and mapped through fault trenching, field mapping, or aerial photograph interpretation
3	San Felipe Creek watershed	San Felipe Creek watershed drains to protected desert pupfish habitat. Criteria assumes cell cannot be permitted in this watershed due to concerns of groundwater contamination
4	Fault avoidance zone	Fault avoidance zones are delineated along the projection of mapped faults, as faults typically continue along trend for some distance. Field investigation would be required to map the faults in these zones and establish setbacks
5	Habitat avoidance zone	Area of sensitive habitats hosting potentially threatened species (eg. flat tailed horned lizard). The dune area south of Cell 3 is identified as high-quality habitat
6	Fault investigation needed	Area where faults have not been investigated. The consideration of these areas would be contingent on the results of additional field investigations
7	Impacts view from highway	Area adjacent to Highway 86 where a cell would likely impact the view of passing motorists. The use of this area would be contingent on analysis of view impacts
8	Distant from access	Area located ½ mile or more from the DVC maintenance facility or from the paved entrance road. Distance adds cost to the project but does not eliminate the area if nearby sites are eliminated for other reasons. These more distant areas would require fault investigation
9	Insufficient acreage	Area with insufficient acreage to host a cell (20 acres)
* Number is keyed to areas shown on Figure 16		

3.2 Site Selection

Candidate sites A and B, identified through the screening process described above, are compared using selection criteria. These criteria are bulleted below.

Site selection criteria include the following:

- CEQA checklist of environmental factors (aesthetics, biologic resources, geology and soils, cultural resources, hydrology and water quality, mineral resources), and
- Likelihood of negative public comments or permitting delay.

Table 6. Comparison of Candidate Sites A and B

Environmental Factor (CEQA, 2019)	Site A	Site B	Comments
Aesthetics:	Less impact	More impact	Measured from the nearest site perimeter, site B is 0.85 mi. and site A is 1.3 mi. from Highway 86. Therefore, site A will have less impact on scenic views of passing motorists. Impact will be similar to the existing monofill (1.3 mi.)
Biological Resources:			
a. Sensitive Species	Similar impact? (pending new data)	Similar impact? (pending new data)	Based on the literature review, rare plant surveys, and burrowing owl surveys, sites A and B are equal. Surveys are underway to evaluate specific sensitive species and habitat quality
b. Riparian Habitat	Less impact	More impact	Either site A or B will result in impact to jurisdictional drainages requiring mitigation. Site A will partially utilize previously disturbed areas; therefore, the total acreage of impact is expected to be less
Cultural Resources:	More impact	Less impact	Construction at either site will result in some impact to cultural resources requiring mitigation. Acreage of cultural sites impacted is likely to be somewhat greater at site A
Geology and Soils:			
a. Fault Rupture	No impact	No impact	Neither site is within 200 feet of a Holocene fault
b. Strong Seismic Ground Shaking	To be mitigated in design	To be mitigated in design	Strong seismic ground shaking is equally likely at either site and will be mitigated in design
c. Ground Failure or Liquefaction	No impact	No impact	Neither site is susceptible to ground failure or liquefaction
d. Expansive Soil	Similar	Similar	Based on borehole data, both sites are underlain by lacustrine deposits that include beds of expansive clay. Clay will help prevent leakage into the groundwater
e. Soils for Septic or Waste Water Disposal	No impact	No impact	Either site is suitable for septic tanks or other wastewater disposal systems
f. Unique Paleontological Resource	Unknown	Unknown	Either site may contain unique paleontological resources, though none are currently known
Other Factors:			
Permitting Ease	Easier	More difficult	Site A in Section 33 is more likely to be viewed as an expansion rather than a new facility, so may be more easily permitted and accepted by the public

Based on the comparison of candidate sites A and B in Table 6, site A is considered the preferred site. The two candidate sites are similar in many respects including geology and impacts to natural and cultural resources. However, site A is further from the highway so will have a lesser impact on scenic views. Also, due to its proximity to the existing monofill and location within currently developed Section 33, site A is more likely to be viewed as an expansion rather than as a new site, thus facilitating permitting.

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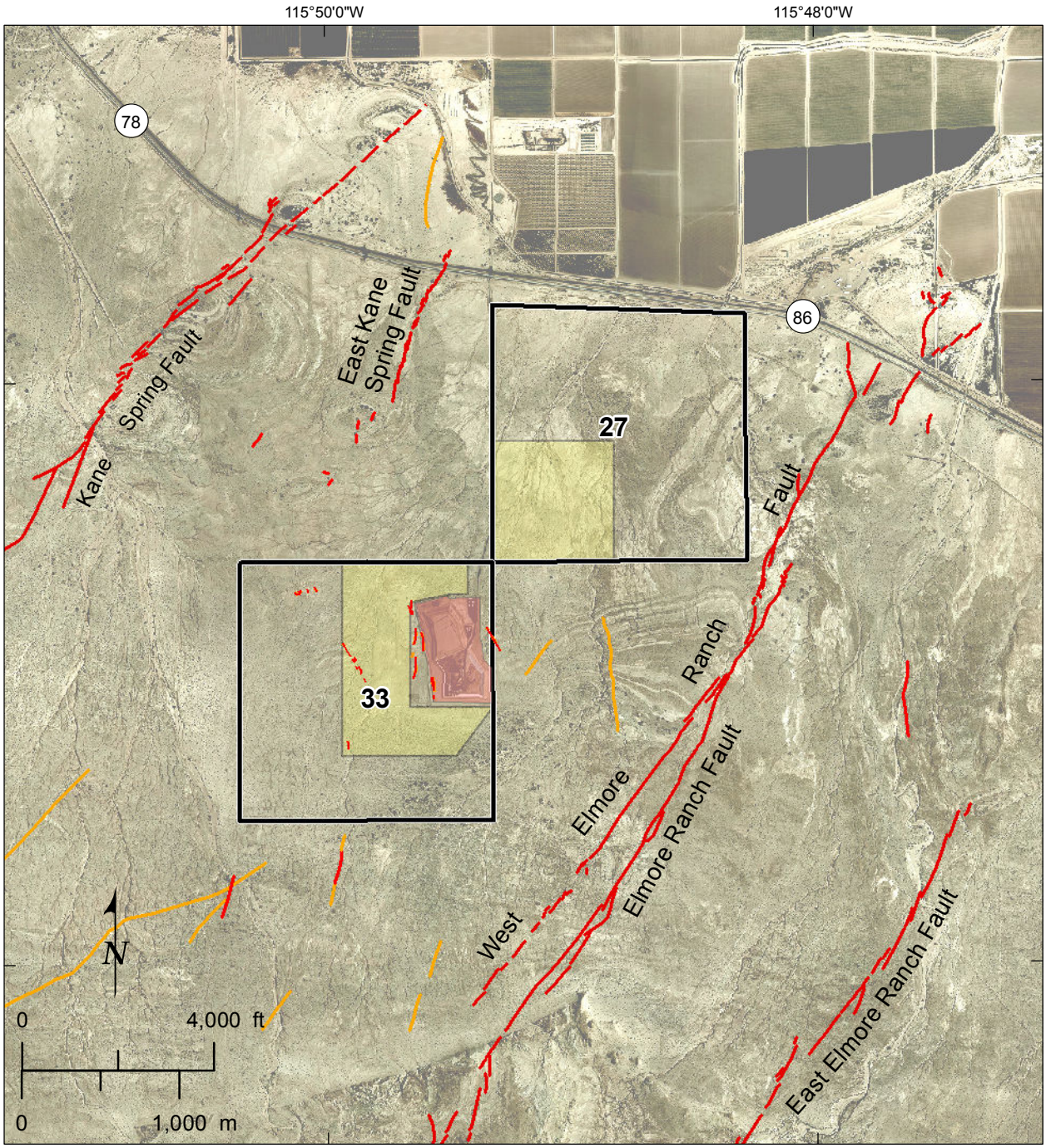
FIGURES



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

Existing monofill

DVC Property showing section numbers

Primary areas under study for siting of Cell 4

Faults

Historical fault, 1987 rupture (USGS/CGS, 2006; Treiman, 1989)

Quaternary fault (Balderman, 2002; Fugro, 2019d)

Quaternary fault (Treiman, 1989)

SITE LOCATION SHOWING STUDY AREAS AND FAULTS FIGURE 1

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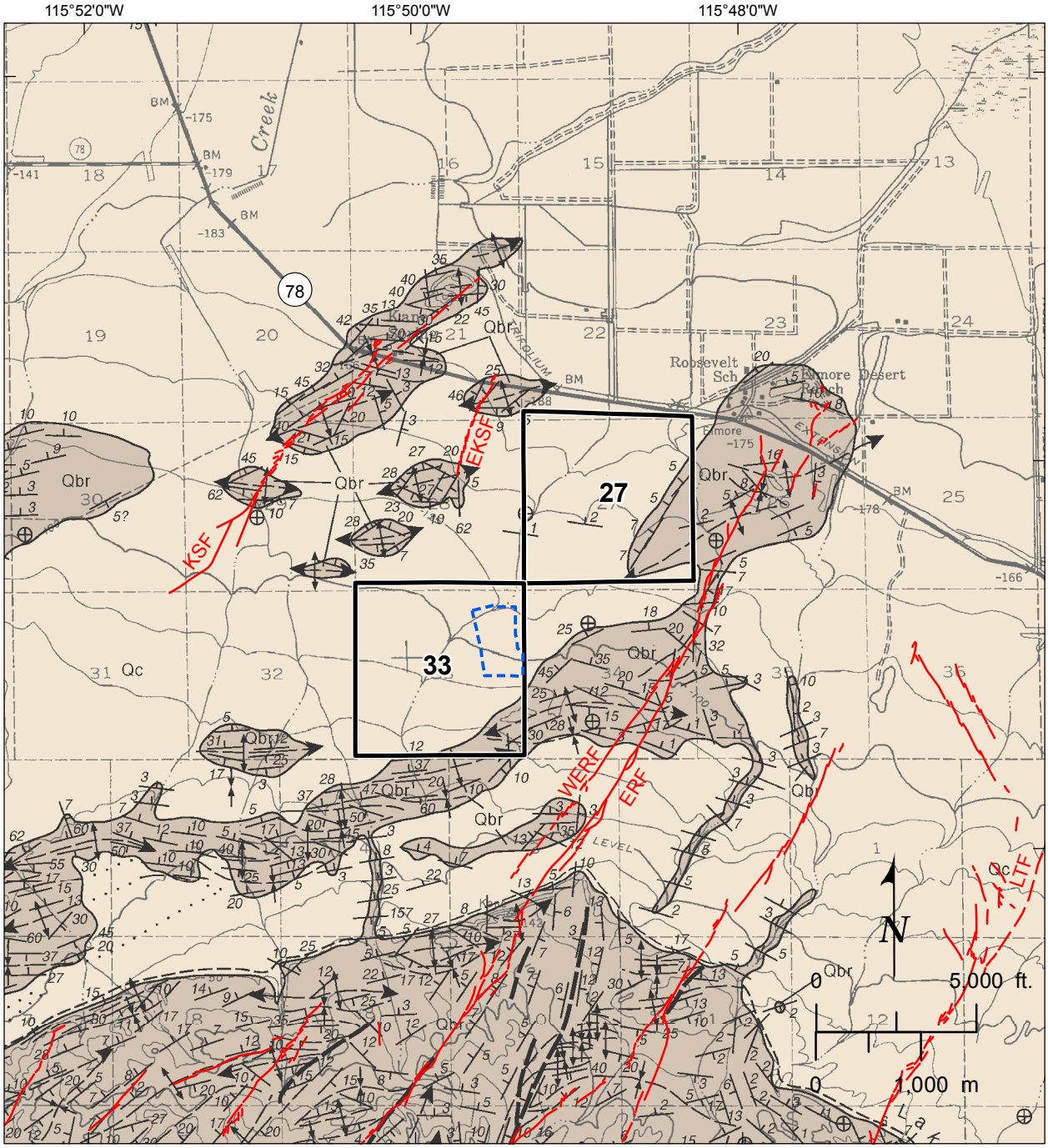


Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

KSF	Kane Springs Fault
EKSF	East Kane Springs Fault
WERF	West Elmore Ranch Fault
ERF	Elmore Ranch Fault
LTF	Line Tree Fault

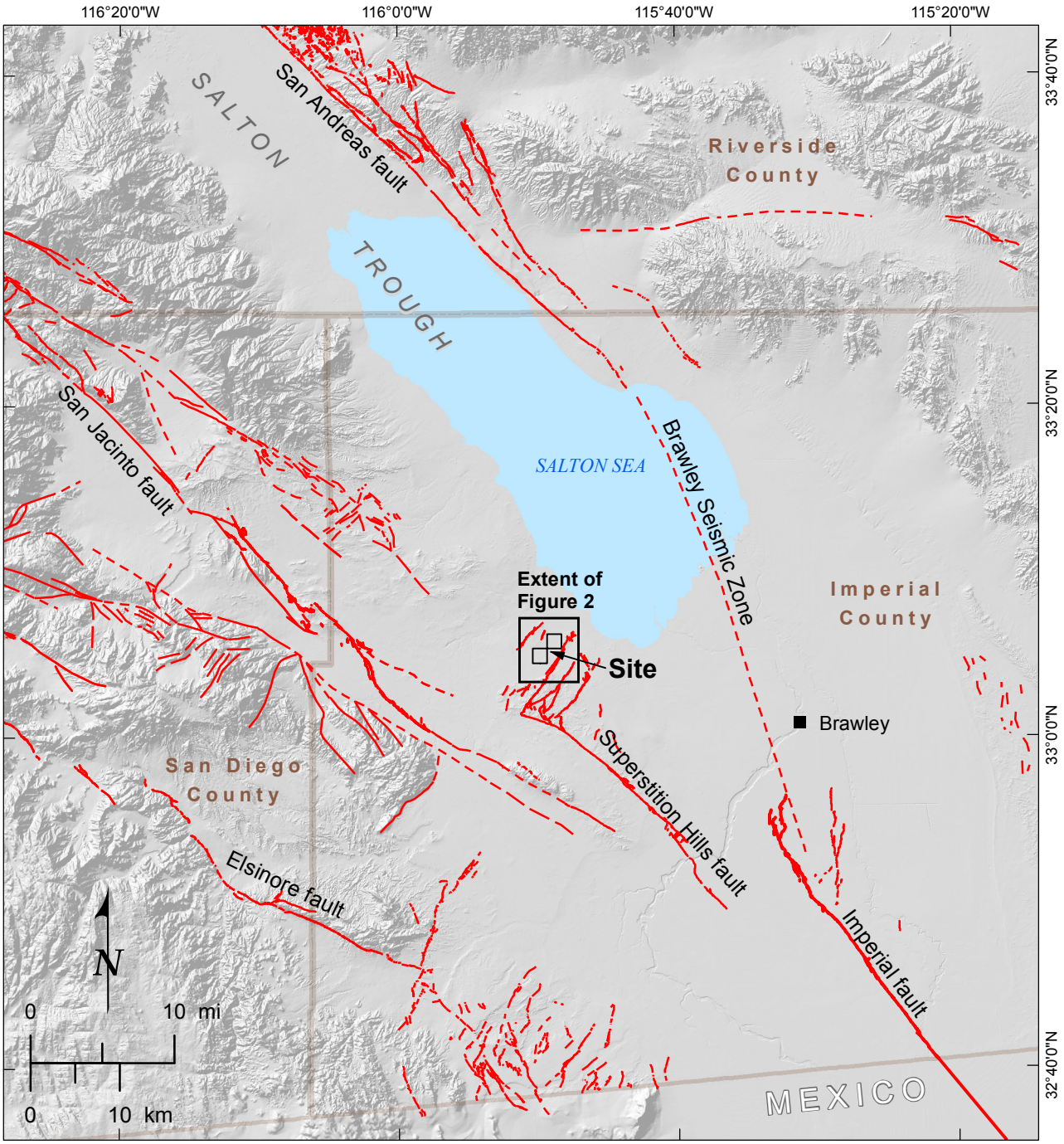
Geologic Units (Dibblee, 1954, 2008)

Qc	Cahuilla Beds; thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla, fossiliferous.
Qbr	Brawley Formation; Lacustrine facies of Ocotillo Conglomerate, up to 2000 feet thick.

- Existing monofill
- Sections 27 and 33

GEOLOGIC MAP OF VICINITY FIGURE 2

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\2_D-24_GeologicMap_Vicinity.mxd; m.ticci; 7/16/2019



Base map: hillshade from NED 30 m.

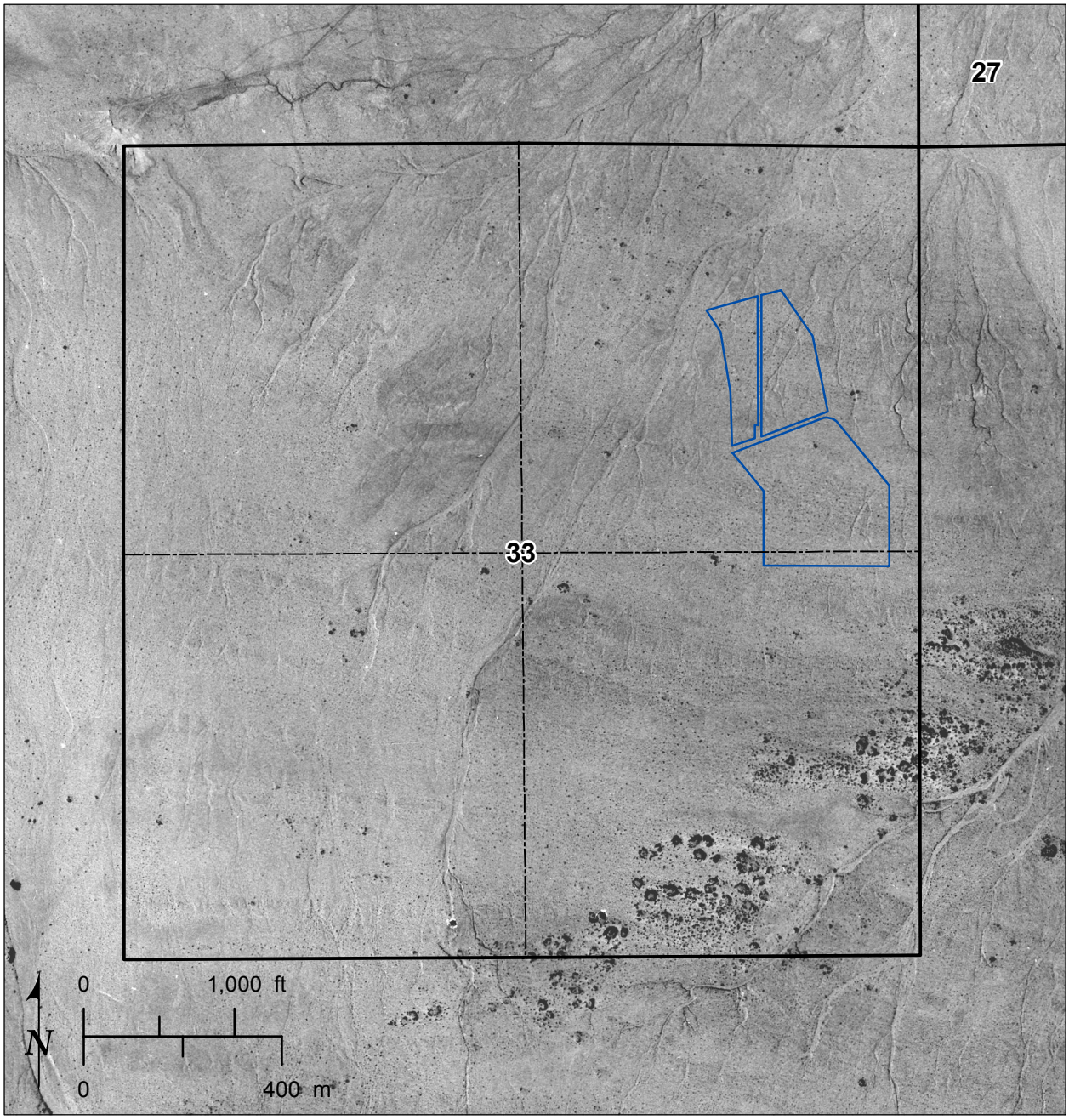
Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

TECTONIC SETTING MAP FIGURE 3

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\3_D-23_TectonicSetting.mxd; m.ticci; 7/17/2019



Imagery from University of California, Santa Barbara (C-15152 5-26).

Legend

Section owned by CalEnergy, with quadrants

DVC monofill facility

HISTORICAL AERIAL IMAGERY OF SECTION 33, 1950 FIGURE 4

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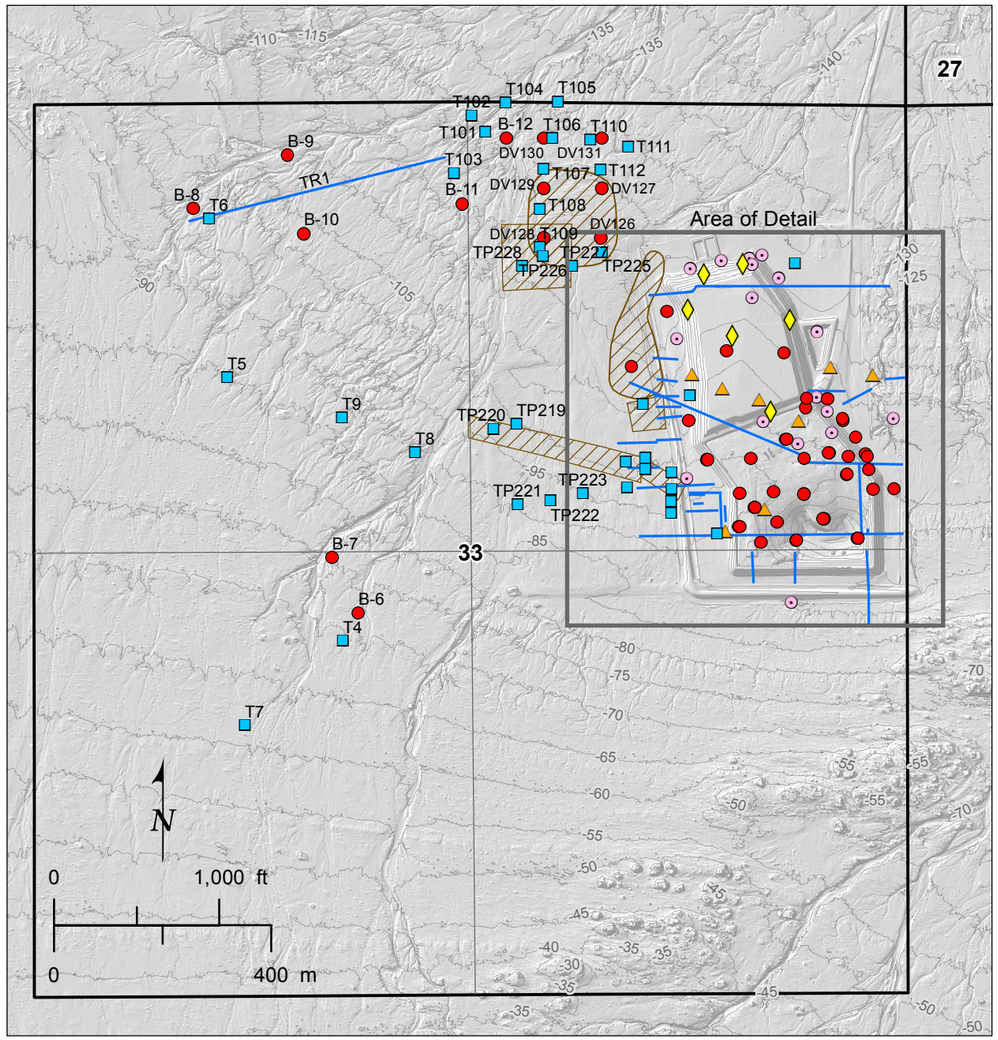
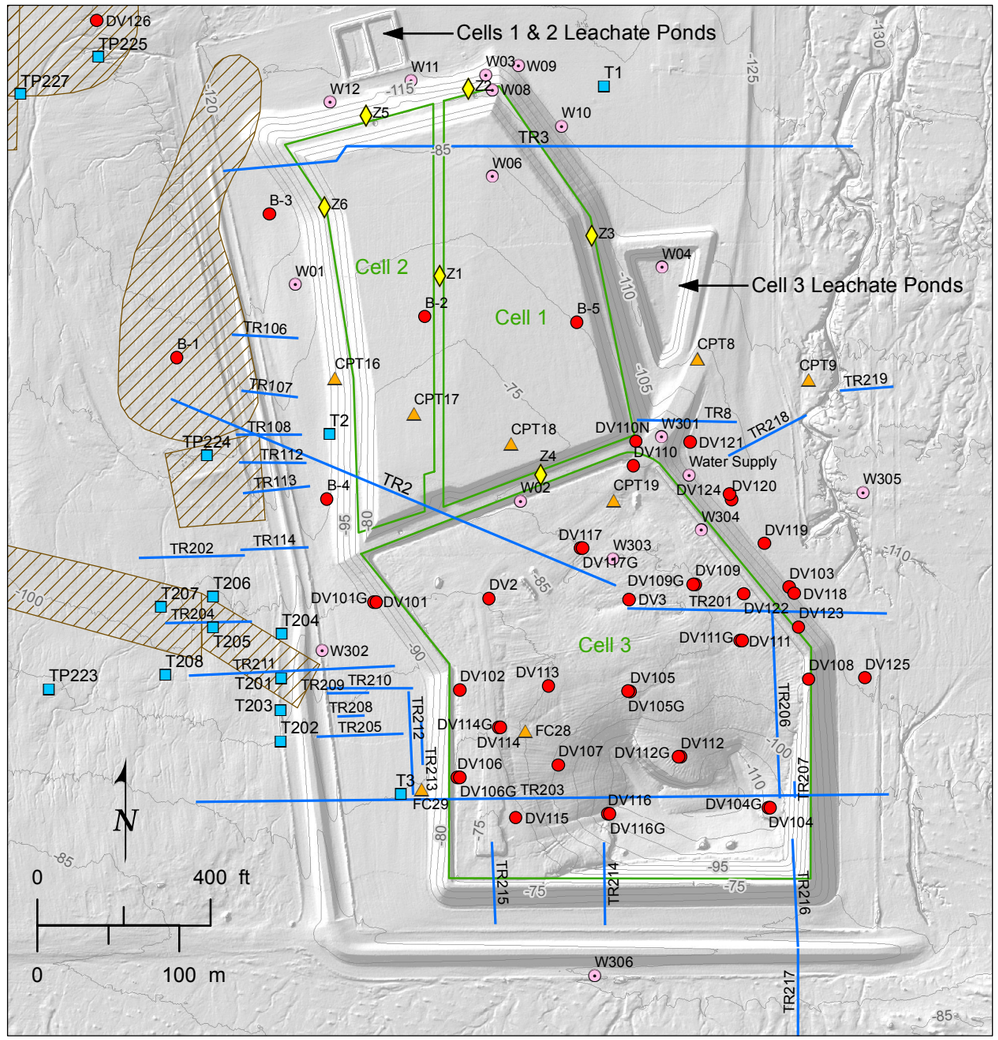


A. Overview of Site Exploration



B. Detail of Monofill Area

Legend

Approximate borrow areas for Cells 1, 2 and 3

Section owned by CalEnergy, with quadrants

5-foot interval topographic contour (Fugro, 2018 LiDAR)

Past Explorations, 1988-2002

- Test pit
- Boring
- Neutron tube
- Well
- CPT
- Trench

Hillshade base from Fugro (2018c) LiDAR.
Exploration data from Balderman (1988, 1989, 2002).

HISTORICAL SITE DATA AND INVESTIGATIONS, 1988-2002

FIGURE 5

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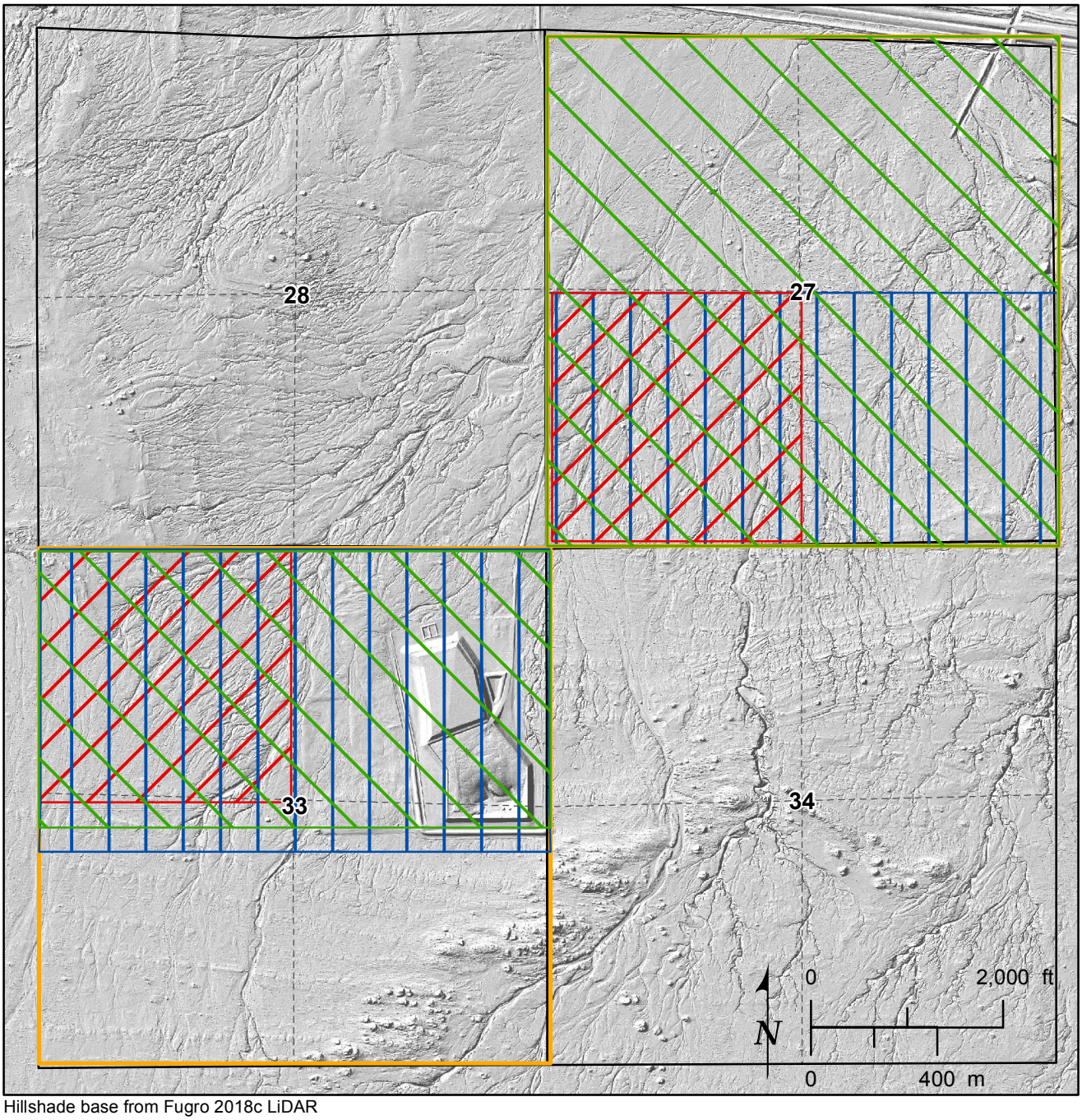


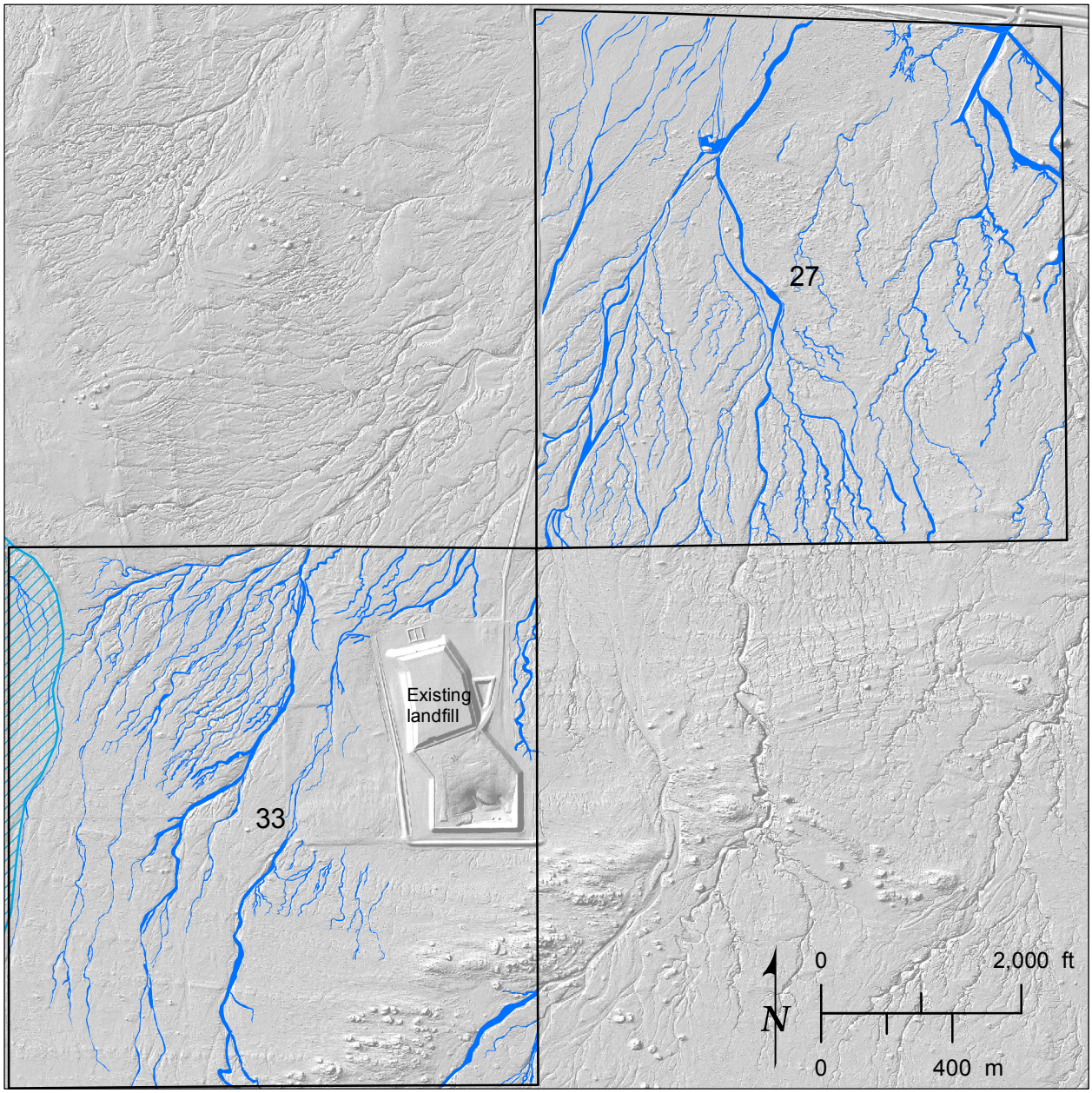
Hillshade base from Fugro 2018c LiDAR

Legend

- Jurisdictional Drainage Delineation (Fugro, 2018f)
- Rare Plant Survey (Fugro, 2018d, 2019e)
- Burrowing Owl Survey (Fugro, 2019f)
- Cultural Survey (Fugro, 2018a)

CELL 4 SITING STUDIES: BIOLOGICAL AND CULTURAL FIGURE 6

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\6_D-107_Environmental_Inv_map.mxd; m.ticci; 7/16/2019



Hillshade base from Fugro 2018c LiDAR

Legend

Jurisdictional Drainage

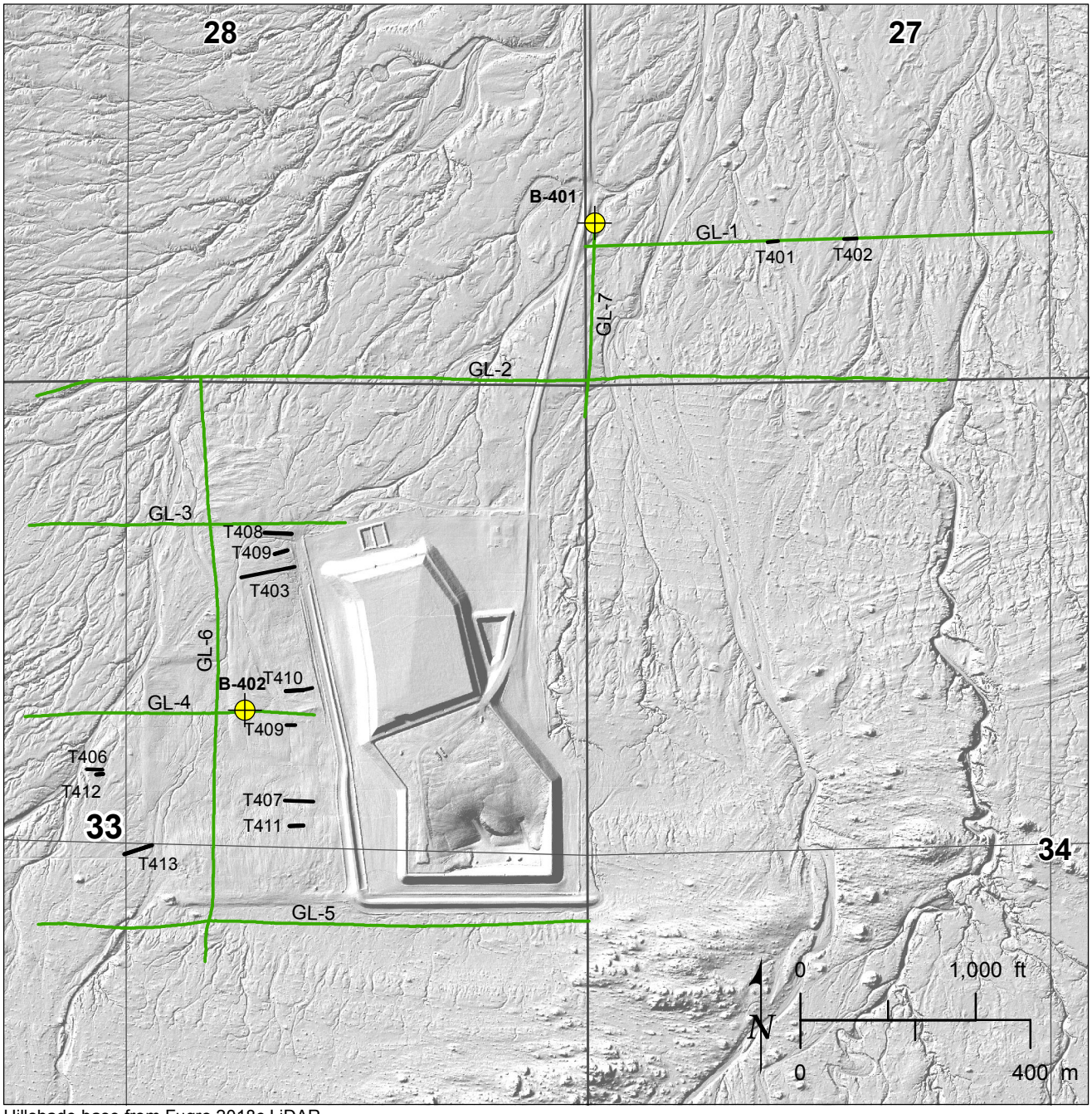
27
33
DVC property

Area draining to San Felipe Creek

SITE JURISDICTIONAL DRAINAGES FIGURE 7

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\7_D-64_Jurisdictional_Drainages.mxd; m.ticci; 7/16/2019

Figure 8: Cell 4 Siting Constraints contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.



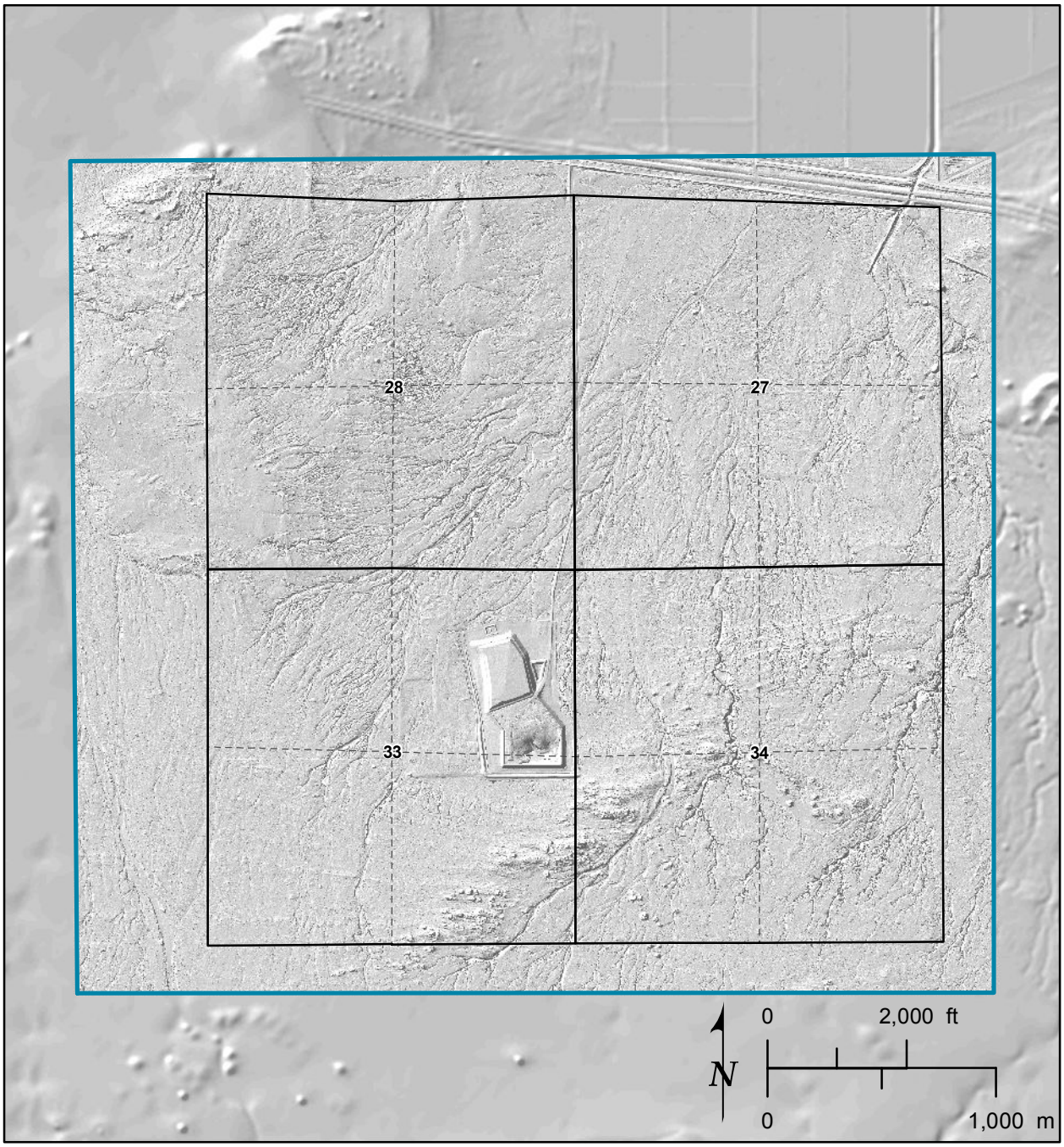
Hillshade base from Fugro 2018c LiDAR

Legend

- 33 — Sections with quadrants
- B-401 — Calibration borehole (Fugro, 2019b)
- T-403 — Trench (Fugro, 2019d)
- GL-4 — Geophysical survey line (Fugro, 2018b, 2019a)

CELL 4 SITING STUDIES: GEOLOGIC AND GEOPHYSICAL FIGURE 9

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\9_D-108_Geo_Inv_map.mxd; m.ticci; 7/17/2019



Hillshade base from Fugro 2018c LiDAR and USGS National Elevation Dataset.

Legend

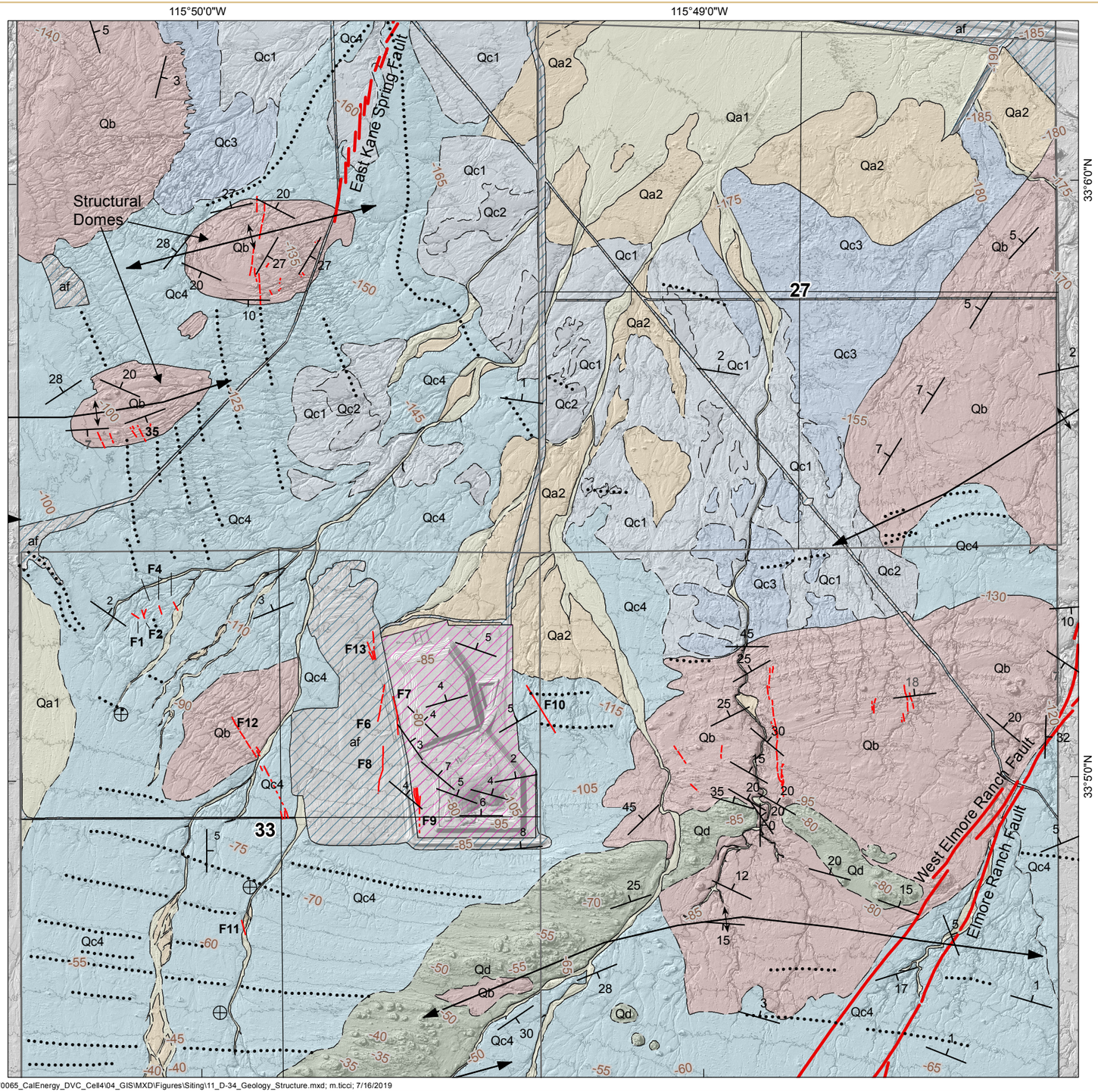
Section, with quadrants

Extent of Fugro (2018c) LiDAR and imagery data.
Hillshade image shown is a representation of LiDAR data.

EXTENT OF 2018 LIDAR AND IMAGERY DATA

FIGURE 10

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\10_D-19_LiDAR_Extent.mxd; m.ticci; 7/16/2019



Legend

Horizontal bedding (Balderman, 2002)

27 Strike/dip measurement (Balderman, 2002; Dibblee, 2008; this study)

Anticline showing directions of plunge (Dibblee, 2008)

Faults

Active, historic rupture (Treiman, 1989 and USGS/CGS, 2006)

Quaternary (Fugro, 2018d, 2019c; Balderman 1988, 1989, 2002)

Exposed in trench or wash

Interpreted from aerial imagery

Inferred projection

Beach ridges, Lake Cahuilla

5-ft topographic contour (Fugro 2018c, LiDAR)

DVC Cells 1, 2, 3

Geologic Units

af Disturbed ground

Qa1 Active channel and alluvial fan deposits

Qa2 Inactive alluvial fan and terrace deposits

Qc1 Lake Cahuilla Deposits - light gray silt

Qc2 Lake Cahuilla Deposits - sand

Qc3 Lake Cahuilla Deposits - tan silt

Qc4 Lake Cahuilla Deposits - silt and sands with beach ridges

Qd Aeolian deposits

Qb Brawley Formation

N

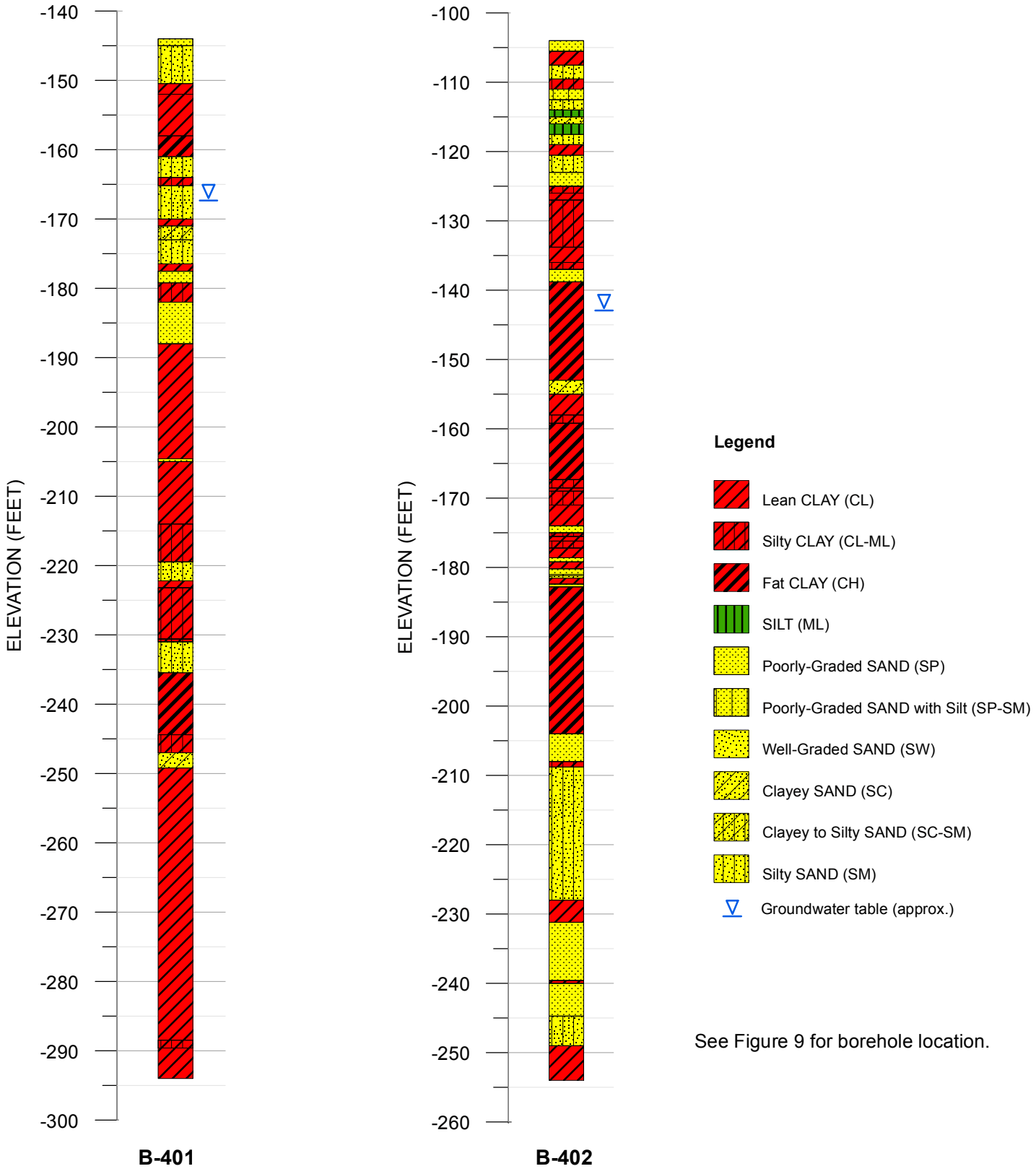
0 1,000 ft

0 400 m

SITE GEOLOGY AND STRUCTURE

FIGURE 11

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\11_D-34_Geology_Structure.mxd; m.ticci; 7/16/2019

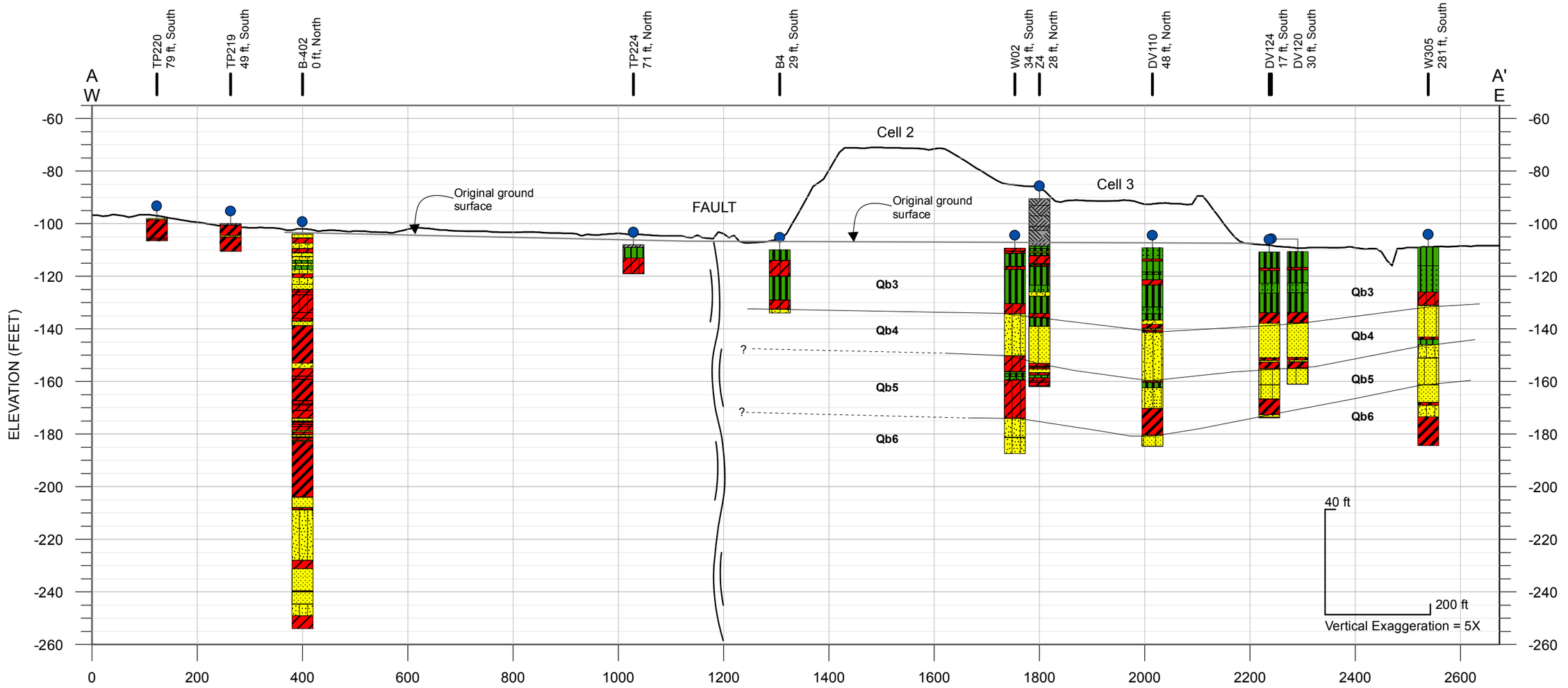


See Figure 9 for borehole location.

GRAPHIC LOGS OF B-401 AND B-402

FIGURE 12

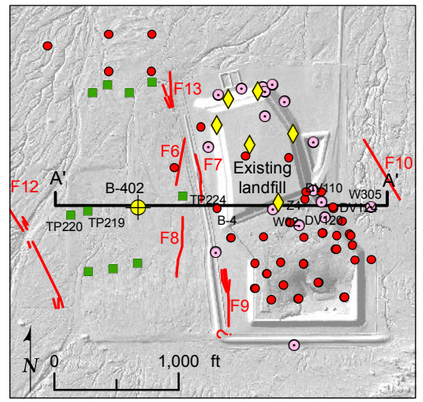
P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\12_D-101_Graphic_Logs_B401_B402.mxd; m.ticci; 7/16/2019



Qb3, Qb4, Qb5, Qb6 Stratigraphic unit defined by Balderman (2002)

Legend

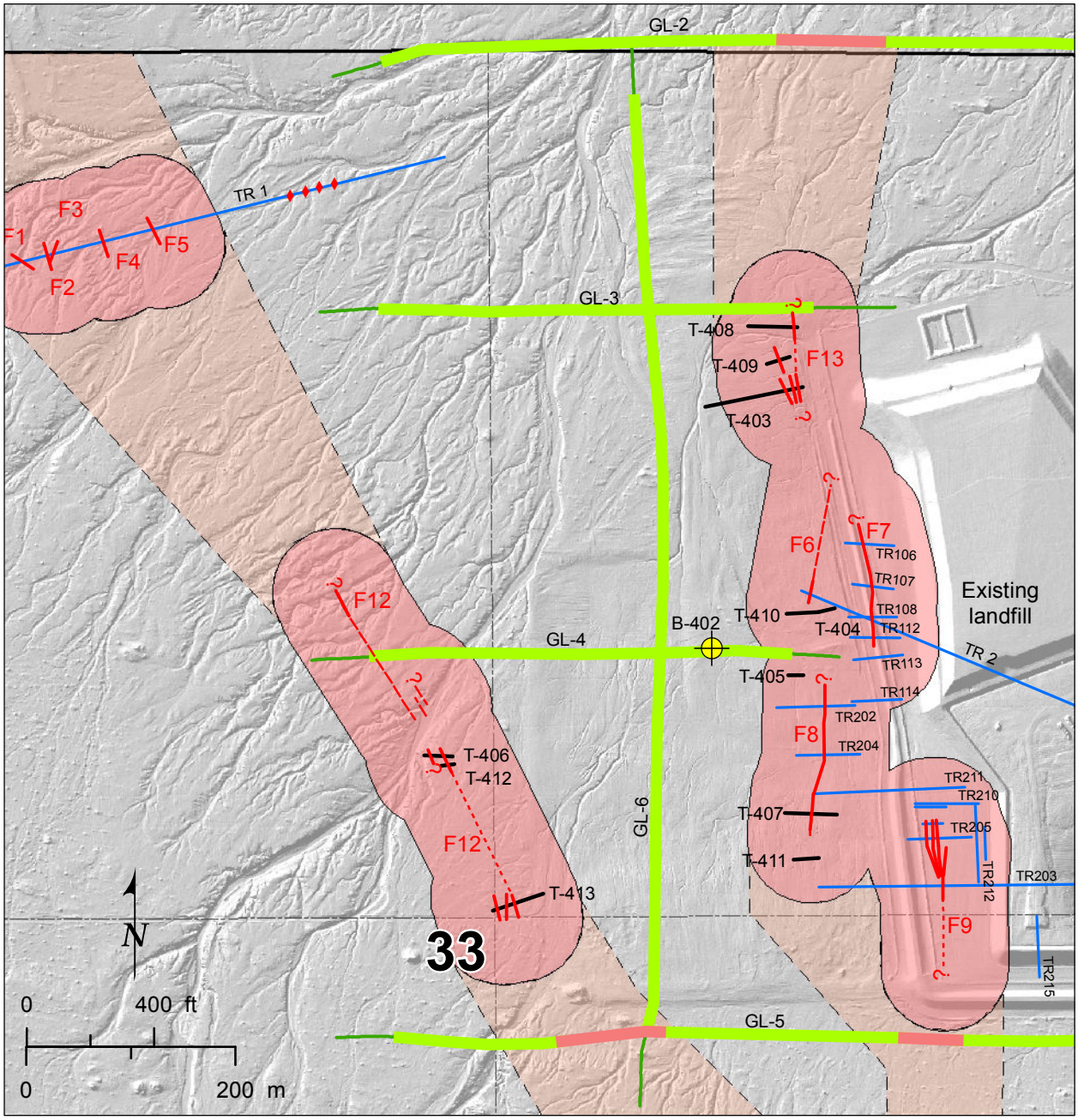
- Lean CLAY (CL)
- Silty CLAY (CL-ML)
- Sandy Lean Clay (CL)
- Fat CLAY (CH)
- SILT (ML)
- Sandy SILT (ML)
- Elastic SILT (MH)
- Poorly-Graded SAND (SP)
- Poorly-Graded SAND with Silt (SP-SM)
- Well-Graded SAND (SW)
- Clayey SAND (SC)
- Silty SAND (SM)
- Fill



Index Map

CROSS SECTION A-A'

FIGURE 13



Hillshade base from Fugro 2018c LiDAR.

Legend

- Calibration borehole (Fugro, 2019b)
- 33 — Section 33, with quadrants
- T-403 — Trench, 2019
- TR 203 — Trench (Balderman 1988, 1989, 2002)
- Possible fault feature (Balderman, 1989)

Fault
(Fugro 2019d; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection
- 200-ft fault setback area
- Fault avoidance zone

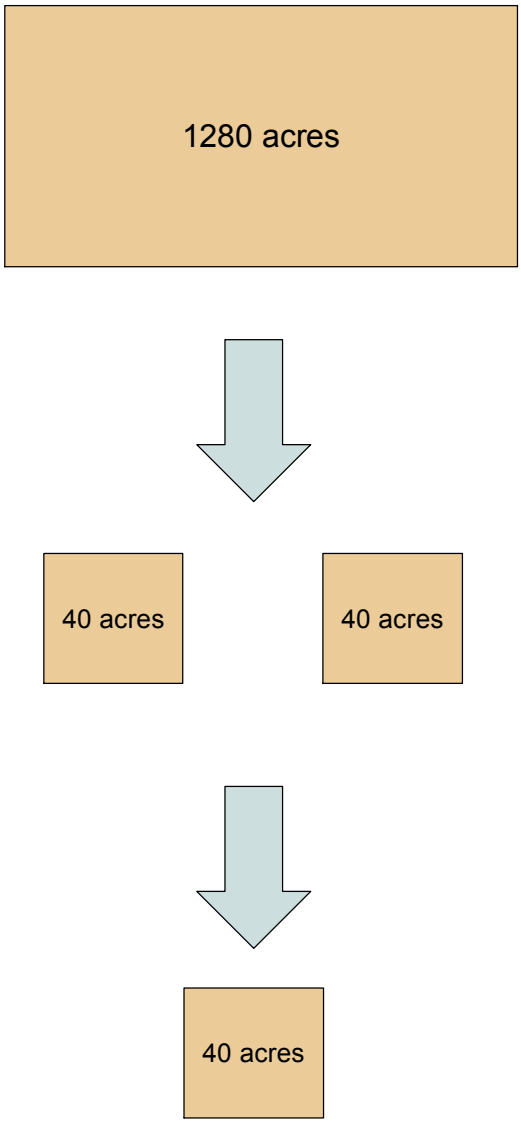
Seismic Reflection Results (Fugro, 2019a)

- Potential fault area
- Absence of faulting
- GL-4 — Geophysical line, faulting not evaluated

FAULT SETBACK AREAS, SECTION 33

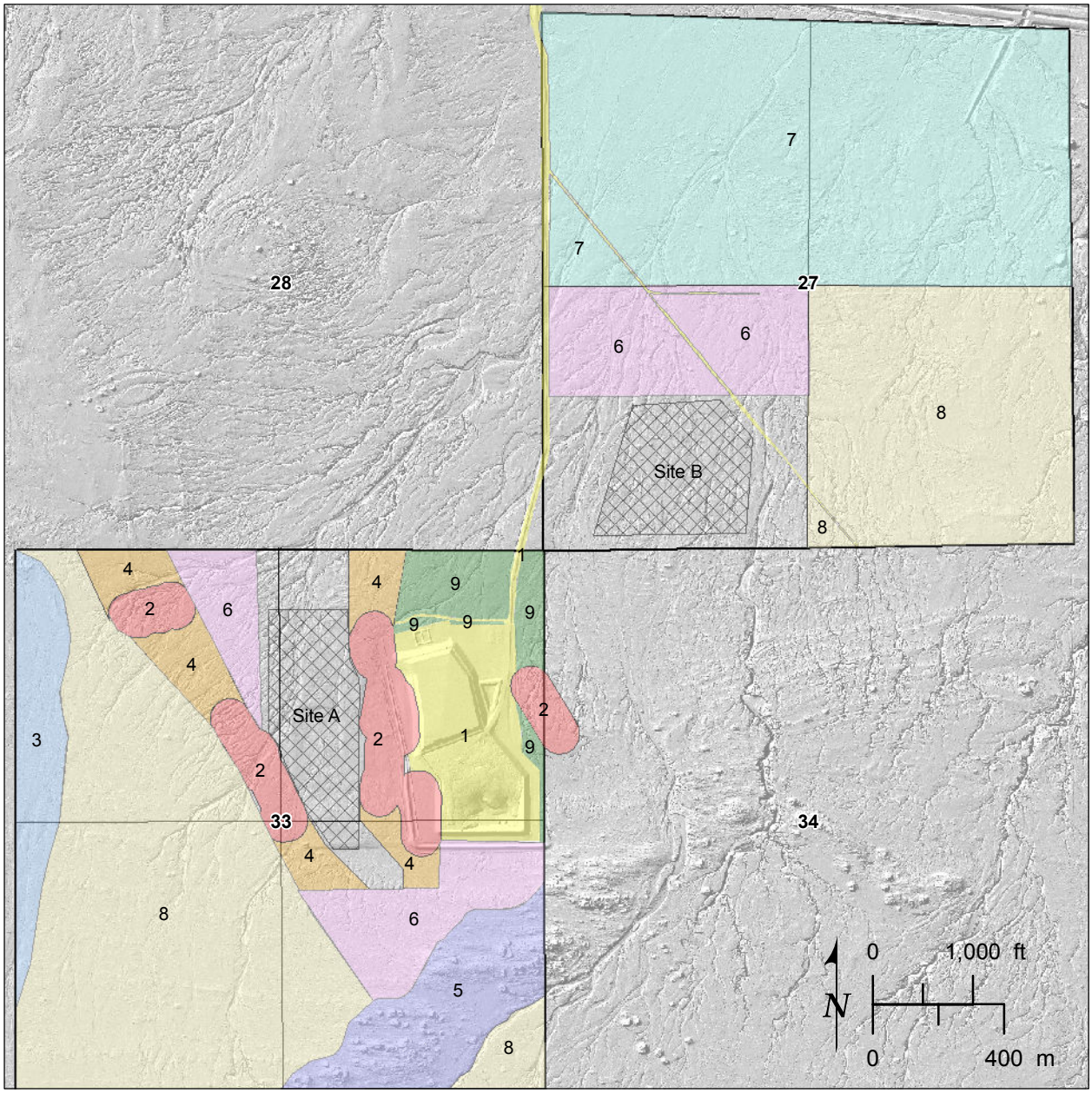
FIGURE 14

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\14_D-72_Siting_Faults_S33.mxd; m.ticci; 7/17/2019



SITE SELECTION FLOW CHART FIGURE 15

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\15_D-105_Site_Selection_Flow_Chart.mxd; m.ticci; 7/16/2019



Hillshade base from Fugro 2018c LiDAR

Site A Candidate site

Sections 27 and 33, with quadrants

Siting Zones

1 Existing facilities
2 Fault setback area
3 San Felipe Creek watershed
4 Fault avoidance zone
5 Habitat avoidance zone
6 Fault investigation needed
7 Impacts view from Highway
8 Distant from access
9 Bounded areas with insufficient acreage

SCREENING ANALYSIS FIGURE 16

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\16_D-102_Screening_Analysis.mxd; m.ticci; 7/17/2019

Figure 17: Candidate Site A contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

Figure 18: Candidate Site B contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

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F Air Quality and Greenhouse Gas Study

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DESERT VALLEY MONOFILL EXPANSION PROJECT

AIR QUALITY and GREENHOUSE GAS STUDY

Prepared for:

BRG Consultants, Inc.

Prepared by:

BPG
BIRDSEYE
PLANNING GROUP

October 2020

DESERT VALLEY MONOFILL EXPANSION PROJECT IMPERIAL COUNTY, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

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Appendices

Appendix A CalEEMod Air Quality and Greenhouse Gas Emissions Model Results

DESERT VALLEY MONOFILL EXPANSION PROJECT IMPERIAL COUNTY, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

This report is an analysis of the potential air quality and greenhouse gas impacts associated with the proposed Desert Valley Monofill Expansion Project in unincorporated Imperial County. This report has been prepared by Birdseye Planning Group (BPG) under contract to BRG Consulting, Inc., to support preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA).

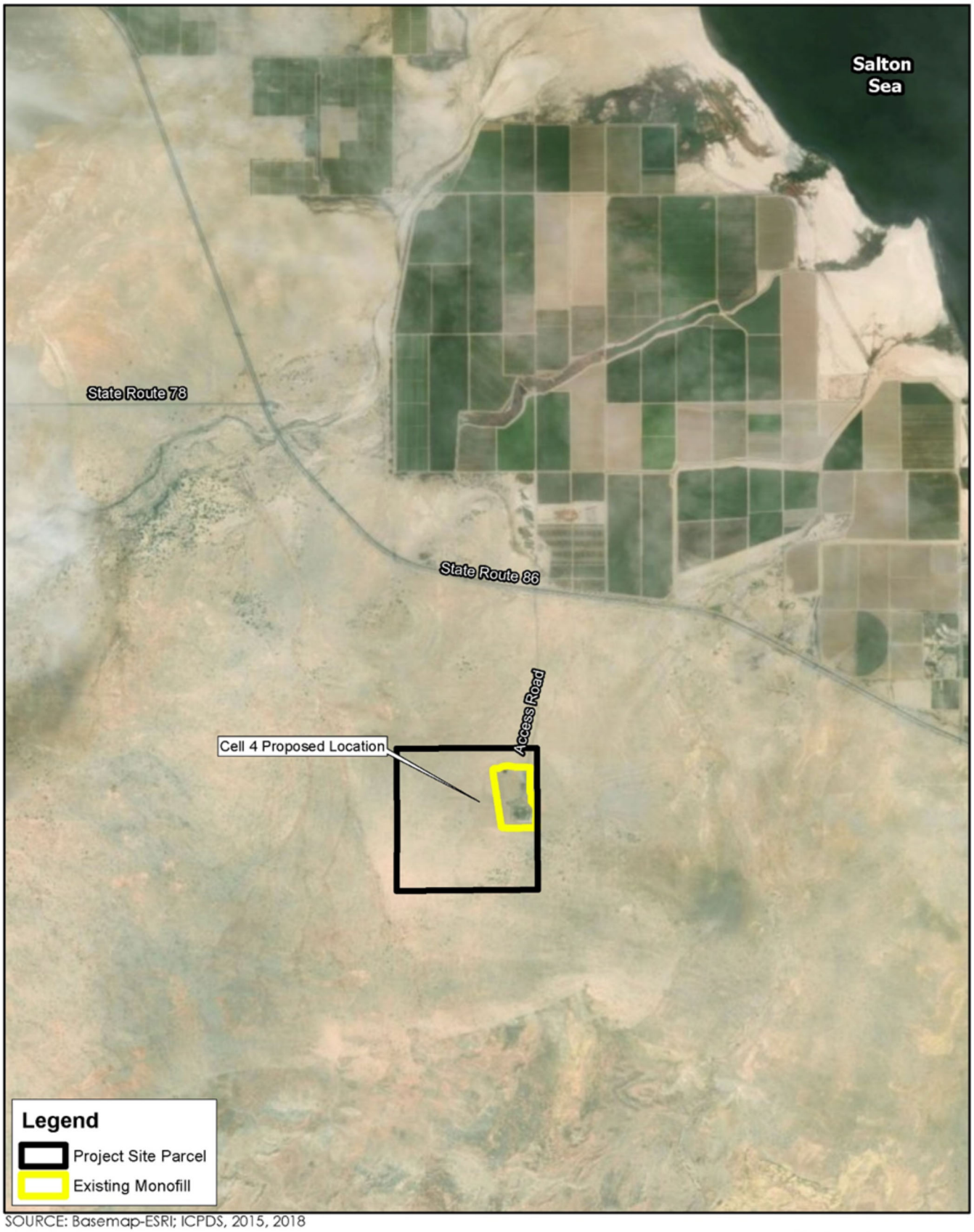
PROJECT DESCRIPTION

The Desert Valley Company Monofill (DVCM) is an active Class II Solid Waste Management Facility (SWMF) used for the disposal of specific geothermal non-hazardous waste streams and byproducts generated by CalEnergy Operating Corporation's (CalEnergy) geothermal power plant operations in Imperial County, California. The Desert Valley Company Monofill Facility is located at 3301 West State Route 86 in Brawley, California and is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility (SWF) Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. See Figure 1

CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020, a General Plan Amendment and a Zone Change to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure and post-closure of a new waste storage cell (referred to herein as Cell 4). At the current rate of waste disposal, Cell 3 is projected to reach its design capacity in 2025.

The waste stream accepted at the DVCM is limited to non-hazardous geothermal filter cake, drilling mud materials and cuttings, soils containing geothermal materials, and incidental plastic sheeting used as waste transport truck bed liners. These materials contain a number of substances including arsenic, salts, metals, and organic hydrocarbons and Naturally Occurring Radioactive Materials (NORM)[1]. No municipal solid waste is accepted at the DVCM and it is not open for public and/or commercial use at any time. The permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday. The amount of non-hazardous wastes that can be received is limited to a maximum of 750 tons per day and 273,750 tons annually. The current SWFP limits the number of daily truck deliveries to 38 each day. This number of trips would not change with the proposed expansion. The DVCM is accessed via a single-lane, 1.25 mile long asphalt paved road that connects to State Route 86. The current monofill typically employs four (4) full-time staff that are responsible for operating equipment used to grade and compact the materials and generally operate the facility.

[1] The monofill operates in conformance with a "Radiation Monitoring Plan", that requires monitoring of workers stationed at the site to ensure that they are not subject to any impacts from radiation.



SOURCE: Basemap-ESRI; ICPDS, 2015, 2018

N

0 0.75 1.5 Miles

Project Location

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 1

The proposed project would expand the existing Desert Valley Company Monofill with the addition of waste storage Cell 4 and associated facilities that include:

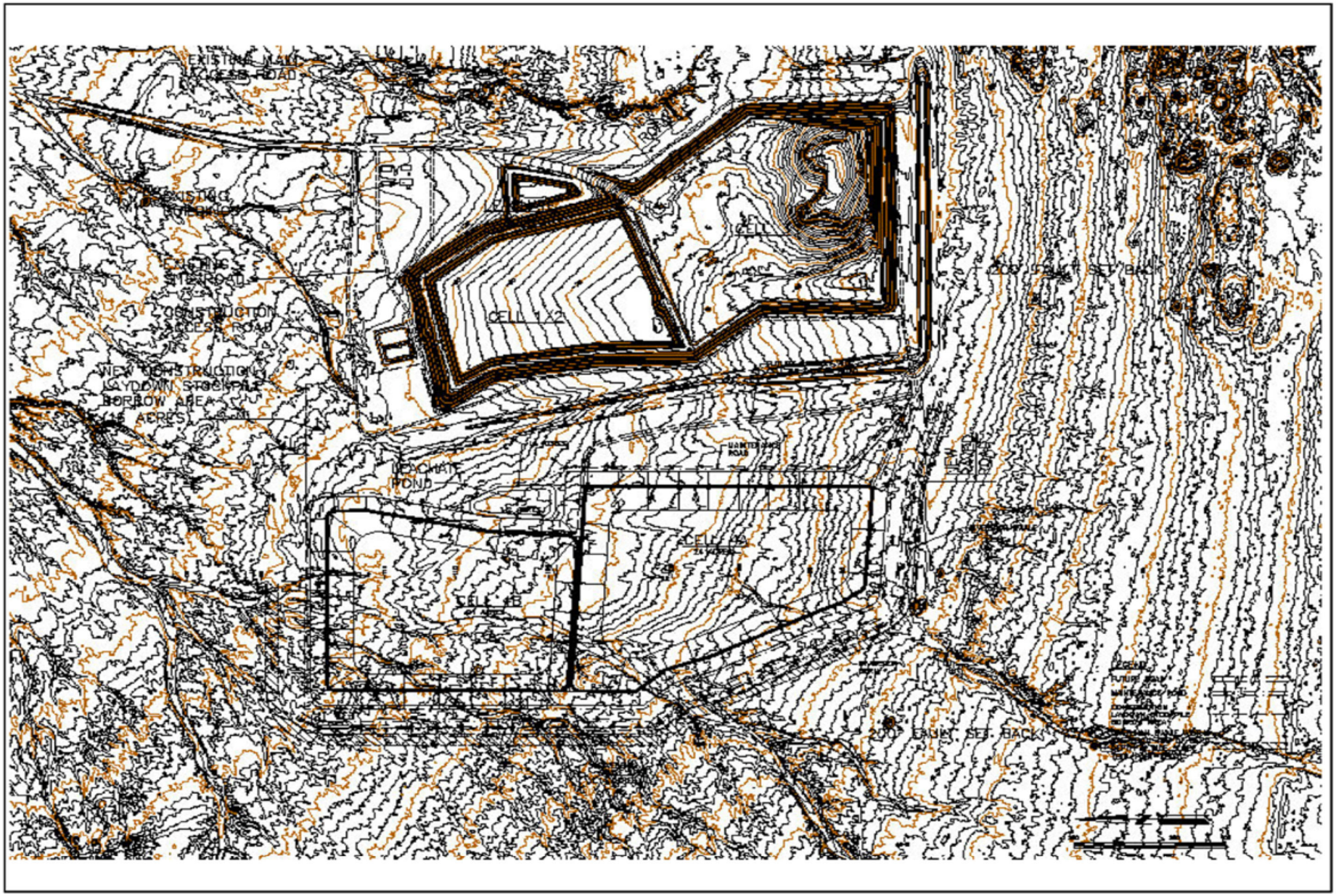
- a new leachate pond for Cell 4 (1.2 acres);
- the construction of new stormwater diversion dikes and the extension of existing stormwater diversion dikes to divert surface water runoff around the Project site;
- minor extensions/modifications to internal access roads to provide access to Cell 4;
- installation of a new water well for use during construction; and,
- Additional air quality particulate sampling stations, and additional groundwater monitoring wells

The proposed site plan is shown on **Figure 2**.

The new Cell 4 would be built in two (2) phases – Phase 1 and 2, referred to herein as Cells 4A and 4B, respectively. Similar to Cell 3, Cells 4A and 4B would have a combined capacity of approximately 1.3 million cubic yards; a projected lifespan of 28.6 years; and, would occupy a surface area of approximately 50 acres (CalEnergy, 2018). Construction of Cell 4A, with an overall area of 24 acres, would be constructed first and would take approximately 12 months to complete. Cell 4A, upon issuance all required permits, would begin to receive solid waste once Cell 3 reaches capacity. Construction of Cell 4B, with a surface area of 21 acres, would commence when there is demand for additional waste storage capacity (approximately two years prior to Cell 4A reaching capacity). Each cell would include a multi-layer leachate collection and liner system designed and constructed per State of California Title 23, Division 3, Chapter 15, Article 4; Construction Standards for Class I Units.

To prepare the disposal site, required construction activities include internal access road improvements; onsite grading, berm and levee development, soil compaction, installation of two plastic membranes; and other ancillary improvements required for safe operation. To maintain operational integrity, a series of diversion berms would be constructed and/or extended around the south and western perimeter of Cell 4 to divert surface water runoff from multiple existing ephemeral surface water features around the Project site. The surface water flow would be routed around the landfill facilities and allowed to rejoin the existing surface waters downstream. A 50-foot buffer would also be established along the outer edge of Cell 4 and a new leachate pond would be constructed along the eastern edge of Cell 4B. During construction, portable office trailers may be placed on the project site to accommodate the construction personnel and a new water well would be constructed.

The primary source of emissions would be associated with construction of Cells 4A and 4B which would comprise approximately 24 and 21 acres respectively. Additionally, construction of the leachate pond would disturb 1.2 acres. The laydown area, stockpile area and borrow area would comprise 16 acres and an additional 14 acres would be disturbed for construction of the diversion swale area (i.e., levee and water diversion). The total area of disturbance for construction of Cell 4A and related features would be approximately 55.2 acres. Construction of Cell 4B would disturb 21 acres and 16 acres for the laydown, stockpile and borrow area. As



SOURCE: Veizades + Associates, 2019

Site Plan

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 2

discussed, Cells 4A and 4B would not be constructed at the same time. To conservatively estimate daily emissions, it was assumed that the entire 55.2 acres would be disturbed daily for construction of Cell 4A and 37 acres would be disturbed for construction of Cell 4B. Construction of Cell 4A would occur in 2024 and Cell 4B in 2039.

Emissions associated with operation of the facility would include 38 delivery truck trips, 4 employee trips and heavy equipment operation to spread and compact the waste material. Vendor trips to deliver water, fuel and other supplies would occur periodically throughout the week. Thus, to conservatively estimate daily operational emissions, including the use of on-site heavy equipment, a total of 46 truck trips and four employee trips (50 trips total) were assumed.

SETTING

Air Pollution Regulation

The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate emissions of airborne pollutants and have established ambient air quality standards for the protection of public health. The EPA is the federal agency designated to administer air quality regulation, while the California Air Resources Board (ARB) is the state equivalent in California. Federal and state standards have been established for six criteria pollutants, including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), and lead (Pb). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Table 1 lists the current federal and state standards for each of these pollutants. Standards have been set at levels intended to be protective of public health. California standards are more restrictive than federal standards for each of these pollutants except lead and the eight-hour average for CO.

Table 1
Current Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	---	0.09 ppm
	8-Hour	0.070 µg/m^3	0.070 µg/m^3
PM_{10}	24-Hour	150 µg/m^3	50 µg/m^3
	Annual	---	20 µg/m^3
$PM_{2.5}$	24-Hour	35 µg/m^3	---
	Annual	12 µg/m^3	12 µg/m^3
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
	Annual	0.053 ppm	0.030 ppm

Table 1
Current Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Nitrogen Dioxide	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	24-Hour	---	0.04 ppm
	3-Hour	0.5 ppm (secondary)	---
	1-Hour	0.075 ppm (primary)	0.25 ppm
Lead	30-Day Average	---	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	---

ppm = parts per million
µg/m^3 = micrograms per cubic meter
Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf May 4, 2016.

Local control in air quality management is provided by the ARB through county-level or regional (multi-county) APCDs. The ARB establishes air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. The ARB has established 14 air basins statewide. The project site is located within the Salton Sea Air Basin (Basin), which includes all of Imperial County and a portion of central Riverside County. Air quality conditions in the Imperial County portion of the Basin are under the jurisdiction of the Imperial County APCD (ICAPCD). The remainder of the Basin is managed by the South Coast Air Quality Management District. The ICAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment." Table 2 shows the attainment Salton Sea Air Basin attainment status for the national and state standards shown in Table 1.

Table 2
Imperial County Air Quality Standard Attainment Status

Pollutant	CAAQS	NAAQS
Ozone (O_3)	Nonattainment	Nonattainment - Moderate
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Nonattainment - Serious
Fine Particulate Matter ($PM_{2.5}$)[1]	Unclassified[2]	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassified/Attainment
Lead (Pb)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Sulfates	Attainment	No Federal Standards
Vinyl Chloride	Unclassified	
Hydrogen Sulfide (H_2S)	Attainment	
Visibility Reducing Particles	Unclassified	

Source: County of Imperial, September, 2013
[1] Part of Imperial County is designated nonattainment for the NAAQS; however, the nonattainment area does not include the project location
[2] Insufficient data to designate area or designations have yet to be made

The Basin in which the project area is located, is designated non-attainment area for the federal and state standards for ozone and PM_{10}. The Basin is in attainment or unclassified for the remaining pollutants. Characteristics of the pollutants referenced above are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)[2]. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns

[2] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Lead (Pb). Lead is a naturally occurring metal used in a variety of industrial and commercial applications. Historically, the majority of lead emissions were attributed to automobiles using leaded gasoline. As leaded gasoline has been phased out of use, lead emissions have dropped dramatically, and current primary sources are ore processing and aircraft that use leaded aircraft fuel. Lead exposure has been associated with learning disabilities and behavioral problems in children, kidney damage, and negative effects on the nervous and cardiovascular systems.

Sulfur Dioxide (SO_2). SO_2 is one of several highly reactive gasses known as oxides of sulfur (SOx) and is formed by burning fuel containing sulfur. Typical sources include emissions from burning coal or oil at power plants and factories. Typical health effects associated with exposure to sulfur dioxide include respiratory illness and exacerbation of respiratory symptoms in people with asthma.

Sulfates. Sulfates are the fully oxidized ionic form of sulfur produced when sulfur dioxide is fully oxidized in the atmosphere. Sulfates are produced by emissions from automobiles, power plants, and industrial activity, and contribute to general atmospheric haziness. Typical health effects associated with exposure to sulfates include respiratory illness and an increased risk of cardio-pulmonary disease.

Vinyl Chloride. Vinyl chloride is an artificially created colorless gas with a mild, slightly sweet odor. The gas is used in the manufacture of vinyl products, including polyvinyl chloride (PVC) plastic. Vinyl chloride emissions are produced from the vinyl manufacturing process as well as from the breakdown of vinyl products in landfills and hazardous waste sites. The health effects associated with vinyl chloride include dizziness, headaches, and drowsiness from shortterm exposure, and liver damage and cancer resulting from long-term exposure. In 1990, the California Air Resources Board (CARB) designated vinyl chloride as a toxic air contaminant.

Hydrogen Sulfide (H_2S). H_2S is a naturally occurring, colorless gas that, at low concentrations, produces a distinctive rotten egg odor. At higher concentrations, the gas produces a sweet odor. The gas is produced through the bacteriological breakdown of organic materials as well as some types of geothermal activity. Health effects associated with H2S include exposure to a disagreeable odor, coughing, irritation to eyes, and impairment of the respiratory system.

Visibility Reducing Particles. Visibility reducing particles are particulate matter composed of many different substances that are suspended in the atmosphere and contribute to haze and diminished visibility.

Toxic Air Contaminants/Hazardous Air Pollutants. Toxic air contaminants (TACs), also known as hazardous air pollutants (HAPs), are a wide range of pollutants that may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazards to human health (CARB 2010). Health effects associated with TACs, including cancer, are typically the result of acute or repeated exposure to these pollutants.

TACs are emitted from a number of different sources, including industrial sources (e.g., refining, manufacturing, utilities, and mining) commercial sources (e.g., gas stations and dry cleaners) and diesel-fueled vehicles. Currently, both the EPA and the State of California have recognized nearly 200 different contaminants as TACs/HAPs. CARB has identified 10 specific pollutants as posing the greatest risk to human health based on ambient background levels in the state. These pollutants include: acetaldehyde (CH3CHO), benzene (C6H6), 1,3-butadiene (C4H6), carbon tetrachloride (CCl4), hexavalent chromium, para-dichlorobenzene (C6H4Cl2), formaldehyde (CH2O), methylene chloride (CH2Cl2), perchloroethylene (C2Cl4), and diesel particulate matter (DPM). The potential TACs of most concern that are associated with the proposed project are benzene (C6H6) and diesel particulate matter (DPM).

Benzene (C6H6). Benzene is a colorless, flammable liquid with a pleasant, sweet odor that evaporates quickly when exposed to air. Benzene is produced naturally through geothermal processes, as a component of petroleum and natural gas, and as a byproduct of burning wood and other plant matter. Anthropomorphic sources of benzene include use as an ingredient in solvents and as an additive to gasoline.

Diesel Particulate Matter (DPM**).** DPM is produced by the combustion of diesel fuel and is composed of a mixture of various gases and fine particulate matter (i.e., soot). CARB recognized the particulate matter in DPM as a TAC in 1998 based on its potential to cause cancer and contribute to other adverse health effects (CARB 2011). This TAC is the most prevalent of the 10 specific pollutants identified by CARB and poses the greatest health risk.

Odors. Odors are generally considered a nuisance rather than a health hazard, and can lead to discomfort and distress among the general public. However, as the human nose is the only means by which odors can be detected, the ability to identify and qualify odors is highly subjective. Some people have a greater ability to detect odors from minute emissions of odor causing substances and may take offense at certain odors that are unnoticeable or considered pleasant by others. In addition, regular exposure to odor may cause desensitization, resulting in "odor fatigue," whereby once recognized odors go unnoticed unless there is a change in the odor's intensity. Odors produced as a result of geothermal energy production can include the sulfurous, rotten egg smell characteristic of emissions of hydrogen sulfide (H2S). Ammonia (NH3) is also produced and has a sharp and irritating odor. The combustion of diesel fuel to

power construction or operations related equipment can produce odors due to the sulfur content of diesel fuel.

Regional Climate and Local Air Quality

The proposed project is located in Imperial County, the southeastern most county in California. Imperial County is one of the hottest and driest parts of California and is located in a low latitude desert characterized by hot, dry summers and relatively mild winters. Average annual precipitation within Imperial County is less than 3 inches. The normal maximum temperature in January is approximately 70 degrees Fahrenheit (°F), and the normal minimum temperature is approximately 41°F. In July, the normal maximum temperature can exceed 107°F, while the normal minimum temperature is approximately 75°F. Relative humidity in the summer is low, averaging 30 to 50 percent in the early morning and 10 to 20 percent in the afternoon. During the hottest part of the day, the relative humidity can drop below 10 percent. However, the effect of extensive agricultural operations in the widely irrigated Imperial Valley tends to increase local humidity. The prevailing weather conditions promote intense heating during the day in summer with cooling at night. During the fall, winter, and spring, regional winds tend to come from the northwest. During the summer, winds tend to come from the southeast.

The ICAPCD operates a network of 5 ambient air monitoring stations throughout Imperial County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants to determine whether the ambient air quality meets the California and federal standards. The air quality monitoring station located nearest to the project site is located at 570 Cook Street in Westmorland approximately 12 miles east of the project site. Table 3 provides a summary of monitoring data at the Westmoreland Station for ozone and PM_{10}. As referenced, the Salton Sea Basin is a nonattainment area for these two pollutants.

As shown, the state ozone standard was not exceeded at the Westmoreland monitoring station during 2016-2018. The federal PM_{10} standard was exceeded 18 times in 2016, 8 times in 2017 and 9 times in 2018. Insufficient data was available to determine exceedances of the state PM_{10} standard.

Air Quality Management Plan

ICAPCD is the local air pollution control agency for Imperial County and the southern portion of the Salton Sea Air Basin. The ICAPCD has primary responsibility for ensuring that state and federal air quality standards are attained and maintained within the ICAPCD's jurisdiction. Thus, the ICAPCD is responsible for preparing clean air plans, issuing construction and operation permits, monitoring ambient air quality, as well as developing and implementing rules and regulations that govern air quality within Imperial County. The ICAPCD meets its regulatory responsibilities through the State of California State Implementation Plan (SIP). The ICAPCD adopted its first SIP in 1971 and has prepared periodic updates to the SIP. SIPs for controlling PM_{10}, ozone, and a reasonably available control technology SIP are in place for Imperial County and constitute the Air Quality Attainment Plan (AQAP) for Imperial County.

Table 3
Ambient Air Quality Data

Pollutant	2016	2017	2018
Ozone, ppm - Worst Hour	0.068	0.067	0.068
Number of days of Federal exceedances (>0.070 ppm)	0	0	0
Particulate Matter <10 microns, μg/m^3 Worst 24 Hours	733	332	414
Number of samples of State exceedances (>50 μg/m^3)	*	*	*
Number of samples of Federal exceedances (>150 μg/m^3)	18	8.1	9.1

Westmorland Monitoring Station
Source: California Air Resources Board, 2016, 2017, 2018 Annual Air Quality Data Summaries available at http://www.arb.ca.gov/adam/topfour/topfour1.php
*Note: * - insufficient data*

A SIP revision for revised rules under ICAPCD Regulation VIII for fugitive dust PM_{10} was reviewed by EPA and the final rule was signed on March 27, 2013 and published in the Federal Register (Federal Register 2013). The ICAPCD adopted the rules on October 16, 2012 to regulate PM_{10} emissions from sources of fugitive dust (e.g., unpaved roads and disturbed soils in open and agricultural areas). CARB submitted these rules to EPA for approval on November 7, 2012; EPA proposed approval of these revisions to the ICAPCD portion of the California SIP on January 7, 2013. Rules and regulations promulgated by the ICAPCD and in the SIP revision applicable to the proposed project include the following:

- ICAPCD Rule 207.C.1, New and Modified Stationary Source Review (best available control technologies [BACT]), requires that any new or modified emissions unit that has a potential to emit 25 pounds per day or more of any nonattainment pollutant or its precursors, or 55 pounds per day of H_2S, must include BACT as a part of the project.

- ICAPCD Rule 400, Nuisances, forbids the emission of air contaminants or other materials that would cause a nuisance to the public, including non-agricultural related odors.
- ICAPCD Rule 800 General Requirements for Control of Fine Particulate Matter (PM-10), requires actions to prevent, reduce, or mitigate PM-10 emissions from anthropogenic (man-made) Fugitive Dust (PM-10) sources generated within Imperial County.

- ICAPCD Regulation VIII, Rule 801 (Construction and Earthmoving Activities) establishes a 20 percent opacity limit, requires the implementation of a dust management control plan for all nonresidential projects of 5 acres or more, and requires compliance with other portions of Regulation VIII regarding bulk materials (Rule 802), carry-out and track-out (Rule 803), and paved and unpaved roads (Rule 805). The rule exempts single-family homes and waives the 20 percent opacity limit in winds over 25

miles per hour (mph) under certain conditions. To comply with this reguation, the applicant would implement Mitigation Measure AQ-1 which requires preparation of a Fugitive Dust Suppression Plan to minimize dust generated during construction and ground disturbing activities.

- ICAPCD Rule 804 Open Areas, requires actions to prevent, reduce or mitigate the amount of fine Particulate Matter (PM-10) emissions generated from Open Areas. Open areas are defined as any open area having 0.5 acres or more within urban areas, or 3.0 acres or more within rural areas; and contains at least 1,000 square feet of disturbed surface area.

On October 23, 2018 the Imperial County Air Pollution Control District Board of Directors approved the Imperial County 2018 Redesignation Request and Maintenance Plan for PM_{10}. The California Air Resources Board during a December 13, 2018 Public Hearing approved the Imperial County 2018 Redesignation Request and Maintenance Plan for PM_{10}.

ICAPCD adopted the 2013 $PM_{2.5}$ plan on December 2, 2014. The plan was transmitted to CARB on December 9, 2014. CARB reviewed and approved the plan on December 18, 2014 as a revision to the California State Implementation Plan for Imperial County. The plan was submitted to the U.S. EPA on January 9, 2015 and is pending approval.

Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The nearest receptor are residences associated with the Elmore Desert Ranch located on the north side of State Highway 86 approximately 2.1 miles northeast of the site.

AIR QUALITY IMPACT ANALYSIS

Methodology and Significance Thresholds

This air quality analysis conforms to the methodologies recommended in the ICAPCDs *CEQA Air Quality Handbook* (amended November 2007). The handbook includes thresholds for emissions associated with both construction and continued operation of facility. All emissions associated with construction vehicle and equipment operations were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2. As referenced, construction emissions would be associated with clearing, grading, excavation and construction of the cells, roads, berms, levees and water diversion infrastructure. These emissions would consist of diesel exhaust and dust emissions. Construction equipment that would generate criteria air pollutants includes excavators, graders, dump trucks, and loaders. It was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with development of the proposed project were estimated based on the types of equipment (including the number) that would be used on-site during construction.

Operation of Cell 4A and 4B would generate similar emissions to what is generated under existing conditions. These emission are associated the 39 daily truck deliveries (includes one vendor truck), four employee trips and operation of equipment needed to spread and compact the waste material. To determine whether construction of the project would cause a regional air quality impact. The increase in emissions would be compared with the ICAPCD's recommended regional thresholds for operational emissions.

Regional Thresholds. Based on Appendix G of the *CEQA Guidelines*, a project would have a significant air quality impact if it would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*
b) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;*
c) *Expose sensitive receptors to substantial pollutant concentrations; or*
d) *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.*

Any development with a potential to emit criteria pollutants below significance levels defined by the Imperial County APCD is referred to as a "Tier I project," and is considered by the Imperial County APCD to have less than significant potential adverse impacts on local air quality. For Tier I projects, the project proponent should implement a set of feasible "standard" mitigation measures (determined by the Imperial County APCD) to reduce the air quality impacts to an insignificant level. A "Tier II project" is one whose emissions exceed any of the thresholds. Its impact is significant and the project proponent should select and implement all feasible "discretionary" mitigation measures (as determined by the

Imperial County APCD) in addition to the standard measures. Tier I and Tier II thresholds are shown in Table 4.

Table 4
ICAPCD Tier I and Tier II Daily Operational Thresholds

Pollutant	Tier I	Tier II
NOx and ROG	Less than 137 lbs/day	Greater than 137 lbs/day
PM_{10} and SOx	Less than 150 lbs/day	Greater than 150 lbs/day
CO and $PM_{2.5}$	Less than 550 lbs/day	Greater than 550 lbs/day
ROG = reactive organic gas; NOX = oxides of nitrogen; CO = carbon monoxide; PM10 = particulate matter with an aerodynamic diameter 10 microns or less; lbs/day = pounds per day SOURCE: Imperial County APCD 2017		

The ICAPCD has developed specific quantitative thresholds that apply to short-term construction activities and project operation. The thresholds are shown in Table 5.

Table 5
ICAPCD Daily Emission Thresholds

Pollutant	Construction (pounds/day)	Operation (pounds/day)
Reactive Organic Gases	75	55
Nitrogen Oxide	100	55
Carbon Monoxide	550	550
Particulate Matter 10	150	150
Particulate Matter 2.5	N/A	55*
Sulfur Oxides	N/A	150

Source: ICAPCD CEQA Handbook, 2007
Note: The ICAPCD has not adopted a significance threshold for operational or construction related emission of PM2.5 or construction related emissions of SOx. Recent projects in the ICAPCD have used a PM2.5 threshold for operation emissions of 55 pounds per day based on the SCAQMD's Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds (SCAQMD 2006).
NA = Construction thresholds for PM2.5 and SOx are not applicable.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles. Construction would generally consist of site preparation, grading, construction of the proposed cells, roads, berms, levees and water diversion infrastructure.

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions (CO and NOx) from heavy construction vehicles and trucks. As described, the applicant is intending to construct Cell 4A first. Cell 4B would be constructed when Cell A approaches capacity. To conservatively estimate grading emissions and for fugitive dust control purposes, it was assumed that the entire 55.2-acre area comprising the Cell 4A (and 32 acres for Cell 4B) disturbance area would be disturbed daily. For modeling purposes, it was assumed that all spoils would be stored on-site and used for cover material; thus, no off-site haul trips would occur. The construction year is 2024 for Cell 4A and 2039 for Cell 4B. Construction emission estimates are shown in Table 6.

Table 6
Estimated Maximum Daily Construction Emissions

Construction Phase	Maximum Emissions (lbs/day)					
	ROG	NO_x	SOx	CO	PM_{10}	$PM_{2.5}$
Project Construction - 2024	3.3	32.4	0.06	28.6	9.4	5.6
Project Construction - 2039	2.9	10.1	0.07	23.2	8.6	4.8
ICAPCD Regional Thresholds	*75*	*100*	*No Standard*	*550*	*150*	*No Standard*
Threshold Exceeded	**No**	**No**	**No**	**No**	**No**	**No**

The emissions shown in Table 6 are mitigated to primarily control fugitive dust (PM_{10}) emissions during construction and assume exposed soil areas would be watered twice daily. To minimize fugitive dust and general construction emissions, the applicant would be required to implement fugitive dust control measures per ICAPCD Rules 801 and 804 as referenced herein. The fugitive dust control plan and related requirements to control fugitive dust emissions during construction are addressed as follows and assumed to be conditions of approval for the project:

> **AQ-1a:** Prior to commencing construction, the project applicant will be required to submit a Dust Control Plan to the ICAPCD for approval. The Dust Control Plan will identify all sources of PM_{10} emissions and associated mitigation measures during the construction and operational phases (see Rule 801 F.2). The applicant shall submit a "Construction Notification Form" to the ICAPCD 10 days prior to the commencement of any earthmoving activity. The Dust Control Plan submitted to the ICAPCD shall meet all applicable requirements for control of fugitive dust emissions, including the following measures designed to achieve the no greater than 20-percent opacity performance standard for dust control and address the following parameters:
>
> - All disturbed areas, including bulk material storage that is not being actively used, shall be effectively stabilized; and visible emissions shall be limited to no greater than 20-percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material, such as vegetative groundcover. Bulk material is defined as earth, rock, silt, sediment, and other organic and/or inorganic material consisting of or containing particulate matter with 5 percent or greater silt content. For modeling purposes, it was assumed that watering would occur twice daily.
>
> - All on-site unpaved roads segments or areas used for hauling materials shall be effectively stabilized. Visible emissions shall be limited to no greater than 20 percent

opacity for dust emissions by restricting vehicle access, paving, application of chemical stabilizers, dust suppressants and/or watering.

- The transport of bulk materials on public roads shall be completely covered, unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks shall be cleaned and/or washed at the delivery site after removal of bulk material, prior to using the trucks to haul material on public roadways.

- All track-out or carry-out on paved public roads, which includes bulk materials that adhere to the exterior surfaces of motor vehicles and/or equipment (including tires) that may then fall onto the pavement, shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.

- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line except where such material or activity is exempted from stabilization by the rules of ICAPCD.

AQ-1b: Each project proponent shall implement all applicable standard measures for construction combustion equipment for the reduction of excess NO_x emissions as contained in the Imperial County CEQA Air Quality Handbook and associated regulations. These measures include:

- Use alternative-fueled or catalyst-equipped diesel construction equipment, including all off-road and portable diesel-powered equipment.
- Minimize idling time, either by shutting equipment off when not in use or reducing the time of idling to five minutes at a maximum.
- Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use. Replace fossil-fueled equipment with electrically driven equivalents (assuming powered by a portable generator set and are available, cost effective, and capable of performing the task in an effective, timely manner).
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing construction activity during the peak hour of vehicular traffic on adjacent roadways.
- Implement activity management (e.g., rescheduling activities to avoid overlap of construction phases, which would reduce short-term impacts).

With implementation of AQ1a and AQ1b, construction related impacts would be less than significant. No additional mitigation would be required.

Long-Term Regional Impacts

Regional Pollutant Emissions

Table 7 summarizes emissions associated with operation of the expanded facility. Emissions include the 39 daily truck trips, four employee trips and use of equipment to spread and compact the waste material. The ICAPCD thresholds for ROG, NO_X, CO, SO_X, PM_{10} or $PM_{2.5}$ would not be exceeded. Therefore, the project's regional air quality impacts (including impacts related to criteria pollutants, sensitive receptors and violations of air quality standards) would be less than significant.

Table 7
Estimated Operational Emissions

	Estimated Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Operation – Cell 4A and 4B						
Cell 4A and 4B	0.2	8.1	3.3	0.08	2.4	0.6
ICAPCD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Summer emissions shown.

Carbon Monoxide Hotspot

The nearest sensitive receptor to the project site are residences associated within the Elmore Desert Ranch located approximately 2.1 miles northeast of the site. As shown above, neither the construction or operation emissions would exceed the ICAPCD thresholds. Methods developed by the University of California Davis (1997) are used to determine when a CO hotspot analysis is recommended. A CO hotspot analysis is recommended if an intersection meets one of the following criteria: 1) the intersection is at Level of Service (LOS) D or worse and where the project increases the volume to capacity ratio by 2 percent, or 2) the project decreases LOS at an intersection to D or worse. A CO hotspot is a localized concentration of CO that is above the state or national 1-hour or 8-hour CO ambient air standards. Localized CO "hotspots" can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal AAQS of 35.0 parts per million (ppm) or the state AAQS of 20.0 ppm.

California Department of Transportation 2017 traffic counts on State Route 86 show an average daily trip volumes (ADT) of 1,150 at the intersection with State Route 78 northwest of the site and 1,250 ADT at the intersection of Bannister Road southeast of the site. The project will not add traffic to State Route 86 and the existing volumes are not high enough to cause or contribute to congested conditions. No CO hotspot would occur under operating conditions.

Objectionable Odors

The proposed project would generate odors from construction (i.e., diesel exhaust) and operation of heavy equipment. Construction emissions would not exceed IPAPCD impact thresholds; thus, short-term odors are not expected to be significant. Further, the nearest sensitive property is located approximately 2.1 miles northeast of the site. Odors from the site would not be detectable at that distance. No significant impacts or mitigation measures related to odor were identified. Odor impacts would be **less than significant.**

Air Quality Attainment Plan Consistency

A project may be inconsistent with the AQAP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. As referenced, the ICAPCD meets its regulatory responsibilities through the State of California State Implementation Plan (SIP). The ICAPCD adopted its first SIP in 1971 and has prepared updates to the SIP over the years. SIPs for controlling PM_{10}, ozone, and a reasonably available control technology SIP are in place for Imperial County and constitute the AQAP for Imperial County.

The SIP adopted by ICAPCD incorporates local city General Plans and the socioeconomic forecast projections related to regional population, housing and employment growth. The proposed project would expand the existing disposal cells to support continued operation of the existing facility. The proposed project would not result in population growth in excess of forecasts for Imperial County. The project would not conflict with the County of Imperial General Plan or be inconsistent with the AQAP.

GREENHOUSE GAS EMISSIONS

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different

amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane (CH_4) has a GWP of 28, meaning its global warming effect is 28 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2014).

Total U.S. GHG emissions were 6,587 MMT CO_2E in 2015 (U.S. EPA, April 2017). Total U.S. emissions decreased over 2014 levels primarily as a result of less fossil fuel combustion. However, emissions vary annually. For example, emissions increased by 3.2 percent from 2009 to 2010. The increase was due in part to (1) an increase in economic output resulting in greater energy consumption across all sectors; and (2) warmer summer conditions resulting in an increase in electricity demand for air conditioning (U.S. EPA, April 2012). In 2015, electricity production and transportation accounted for 29 percent and 27 percent of CO_2 emissions from fossil fuel combustion, respectively. The residential and commercial end-use sectors accounted for 22 percent and 19 percent of CO_2 emissions from fossil fuel combustion, respectively, during 2010 (U.S. EPA, April 2012).

Based upon the California Air Resources Board (ARB) 2017 Scoping Plan (ARB, 2017), California produced 440.4 MMT CO_2E in 2015. The major source of GHG in California is transportation, contributing 37 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 21 percent of the state's GHG emissions. California emissions result in part to its geographic size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. The ARB has projected statewide unregulated GHG emissions for the year 2020 is projected to be 509 MMT CO_2E (ARB, May 2014). These projections are based on Business As Usual (BAU) conditions and represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

California Regulations

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 states that by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report recommended various strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

Assembly Bill 32 and CARB's Scoping Plan

To further the goals established in EO S-3-05, the Legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2E). CARB's adoption of this limit is in accordance with Health and Safety Code, Section 38550.

Further, in 2008, CARB adopted the Scoping Plan in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33%;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the Scoping Plan (CARB 2008), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise

projected 2020 emissions level (i.e., those emissions that would occur in 2020) absent GHG reducing laws and regulations (referred to as Business-As-Usual (BAU)). To calculate this percentage reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (CARB 2011a), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update; CARB 2014). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014). Those six areas are (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal (CARB 2014).

Based on CARB's research efforts presented in the First Update, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2E) and the revised 2020-emissions-level projection identified in the 2011 Final

Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions (CARB 2014).

In January 2017, CARB released, *The 2017 Climate Change Scoping Plan Update (*Second Update; CARB 2017b), for public review and comment. This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016). The Second Update has not been considered by CARB's Governing Board at the time this analysis was prepared.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Other regulations affecting state and local GHG planning and policy development are summarized as follows:

Assembly Bill 939 and Senate Bill 1374
Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Senate Bill 1368
Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is an environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010. Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.

- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.

- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.

- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."

- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.

- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09
Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

California Code of Regulations (CCR) Title 24, Part 6
CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards. The 2013 commercial standards are estimated to be 30 percent more efficient than the 2008 standards; 2013 residential standards are at least 25 percent more efficient. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

Senate Bill 375
Senate Bill 375 (SB 375) was adopted in September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable community's strategy or alternate planning strategy for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, CEQA incentivizes, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. Additionally, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

California Green Building Standards

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards and became effective on January 1, 2017. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as "CALGreen," and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings and schools and hospitals. The CALGreen 2016

standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings;
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance;
- Diversion of 65% of construction and demolition waste from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency;
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations; and
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle board.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs (24 CCR Part 11).

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include the following: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).[3] As most recently defined by the CEC in its 2015 Integrated Energy Policy Report (CEC 2015b), a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing

[3] It is expected that achievement of the ZNE goal will occur through revisions to the Title 24 standards.

fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO2E. EO B-30-15 also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to CARB's membership, increase legislative oversight of CARB's climate change–based activities, and expand dissemination of GHG and other air quality–related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Local Regulations and CEQA Requirements

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, they give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

The general approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. The SCAQMD threshold, which was adopted in December 2008, considers emissions of over 10,000 metric tons CO2E /year to be significant. However, the SCAQMD's threshold applies only to stationary sources and is expressly intended to apply only when the SCAQMD is the CEQA lead agency. Although not formally adopted, the SCAQMD has developed a draft quantitative threshold for all land use types of 3,000 metric tons CO_2E /year (SCAQMD, September 2010). Note that lead agencies retain the responsibility to determine significance on a case-by-case basis for each specific project.

The Imperial County Air Pollution Control District (ICAPCD) has no regulations or additional guidelines relative to GHG emissions for residential, commercial, or industrial projects; however, ICAPCD Rule 903 applies to any stationary source that would have the potential to emit air contaminants equal to or in excess of the threshold for a major source of regulated air pollutants. In 2011, ICAPCD amended Rule 903 to add GHGs to the list of regulated pollutants. As part of the revised rule, stationary sources that exceed the *de minimis* emissions level of 20,000 tons of carbon dioxide equivalent (CO2e) per year in a 12-month period would need to meet recordkeeping and reporting requirements.

CLIMATE CHANGE IMPACT ANALYSIS

Thresholds of Significance

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental

effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

For future projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). As referenced, the IPAPCD uses 20,000 MT CO_2E annually as the threshold for stationary emission sources.

Methodology

Construction of proposed improvements would generate GHG emissions. Site preparation activities, site grading, exhaust from vehicles transporting construction materials and personnel, and emissions from heavy-duty construction equipment would generate GHG emissions. Construction emissions would vary based on the number and types of heavy-duty vehicles and equipment in use, the intensity of construction activities, the number of construction personnel involved, and the length of time over which these construction activities would occur. Additionally, the level of GHGs emitted during construction would increase with the greater level of intensity of each of these factors. The level of emissions would vary on a "project-by-project" basis based on the characteristics of individual projects.

Implementation would generate GHG emissions from truck and employee/vendor trips and use of heavy equipment. The project would not produce electrical power or otherwise offset emissions associated with carbon-based fuels. Thus, whether GHG emissions associated with the project would be significant is based on the 20,000 MT CO_2E threshold used by ICAPCD for stationary sources referenced above. GHG emissions associated with construction and operation of the proposed project and existing development have been estimated using California Emissions Estimator Model (CalEEMod) version 2016.3.2.

Construction Emissions

Construction activity is assumed to occur over two one-year periods in 2024 and 2039. Based on CalEEMod results, construction activity for the project would generate an estimated 599 metric tons of carbon dioxide equivalent (CO_2E) in 2024 and 411 tons of CO2E in 2039. Amortized over a 30-year period (the assumed life of the project), construction of the proposed project would generate a total of 34 tons metric tons of CO_2E (Table 8).

Operational Indirect and Stationary Direct Emissions

Long-term mitigated emissions would be generated primarily by operation of equipment and trucks and would not change from baseline conditions or with construction of Cells 4A and 4B. Water would be imported for potable and dust abatement use. Electricity would be associated with operation of the on-site office facility. Each source is discussed below and includes the anticipated emissions that would result from operation of the proposed project. Table 9

Table 8
Estimated Construction Related Greenhouse Gas Emissions

Year	Annual Emissions (metric tons CO_2E)
2024	599
2039	411
Amortized 30 years - 2024	**20 metric tons per year**
Amortized 30 years - 2039	**14 metric tons per year**

See Appendix for CalEEMod software program output for new construction.

combines the net new construction, operational, and mobile GHG emissions associated with the proposed project. As discussed above, temporary emissions associated with construction activity are amortized over 30 years (the anticipated life of the project).

Table 9
Combined Annual Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Construction	20 metric tons (2024) 14 metric tons (2039)
Operational Energy Solid Waste Water	 8 metric tons 1 metric tons 2 metric tons
Mobile	1,392 metric tons
Total	**1,437 metric tons**

See Appendix for CalEEMod software program output (demolition and new construction).

GHG Cumulative Significance

As discussed above, a proposed project exceeding the 20,000 annual MT screening threshold could have a significant environmental impact under CEQA. The project would not exceed the threshold; thus, emissions, when combined with existing, approved, proposed, and reasonably foreseeable projects within the County would not result in cumulative emissions that would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases. Implementation of the project would not exceed the IPAPCD GHG mission thresholds; and thus, would not cumulatively contribute to significant or adverse impacts.

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Appendix A

CalEEMod Air Quality and Greenhouse Gas Emissions Model Results – Summer/Annual Emissions

Desert Valley Monofill Expansion

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	55.20	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2025
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Desert Valley Monofill Expansion - Imperial County, Summer

Project Characteristics -

Land Use - Assumes entire acreage - 55.2 acres would be disturbed for construction of Cell 4A

Construction Phase - The grading schedule was modified to accomodoate the 12-month construction duration.

On-road Fugitive Dust - Assumes all worker, vendor and hauling trips would use paved asphalt access road and paved State Highway 86.

Vehicle Trips - Assumes 43 trips to accomodate 39 truck haul and 4 employee trips. All trips assumed to be 28 miles and 100% are primary trips. A total of 7 additional truck trips were added daily to account for heavy equipment use on the site. Trip length was doubled to account for two-way trips.

Fleet Mix - Assumes 10 percent are LDT1 employee trips and 95 percent heavy haul trucks.

Road Dust - Assumes vehicles would use paved asphalt access road.

Construction Off-road Equipment Mitigation -

Area Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	145.00
tblConstructionPhase	PhaseEndDate	11/4/2024	12/23/2024
tblFleetMix	HHD	0.12	0.90
tblFleetMix	LDA	0.53	0.00
tblFleetMix	LDT1	0.03	0.10
tblFleetMix	LDT2	0.16	0.00
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.5740e-003	0.00
tblFleetMix	MCY	5.2520e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	5.8100e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	3.6670e-003	0.00
tblFleetMix	SBUS	7.2200e-004	0.00
tblFleetMix	UBUS	1.2700e-003	0.00

tblGrading	AcresOfGrading	362.50	275.00
tblLandUse	LotAcreage	0.02	55.20
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	100
tblVehicleTrips	CC_TL	9.50	56.00
tblVehicleTrips	CNW_TL	11.90	56.00
tblVehicleTrips	CW_TL	16.40	56.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.50	50.00
tblVehicleTrips	SU_TR	1.50	50.00
tblVehicleTrips	WD_TR	1.50	50.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	3.3477	32.4598	28.6892	0.0634	18.2059	1.3363	19.4361	9.9677	1.2294	11.0994	0.0000	6,145.3854	6,145.3854	1.9530	0.0000	6,194.2101
Maximum	**3.3477**	**32.4598**	**28.6892**	**0.0634**	**18.2059**	**1.3363**	**19.4361**	**9.9677**	**1.2294**	**11.0994**	**0.0000**	**6,145.3854**	**6,145.3854**	**1.9530**	**0.0000**	**6,194.2101**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	3.3477	32.4598	28.6892	0.0634	8.2695	1.3363	9.4996	4.5059	1.2294	5.6376	0.0000	6,145.3854	6,145.3854	1.9530	0.0000	6,194.2101
Maximum	**3.3477**	**32.4598**	**28.6892**	**0.0634**	**8.2695**	**1.3363**	**9.4996**	**4.5059**	**1.2294**	**5.6376**	**0.0000**	**6,145.3854**	**6,145.3854**	**1.9530**	**0.0000**	**6,194.2101**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.58**	**0.00**	**51.12**	**54.80**	**0.00**	**49.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Mobile	0.3341	8.1544	3.3891	0.0811	2.4188	0.0303	2.4491	0.6613	0.0290	0.6903		8,498.1900	8,498.1900	0.1192		8,501.1700
Total	**0.3603**	**8.1631**	**3.3965**	**0.0812**	**2.4188**	**0.0310**	**2.4498**	**0.6613**	**0.0296**	**0.6909**		**8,508.6624**	**8,508.6624**	**0.1194**	**1.9000e-004**	**8,511.7047**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Mobile	0.3341	8.1544	3.3891	0.0811	2.4188	0.0303	2.4491	0.6613	0.0290	0.6903		8,498.1900	8,498.1900	0.1192		8,501.1700
Total	**0.3603**	**8.1631**	**3.3965**	**0.0812**	**2.4188**	**0.0310**	**2.4498**	**0.6613**	**0.0296**	**0.6909**		**8,508.6624**	**8,508.6624**	**0.1194**	**1.9000e-004**	**8,511.7047**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2024	4/8/2024	5	70	
2	Site Preparation	Site Preparation	4/9/2024	6/3/2024	5	40	
3	Grading	Grading	6/4/2024	12/23/2024	5	145	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2437	20.8781	19.7073	0.0388		0.9602	0.9602		0.8922	0.8922		3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**2.2437**	**20.8781**	**19.7073**	**0.0388**		**0.9602**	**0.9602**		**0.8922**	**0.8922**		**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0972	0.0622	0.7248	1.0300e-003	0.1164	6.5000e-004	0.1170	0.0309	6.0000e-004	0.0315		101.7275	101.7275	6.9900e-003		101.9022
Total	**0.0972**	**0.0622**	**0.7248**	**1.0300e-003**	**0.1164**	**6.5000e-004**	**0.1170**	**0.0309**	**6.0000e-004**	**0.0315**		**101.7275**	**101.7275**	**6.9900e-003**		**101.9022**

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2437	20.8781	19.7073	0.0388		0.9602	0.9602		0.8922	0.8922	0.0000	3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**2.2437**	**20.8781**	**19.7073**	**0.0388**		**0.9602**	**0.9602**		**0.8922**	**0.8922**	**0.0000**	**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0972	0.0622	0.7248	1.0300e-003	0.1164	6.5000e-004	0.1170	0.0309	6.0000e-004	0.0315		101.7275	101.7275	6.9900e-003		101.9022
Total	**0.0972**	**0.0622**	**0.7248**	**1.0300e-003**	**0.1164**	**6.5000e-004**	**0.1170**	**0.0309**	**6.0000e-004**	**0.0315**		**101.7275**	**101.7275**	**6.9900e-003**		**101.9022**

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310		3,688.0100	3,688.0100	1.1928		3,717.8294
Total	**2.6609**	**27.1760**	**18.3356**	**0.0381**	**18.0663**	**1.2294**	**19.2956**	**9.9307**	**1.1310**	**11.0617**		**3,688.0100**	**3,688.0100**	**1.1928**		**3,717.8294**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1166	0.0746	0.8697	1.2300e-003	0.1397	7.8000e-004	0.1404	0.0371	7.2000e-004	0.0378		122.0730	122.0730	8.3800e-003		122.2826
Total	**0.1166**	**0.0746**	**0.8697**	**1.2300e-003**	**0.1397**	**7.8000e-004**	**0.1404**	**0.0371**	**7.2000e-004**	**0.0378**		**122.0730**	**122.0730**	**8.3800e-003**		**122.2826**

3.3 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.6609	27.1760	18.3356	0.0381		1.2294	1.2294		1.1310	1.1310	0.0000	3,688.0100	3,688.0100	1.1928		3,717.8294
Total	**2.6609**	**27.1760**	**18.3356**	**0.0381**	**8.1298**	**1.2294**	**9.3592**	**4.4688**	**1.1310**	**5.5998**	**0.0000**	**3,688.0100**	**3,688.0100**	**1.1928**		**3,717.8294**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1166	0.0746	0.8697	1.2300e-003	0.1397	7.8000e-004	0.1404	0.0371	7.2000e-004	0.0378		122.0730	122.0730	8.3800e-003		122.2826
Total	**0.1166**	**0.0746**	**0.8697**	**1.2300e-003**	**0.1397**	**7.8000e-004**	**0.1404**	**0.0371**	**7.2000e-004**	**0.0378**		**122.0730**	**122.0730**	**8.3800e-003**		**122.2826**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.0334	0.0000	8.0334	3.5274	0.0000	3.5274			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**8.0334**	**1.3354**	**9.3688**	**3.5274**	**1.2286**	**4.7560**		**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1296	0.0829	0.9663	1.3700e-003	0.1552	8.7000e-004	0.1561	0.0412	8.0000e-004	0.0420		135.6367	135.6367	9.3100e-003		135.8696
Total	**0.1296**	**0.0829**	**0.9663**	**1.3700e-003**	**0.1552**	**8.7000e-004**	**0.1561**	**0.0412**	**8.0000e-004**	**0.0420**		**135.6367**	**135.6367**	**9.3100e-003**		**135.8696**

3.4 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6150	0.0000	3.6150	1.5873	0.0000	1.5873			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286	0.0000	6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**3.6150**	**1.3354**	**4.9504**	**1.5873**	**1.2286**	**2.8159**	**0.0000**	**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1296	0.0829	0.9663	1.3700e-003	0.1552	8.7000e-004	0.1561	0.0412	8.0000e-004	0.0420		135.6367	135.6367	9.3100e-003		135.8696
Total	**0.1296**	**0.0829**	**0.9663**	**1.3700e-003**	**0.1552**	**8.7000e-004**	**0.1561**	**0.0412**	**8.0000e-004**	**0.0420**		**135.6367**	**135.6367**	**9.3100e-003**		**135.8696**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3341	8.1544	3.3891	0.0811	2.4188	0.0303	2.4491	0.6613	0.0290	0.6903		8,498.1900	8,498.1900	0.1192		8,501.1700
Unmitigated	0.3341	8.1544	3.3891	0.0811	2.4188	0.0303	2.4491	0.6613	0.0290	0.6903		8,498.1900	8,498.1900	0.1192		8,501.1700

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	50.00	50.00	50.00	1,019,200	1,019,200
Total	50.00	50.00	50.00	1,019,200	1,019,200

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	56.00	56.00	56.00	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000	0.900000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
NaturalGas Unmitigated	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	89.0137	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Total		**9.6000e-004**	**8.7300e-003**	**7.3300e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**		**10.4722**	**10.4722**	**2.0000e-004**	**1.9000e-004**	**10.5344**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0890137	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Total		**9.6000e-004**	**8.7300e-003**	**7.3300e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**		**10.4722**	**10.4722**	**2.0000e-004**	**1.9000e-004**	**10.5344**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.8100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0252**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.8100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0252**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Desert Valley Monofill Expansion

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	37.00	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2040
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Assumes entire acreage - 37 acres would be disturbed for construction of Cell 4A

Construction Phase - The grading schedule was modified to accomodoate the 12-month construction duration.

On-road Fugitive Dust - Assumes all worker, vendor and hauling trips would use paved asphalt access road and paved State Highway 86.

Vehicle Trips - Assumes 39 truck trips, 4 employee trips and seven additional trips to acount for on-site heavy equpment operation.

Fleet Mix - Assumes 10 percent of trips are employee/vendor trips and remainder are heavy truck trips

Road Dust - Assumes all traffic would use paved access road.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	75.00	145.00

Desert Valley Monofill Expansion - Imperial County, Summer

tblConstructionPhase	PhaseEndDate	8/5/2039	11/11/2039
tblFleetMix	HHD	0.12	0.90
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.03	0.10
tblFleetMix	LDT2	0.16	0.00
tblFleetMix	LHD1	9.0240e-003	0.00
tblFleetMix	LHD2	4.0460e-003	0.00
tblFleetMix	MCY	5.3340e-003	0.00
tblFleetMix	MDV	0.09	0.00
tblFleetMix	MH	5.0100e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	3.9930e-003	0.00
tblFleetMix	SBUS	6.6600e-004	0.00
tblFleetMix	UBUS	1.3990e-003	0.00
tblLandUse	LotAcreage	0.02	37.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	100
tblVehicleTrips	CC_TL	9.50	56.00

tblVehicleTrips	CNW_TL	11.90	56.00
tblVehicleTrips	CW_TL	16.40	56.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.50	50.00
tblVehicleTrips	SU_TR	1.50	50.00
tblVehicleTrips	WD_TR	1.50	50.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2039	2.9786	10.1932	23.2224	0.0710	18.2059	0.3147	18.4974	9.9677	0.3146	10.2592	0.0000	7,315.4430	7,315.4430	0.2633	0.0000	7,322.0247
Maximum	**2.9786**	**10.1932**	**23.2224**	**0.0710**	**18.2059**	**0.3147**	**18.4974**	**9.9677**	**0.3146**	**10.2592**	**0.0000**	**7,315.4430**	**7,315.4430**	**0.2633**	**0.0000**	**7,322.0247**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2039	2.9786	10.1932	23.2224	0.0710	8.2695	0.3147	8.5610	4.5059	0.3146	4.7973	0.0000	7,315.4430	7,315.4430	0.2633	0.0000	7,322.0247
Maximum	**2.9786**	**10.1932**	**23.2224**	**0.0710**	**8.2695**	**0.3147**	**8.5610**	**4.5059**	**0.3146**	**4.7973**	**0.0000**	**7,315.4430**	**7,315.4430**	**0.2633**	**0.0000**	**7,322.0247**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.58**	**0.00**	**53.72**	**54.80**	**0.00**	**53.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Mobile	0.2840	6.7504	2.5151	0.0794	2.4191	0.0263	2.4454	0.6614	0.0251	0.6865		8,328.0037	8,328.0037	0.1062		8,330.6584
Total	**0.3102**	**6.7591**	**2.5225**	**0.0795**	**2.4191**	**0.0270**	**2.4460**	**0.6614**	**0.0258**	**0.6872**		**8,338.4761**	**8,338.4761**	**0.1064**	**1.9000e-004**	**8,341.1930**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Mobile	0.2840	6.7504	2.5151	0.0794	2.4191	0.0263	2.4454	0.6614	0.0251	0.6865		8,328.0037	8,328.0037	0.1062		8,330.6584
Total	**0.3102**	**6.7591**	**2.5225**	**0.0795**	**2.4191**	**0.0270**	**2.4460**	**0.6614**	**0.0258**	**0.6872**		**8,338.4761**	**8,338.4761**	**0.1064**	**1.9000e-004**	**8,341.1930**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2039	3/11/2039	5	50	
2	Site Preparation	Site Preparation	3/12/2039	4/22/2039	5	30	
3	Grading	Grading	4/23/2039	11/11/2039	5	145	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8311	6.9070	18.7067	0.0462		0.2267	0.2267		0.2267	0.2267		4,378.5819	4,378.5819	0.1599		4,382.5795
Total	**1.8311**	**6.9070**	**18.7067**	**0.0462**		**0.2267**	**0.2267**		**0.2267**	**0.2267**		**4,378.5819**	**4,378.5819**	**0.1599**		**4,382.5795**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0503	0.0444	0.5231	7.7000e-004	0.1164	3.2000e-004	0.1167	0.0309	3.0000e-004	0.0312		76.7462	76.7462	5.4900e-003		76.8834
Total	**0.0503**	**0.0444**	**0.5231**	**7.7000e-004**	**0.1164**	**3.2000e-004**	**0.1167**	**0.0309**	**3.0000e-004**	**0.0312**		**76.7462**	**76.7462**	**5.4900e-003**		**76.8834**

3.2 Demolition - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8311	6.9070	18.7067	0.0462		0.2267	0.2267		0.2267	0.2267	0.0000	4,378.5819	4,378.5819	0.1599		4,382.5795
Total	**1.8311**	**6.9070**	**18.7067**	**0.0462**		**0.2267**	**0.2267**		**0.2267**	**0.2267**	**0.0000**	**4,378.5819**	**4,378.5819**	**0.1599**		**4,382.5795**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0503	0.0444	0.5231	7.7000e-004	0.1164	3.2000e-004	0.1167	0.0309	3.0000e-004	0.0312		76.7462	76.7462	5.4900e-003		76.8834
Total	**0.0503**	**0.0444**	**0.5231**	**7.7000e-004**	**0.1164**	**3.2000e-004**	**0.1167**	**0.0309**	**3.0000e-004**	**0.0312**		**76.7462**	**76.7462**	**5.4900e-003**		**76.8834**

3.3 Site Preparation - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.1483	10.1399	15.9731	0.0466		0.2911	0.2911		0.2911	0.2911		4,409.7537	4,409.7537	0.1889		4,414.4768
Total	**2.1483**	**10.1399**	**15.9731**	**0.0466**	**18.0663**	**0.2911**	**18.3574**	**9.9307**	**0.2911**	**10.2218**		**4,409.7537**	**4,409.7537**	**0.1889**		**4,414.4768**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0532	0.6277	9.3000e-004	0.1397	3.9000e-004	0.1401	0.0371	3.6000e-004	0.0374		92.0954	92.0954	6.5900e-003		92.2601
Total	**0.0603**	**0.0532**	**0.6277**	**9.3000e-004**	**0.1397**	**3.9000e-004**	**0.1401**	**0.0371**	**3.6000e-004**	**0.0374**		**92.0954**	**92.0954**	**6.5900e-003**		**92.2601**

3.3 Site Preparation - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	2.1483	10.1399	15.9731	0.0466		0.2911	0.2911		0.2911	0.2911	0.0000	4,409.7537	4,409.7537	0.1889		4,414.4768
Total	**2.1483**	**10.1399**	**15.9731**	**0.0466**	**8.1298**	**0.2911**	**8.4209**	**4.4688**	**0.2911**	**4.7599**	**0.0000**	**4,409.7537**	**4,409.7537**	**0.1889**		**4,414.4768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0603	0.0532	0.6277	9.3000e-004	0.1397	3.9000e-004	0.1401	0.0371	3.6000e-004	0.0374		92.0954	92.0954	6.5900e-003		92.2601
Total	**0.0603**	**0.0532**	**0.6277**	**9.3000e-004**	**0.1397**	**3.9000e-004**	**0.1401**	**0.0371**	**3.6000e-004**	**0.0374**		**92.0954**	**92.0954**	**6.5900e-003**		**92.2601**

3.4 Grading - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.4862	0.0000	4.4862	1.8603	0.0000	1.8603			0.0000			0.0000
Off-Road	2.9116	9.5942	22.5250	0.0699		0.3142	0.3142		0.3142	0.3142		7,213.1148	7,213.1148	0.2560		7,219.5135
Total	**2.9116**	**9.5942**	**22.5250**	**0.0699**	**4.4862**	**0.3142**	**4.8004**	**1.8603**	**0.3142**	**2.1745**		**7,213.1148**	**7,213.1148**	**0.2560**		**7,219.5135**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0592	0.6974	1.0300e-003	0.1552	4.3000e-004	0.1556	0.0412	4.0000e-004	0.0416		102.3282	102.3282	7.3200e-003		102.5112
Total	**0.0670**	**0.0592**	**0.6974**	**1.0300e-003**	**0.1552**	**4.3000e-004**	**0.1556**	**0.0412**	**4.0000e-004**	**0.0416**		**102.3282**	**102.3282**	**7.3200e-003**		**102.5112**

3.4 Grading - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0188	0.0000	2.0188	0.8371	0.0000	0.8371			0.0000			0.0000
Off-Road	2.9116	9.5942	22.5250	0.0699		0.3142	0.3142		0.3142	0.3142	0.0000	7,213.1148	7,213.1148	0.2560		7,219.5135
Total	**2.9116**	**9.5942**	**22.5250**	**0.0699**	**2.0188**	**0.3142**	**2.3330**	**0.8371**	**0.3142**	**1.1514**	**0.0000**	**7,213.1148**	**7,213.1148**	**0.2560**		**7,219.5135**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0592	0.6974	1.0300e-003	0.1552	4.3000e-004	0.1556	0.0412	4.0000e-004	0.0416		102.3282	102.3282	7.3200e-003		102.5112
Total	**0.0670**	**0.0592**	**0.6974**	**1.0300e-003**	**0.1552**	**4.3000e-004**	**0.1556**	**0.0412**	**4.0000e-004**	**0.0416**		**102.3282**	**102.3282**	**7.3200e-003**		**102.5112**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2840	6.7504	2.5151	0.0794	2.4191	0.0263	2.4454	0.6614	0.0251	0.6865		8,328.0037	8,328.0037	0.1062		8,330.6584
Unmitigated	0.2840	6.7504	2.5151	0.0794	2.4191	0.0263	2.4454	0.6614	0.0251	0.6865		8,328.0037	8,328.0037	0.1062		8,330.6584

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	50.00	50.00	50.00	1,019,200	1,019,200
Total	50.00	50.00	50.00	1,019,200	1,019,200

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	56.00	56.00	56.00	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000	0.900000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
NaturalGas Unmitigated	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	89.0137	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Total		**9.6000e-004**	**8.7300e-003**	**7.3300e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**		**10.4722**	**10.4722**	**2.0000e-004**	**1.9000e-004**	**10.5344**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0890137	9.6000e-004	8.7300e-003	7.3300e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4722	10.4722	2.0000e-004	1.9000e-004	10.5344
Total		**9.6000e-004**	**8.7300e-003**	**7.3300e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**		**10.4722**	**10.4722**	**2.0000e-004**	**1.9000e-004**	**10.5344**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0252	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.8100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0252**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	3.8100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0252**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Desert Valley Monofill Expansion

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	55.20	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2025
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Assumes entire acreage - 55.2 acres would be disturbed for construction of Cell 4A

Construction Phase - The grading schedule was modified to accomodoate the 12-month construction duration.

On-road Fugitive Dust - Assumes all worker, vendor and hauling trips would use paved asphalt access road and paved State Highway 86.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	110.00	145.00
tblFleetMix	HHD	0.12	0.90

tblFleetMix	LDA	0.53	0.00
tblFleetMix	LDT1	0.03	0.10
tblFleetMix	LDT2	0.16	0.00
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.5740e-003	0.00
tblFleetMix	MCY	5.2520e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	5.8100e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	3.6670e-003	0.00
tblFleetMix	SBUS	7.2200e-004	0.00
tblFleetMix	UBUS	1.2700e-003	0.00
tblGrading	AcresOfGrading	362.50	275.00
tblLandUse	LotAcreage	0.02	55.20
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	100
tblVehicleTrips	CC_TL	9.50	56.00
tblVehicleTrips	CNW_TL	11.90	56.00

tblVehicleTrips	CW_TL	16.40	56.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.50	50.00
tblVehicleTrips	SU_TR	1.50	50.00
tblVehicleTrips	WD_TR	1.50	50.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.3781	3.6316	3.1572	6.7700e-003	0.9617	0.1551	1.1168	0.4591	0.1430	0.6021	0.0000	594.1569	594.1569	0.1836	0.0000	598.7476
Maximum	**0.3781**	**3.6316**	**3.1572**	**6.7700e-003**	**0.9617**	**0.1551**	**1.1168**	**0.4591**	**0.1430**	**0.6021**	**0.0000**	**594.1569**	**594.1569**	**0.1836**	**0.0000**	**598.7476**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.3781	3.6316	3.1572	6.7700e-003	0.4427	0.1551	0.5978	0.2092	0.1430	0.3522	0.0000	594.1562	594.1562	0.1836	0.0000	598.7470
Maximum	**0.3781**	**3.6316**	**3.1572**	**6.7700e-003**	**0.4427**	**0.1551**	**0.5978**	**0.2092**	**0.1430**	**0.3522**	**0.0000**	**594.1562**	**594.1562**	**0.1836**	**0.0000**	**598.7470**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.97**	**0.00**	**46.48**	**54.43**	**0.00**	**41.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2024	4-1-2024	0.7563	0.7563
2	4-2-2024	7-1-2024	1.0168	1.0168
3	7-2-2024	9-30-2024	1.1637	1.1637
		Highest	1.1637	1.1637

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	7.5850	7.5850	1.7000e-004	6.0000e-005	7.6068
Mobile	0.0596	1.5423	0.5835	0.0146	0.4375	5.5300e-003	0.4430	0.1197	5.2800e-003	0.1250	0.0000	1,391.3937	1,391.3937	0.0202	0.0000	1,391.8989
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	1.7358	1.8092	7.5700e-003	1.9000e-004	2.0540
Total	**0.0644**	**1.5439**	**0.5848**	**0.0147**	**0.4375**	**5.6500e-003**	**0.4431**	**0.1197**	**5.4000e-003**	**0.1251**	**0.3251**	**1,400.7145**	**1,401.0396**	**0.0428**	**2.5000e-004**	**1,402.1833**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	7.5850	7.5850	1.7000e-004	6.0000e-005	7.6068
Mobile	0.0596	1.5423	0.5835	0.0146	0.4375	5.5300e-003	0.4430	0.1197	5.2800e-003	0.1250	0.0000	1,391.3937	1,391.3937	0.0202	0.0000	1,391.8989
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	1.7358	1.8092	7.5700e-003	1.9000e-004	2.0540
Total	**0.0644**	**1.5439**	**0.5848**	**0.0147**	**0.4375**	**5.6500e-003**	**0.4431**	**0.1197**	**5.4000e-003**	**0.1251**	**0.3251**	**1,400.7145**	**1,401.0396**	**0.0428**	**2.5000e-004**	**1,402.1833**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2024	4/8/2024	5	70	
2	Site Preparation	Site Preparation	4/9/2024	6/3/2024	5	40	
3	Grading	Grading	6/4/2024	12/23/2024	5	145	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0785	0.7307	0.6898	1.3600e-003		0.0336	0.0336		0.0312	0.0312	0.0000	118.9862	118.9862	0.0333	0.0000	119.8184
Total	**0.0785**	**0.7307**	**0.6898**	**1.3600e-003**		**0.0336**	**0.0336**		**0.0312**	**0.0312**	**0.0000**	**118.9862**	**118.9862**	**0.0333**	**0.0000**	**119.8184**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9200e-003	2.2500e-003	0.0204	3.0000e-005	4.0400e-003	2.0000e-005	4.0700e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	2.9207	2.9207	1.9000e-004	0.0000	2.9255
Total	**2.9200e-003**	**2.2500e-003**	**0.0204**	**3.0000e-005**	**4.0400e-003**	**2.0000e-005**	**4.0700e-003**	**1.0700e-003**	**2.0000e-005**	**1.0900e-003**	**0.0000**	**2.9207**	**2.9207**	**1.9000e-004**	**0.0000**	**2.9255**

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0785	0.7307	0.6898	1.3600e-003		0.0336	0.0336		0.0312	0.0312	0.0000	118.9860	118.9860	0.0333	0.0000	119.8183
Total	**0.0785**	**0.7307**	**0.6898**	**1.3600e-003**		**0.0336**	**0.0336**		**0.0312**	**0.0312**	**0.0000**	**118.9860**	**118.9860**	**0.0333**	**0.0000**	**119.8183**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9200e-003	2.2500e-003	0.0204	3.0000e-005	4.0400e-003	2.0000e-005	4.0700e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	2.9207	2.9207	1.9000e-004	0.0000	2.9255
Total	**2.9200e-003**	**2.2500e-003**	**0.0204**	**3.0000e-005**	**4.0400e-003**	**2.0000e-005**	**4.0700e-003**	**1.0700e-003**	**2.0000e-005**	**1.0900e-003**	**0.0000**	**2.9207**	**2.9207**	**1.9000e-004**	**0.0000**	**2.9255**

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0532	0.5435	0.3667	7.6000e-004		0.0246	0.0246		0.0226	0.0226	0.0000	66.9141	66.9141	0.0216	0.0000	67.4552
Total	**0.0532**	**0.5435**	**0.3667**	**7.6000e-004**	**0.3613**	**0.0246**	**0.3859**	**0.1986**	**0.0226**	**0.2212**	**0.0000**	**66.9141**	**66.9141**	**0.0216**	**0.0000**	**67.4552**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5400e-003	0.0140	2.0000e-005	2.7700e-003	2.0000e-005	2.7900e-003	7.4000e-004	1.0000e-005	7.5000e-004	0.0000	2.0028	2.0028	1.3000e-004	0.0000	2.0061
Total	**2.0000e-003**	**1.5400e-003**	**0.0140**	**2.0000e-005**	**2.7700e-003**	**2.0000e-005**	**2.7900e-003**	**7.4000e-004**	**1.0000e-005**	**7.5000e-004**	**0.0000**	**2.0028**	**2.0028**	**1.3000e-004**	**0.0000**	**2.0061**

3.3 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1626	0.0000	0.1626	0.0894	0.0000	0.0894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0532	0.5435	0.3667	7.6000e-004		0.0246	0.0246		0.0226	0.0226	0.0000	66.9141	66.9141	0.0216	0.0000	67.4551
Total	**0.0532**	**0.5435**	**0.3667**	**7.6000e-004**	**0.1626**	**0.0246**	**0.1872**	**0.0894**	**0.0226**	**0.1120**	**0.0000**	**66.9141**	**66.9141**	**0.0216**	**0.0000**	**67.4551**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-003	1.5400e-003	0.0140	2.0000e-005	2.7700e-003	2.0000e-005	2.7900e-003	7.4000e-004	1.0000e-005	7.5000e-004	0.0000	2.0028	2.0028	1.3000e-004	0.0000	2.0061
Total	**2.0000e-003**	**1.5400e-003**	**0.0140**	**2.0000e-005**	**2.7700e-003**	**2.0000e-005**	**2.7900e-003**	**7.4000e-004**	**1.0000e-005**	**7.5000e-004**	**0.0000**	**2.0028**	**2.0028**	**1.3000e-004**	**0.0000**	**2.0061**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5824	0.0000	0.5824	0.2557	0.0000	0.2557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2333	2.3473	2.0099	4.5000e-003		0.0968	0.0968		0.0891	0.0891	0.0000	395.2665	395.2665	0.1278	0.0000	398.4625
Total	**0.2333**	**2.3473**	**2.0099**	**4.5000e-003**	**0.5824**	**0.0968**	**0.6792**	**0.2557**	**0.0891**	**0.3448**	**0.0000**	**395.2665**	**395.2665**	**0.1278**	**0.0000**	**398.4625**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0700e-003	6.2000e-003	0.0564	9.0000e-005	0.0112	6.0000e-005	0.0112	2.9600e-003	6.0000e-005	3.0200e-003	0.0000	8.0666	8.0666	5.3000e-004	0.0000	8.0800
Total	**8.0700e-003**	**6.2000e-003**	**0.0564**	**9.0000e-005**	**0.0112**	**6.0000e-005**	**0.0112**	**2.9600e-003**	**6.0000e-005**	**3.0200e-003**	**0.0000**	**8.0666**	**8.0666**	**5.3000e-004**	**0.0000**	**8.0800**

3.4 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2621	0.0000	0.2621	0.1151	0.0000	0.1151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2333	2.3473	2.0099	4.5000e-003		0.0968	0.0968		0.0891	0.0891	0.0000	395.2661	395.2661	0.1278	0.0000	398.4620
Total	**0.2333**	**2.3473**	**2.0099**	**4.5000e-003**	**0.2621**	**0.0968**	**0.3589**	**0.1151**	**0.0891**	**0.2042**	**0.0000**	**395.2661**	**395.2661**	**0.1278**	**0.0000**	**398.4620**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0700e-003	6.2000e-003	0.0564	9.0000e-005	0.0112	6.0000e-005	0.0112	2.9600e-003	6.0000e-005	3.0200e-003	0.0000	8.0666	8.0666	5.3000e-004	0.0000	8.0800
Total	**8.0700e-003**	**6.2000e-003**	**0.0564**	**9.0000e-005**	**0.0112**	**6.0000e-005**	**0.0112**	**2.9600e-003**	**6.0000e-005**	**3.0200e-003**	**0.0000**	**8.0666**	**8.0666**	**5.3000e-004**	**0.0000**	**8.0800**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0596	1.5423	0.5835	0.0146	0.4375	5.5300e-003	0.4430	0.1197	5.2800e-003	0.1250	0.0000	1,391.3937	1,391.3937	0.0202	0.0000	1,391.8989
Unmitigated	0.0596	1.5423	0.5835	0.0146	0.4375	5.5300e-003	0.4430	0.1197	5.2800e-003	0.1250	0.0000	1,391.3937	1,391.3937	0.0202	0.0000	1,391.8989

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	50.00	50.00	50.00	1,019,200	1,019,200
Total	50.00	50.00	50.00	1,019,200	1,019,200

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	56.00	56.00	56.00	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000	0.900000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8512	5.8512	1.3000e-004	3.0000e-005	5.8628
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8512	5.8512	1.3000e-004	3.0000e-005	5.8628
NaturalGas Mitigated	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
NaturalGas Unmitigated	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	32490	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
Total		**1.8000e-004**	**1.5900e-003**	**1.3400e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**1.7338**	**1.7338**	**3.0000e-005**	**3.0000e-005**	**1.7441**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	32490	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
Total		**1.8000e-004**	**1.5900e-003**	**1.3400e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**1.7338**	**1.7338**	**3.0000e-005**	**3.0000e-005**	**1.7441**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	10150	5.8512	1.3000e-004	3.0000e-005	5.8628
Total		**5.8512**	**1.3000e-004**	**3.0000e-005**	**5.8628**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	10150	5.8512	1.3000e-004	3.0000e-005	5.8628
Total		**5.8512**	**1.3000e-004**	**3.0000e-005**	**5.8628**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.6100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.6100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.8092	7.5700e-003	1.9000e-004	2.0540
Unmitigated	1.8092	7.5700e-003	1.9000e-004	2.0540

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	1.8092	7.5700e-003	1.9000e-004	2.0540
Total		**1.8092**	**7.5700e-003**	**1.9000e-004**	**2.0540**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	1.8092	7.5700e-003	1.9000e-004	2.0540
Total		**1.8092**	**7.5700e-003**	**1.9000e-004**	**2.0540**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Desert Valley Monofill Expansion

Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	1.00	1000sqft	37.00	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Precipitation Freq (Days)**	12
Climate Zone	15			**Operational Year**	2040
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Assumes entire acreage - 37 acres would be disturbed for construction of Cell 4A

Construction Phase -

On-road Fugitive Dust - Assumes all worker, vendor and hauling trips would use paved asphalt access road and paved State Highway 86.

Vehicle Trips - Assumes 39 truck trips, 4 employee trips and seven additional trips to acount for on-site heavy equpment operation.

Fleet Mix - Assumes 10 percent of trips are employee/vendor trips and remainder are heavy truck trips

Road Dust - Assumes all traffic would use paved access road.

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	0.90

tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.03	0.10
tblFleetMix	LDT2	0.16	0.00
tblFleetMix	LHD1	9.0240e-003	0.00
tblFleetMix	LHD2	4.0460e-003	0.00
tblFleetMix	MCY	5.3340e-003	0.00
tblFleetMix	MDV	0.09	0.00
tblFleetMix	MH	5.0100e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	3.9930e-003	0.00
tblFleetMix	SBUS	6.6600e-004	0.00
tblFleetMix	UBUS	1.3990e-003	0.00
tblLandUse	LotAcreage	0.02	37.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	100
tblVehicleTrips	CC_TL	9.50	56.00
tblVehicleTrips	CNW_TL	11.90	56.00
tblVehicleTrips	CW_TL	16.40	56.00

tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.50	50.00
tblVehicleTrips	SU_TR	1.50	50.00
tblVehicleTrips	WD_TR	1.50	50.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2039	0.1913	0.6888	1.5909	4.5400e-003	0.6070	0.0219	0.6288	0.2867	0.0219	0.3085	0.0000	410.5477	410.5477	0.0153	0.0000	410.9304
Maximum	**0.1913**	**0.6888**	**1.5909**	**4.5400e-003**	**0.6070**	**0.0219**	**0.6288**	**0.2867**	**0.0219**	**0.3085**	**0.0000**	**410.5477**	**410.5477**	**0.0153**	**0.0000**	**410.9304**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2039	0.1913	0.6888	1.5909	4.5400e-003	0.2791	0.0219	0.3009	0.1306	0.0219	0.1524	0.0000	410.5472	410.5472	0.0153	0.0000	410.9299
Maximum	**0.1913**	**0.6888**	**1.5909**	**4.5400e-003**	**0.2791**	**0.0219**	**0.3009**	**0.1306**	**0.0219**	**0.1524**	**0.0000**	**410.5472**	**410.5472**	**0.0153**	**0.0000**	**410.9299**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.03**	**0.00**	**52.15**	**54.45**	**0.00**	**50.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2039	4-1-2039	0.3105	0.3105
2	4-2-2039	7-1-2039	0.4088	0.4088
3	7-2-2039	9-30-2039	0.1579	0.1579
		Highest	0.4088	0.4088

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	7.5850	7.5850	1.7000e-004	6.0000e-005	7.6068
Mobile	0.0521	1.2624	0.4555	0.0143	0.4375	4.7900e-003	0.4423	0.1197	4.5700e-003	0.1243	0.0000	1,363.8389	1,363.8389	0.0182	0.0000	1,364.2942
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	1.7358	1.8092	7.5700e-003	1.9000e-004	2.0540
Total	**0.0569**	**1.2640**	**0.4568**	**0.0144**	**0.4375**	**4.9100e-003**	**0.4424**	**0.1197**	**4.6900e-003**	**0.1244**	**0.3251**	**1,373.1597**	**1,373.4848**	**0.0408**	**2.5000e-004**	**1,374.5787**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	7.5850	7.5850	1.7000e-004	6.0000e-005	7.6068
Mobile	0.0521	1.2624	0.4555	0.0143	0.4375	4.7900e-003	0.4423	0.1197	4.5700e-003	0.1243	0.0000	1,363.8389	1,363.8389	0.0182	0.0000	1,364.2942
Waste						0.0000	0.0000		0.0000	0.0000	0.2517	0.0000	0.2517	0.0149	0.0000	0.6236
Water						0.0000	0.0000		0.0000	0.0000	0.0734	1.7358	1.8092	7.5700e-003	1.9000e-004	2.0540
Total	**0.0569**	**1.2640**	**0.4568**	**0.0144**	**0.4375**	**4.9100e-003**	**0.4424**	**0.1197**	**4.6900e-003**	**0.1244**	**0.3251**	**1,373.1597**	**1,373.4848**	**0.0408**	**2.5000e-004**	**1,374.5787**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2039	3/11/2039	5	50	
2	Site Preparation	Site Preparation	3/12/2039	4/22/2039	5	30	
3	Grading	Grading	4/23/2039	8/5/2039	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.20	11.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0458	0.1727	0.4677	1.1600e-003		5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003	0.0000	99.3046	99.3046	3.6300e-003	0.0000	99.3952
Total	**0.0458**	**0.1727**	**0.4677**	**1.1600e-003**		**5.6700e-003**	**5.6700e-003**		**5.6700e-003**	**5.6700e-003**	**0.0000**	**99.3046**	**99.3046**	**3.6300e-003**	**0.0000**	**99.3952**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	1.1400e-003	0.0105	2.0000e-005	2.8900e-003	1.0000e-005	2.9000e-003	7.7000e-004	1.0000e-005	7.7000e-004	0.0000	1.5726	1.5726	1.1000e-004	0.0000	1.5753
Total	**1.1100e-003**	**1.1400e-003**	**0.0105**	**2.0000e-005**	**2.8900e-003**	**1.0000e-005**	**2.9000e-003**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**0.0000**	**1.5726**	**1.5726**	**1.1000e-004**	**0.0000**	**1.5753**

3.2 Demolition - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0458	0.1727	0.4677	1.1600e-003		5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003	0.0000	99.3045	99.3045	3.6300e-003	0.0000	99.3951
Total	**0.0458**	**0.1727**	**0.4677**	**1.1600e-003**		**5.6700e-003**	**5.6700e-003**		**5.6700e-003**	**5.6700e-003**	**0.0000**	**99.3045**	**99.3045**	**3.6300e-003**	**0.0000**	**99.3951**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	1.1400e-003	0.0105	2.0000e-005	2.8900e-003	1.0000e-005	2.9000e-003	7.7000e-004	1.0000e-005	7.7000e-004	0.0000	1.5726	1.5726	1.1000e-004	0.0000	1.5753
Total	**1.1100e-003**	**1.1400e-003**	**0.0105**	**2.0000e-005**	**2.8900e-003**	**1.0000e-005**	**2.9000e-003**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**0.0000**	**1.5726**	**1.5726**	**1.1000e-004**	**0.0000**	**1.5753**

3.3 Site Preparation - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.1521	0.2396	7.0000e-004		4.3700e-003	4.3700e-003		4.3700e-003	4.3700e-003	0.0000	60.0069	60.0069	2.5700e-003	0.0000	60.0712
Total	**0.0322**	**0.1521**	**0.2396**	**7.0000e-004**	**0.2710**	**4.3700e-003**	**0.2754**	**0.1490**	**4.3700e-003**	**0.1533**	**0.0000**	**60.0069**	**60.0069**	**2.5700e-003**	**0.0000**	**60.0712**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	8.2000e-004	7.5400e-003	1.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.1323	1.1323	8.0000e-005	0.0000	1.1343
Total	**8.0000e-004**	**8.2000e-004**	**7.5400e-003**	**1.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.1323**	**1.1323**	**8.0000e-005**	**0.0000**	**1.1343**

3.3 Site Preparation - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1220	0.0000	0.1220	0.0670	0.0000	0.0670	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.1521	0.2396	7.0000e-004		4.3700e-003	4.3700e-003		4.3700e-003	4.3700e-003	0.0000	60.0069	60.0069	2.5700e-003	0.0000	60.0711
Total	**0.0322**	**0.1521**	**0.2396**	**7.0000e-004**	**0.1220**	**4.3700e-003**	**0.1263**	**0.0670**	**4.3700e-003**	**0.0714**	**0.0000**	**60.0069**	**60.0069**	**2.5700e-003**	**0.0000**	**60.0711**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	8.2000e-004	7.5400e-003	1.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.1323	1.1323	8.0000e-005	0.0000	1.1343
Total	**8.0000e-004**	**8.2000e-004**	**7.5400e-003**	**1.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.1323**	**1.1323**	**8.0000e-005**	**0.0000**	**1.1343**

3.4 Grading - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3253	0.0000	0.3253	0.1349	0.0000	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1092	0.3598	0.8447	2.6200e-003		0.0118	0.0118		0.0118	0.0118	0.0000	245.3860	245.3860	8.7100e-003	0.0000	245.6037
Total	**0.1092**	**0.3598**	**0.8447**	**2.6200e-003**	**0.3253**	**0.0118**	**0.3370**	**0.1349**	**0.0118**	**0.1467**	**0.0000**	**245.3860**	**245.3860**	**8.7100e-003**	**0.0000**	**245.6037**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2100e-003	2.2800e-003	0.0209	3.0000e-005	5.7800e-003	2.0000e-005	5.7900e-003	1.5300e-003	1.0000e-005	1.5500e-003	0.0000	3.1452	3.1452	2.2000e-004	0.0000	3.1507
Total	**2.2100e-003**	**2.2800e-003**	**0.0209**	**3.0000e-005**	**5.7800e-003**	**2.0000e-005**	**5.7900e-003**	**1.5300e-003**	**1.0000e-005**	**1.5500e-003**	**0.0000**	**3.1452**	**3.1452**	**2.2000e-004**	**0.0000**	**3.1507**

3.4 Grading - 2039

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1464	0.0000	0.1464	0.0607	0.0000	0.0607	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1092	0.3598	0.8447	2.6200e-003		0.0118	0.0118		0.0118	0.0118	0.0000	245.3857	245.3857	8.7100e-003	0.0000	245.6034
Total	**0.1092**	**0.3598**	**0.8447**	**2.6200e-003**	**0.1464**	**0.0118**	**0.1581**	**0.0607**	**0.0118**	**0.0725**	**0.0000**	**245.3857**	**245.3857**	**8.7100e-003**	**0.0000**	**245.6034**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2100e-003	2.2800e-003	0.0209	3.0000e-005	5.7800e-003	2.0000e-005	5.7900e-003	1.5300e-003	1.0000e-005	1.5500e-003	0.0000	3.1452	3.1452	2.2000e-004	0.0000	3.1507
Total	**2.2100e-003**	**2.2800e-003**	**0.0209**	**3.0000e-005**	**5.7800e-003**	**2.0000e-005**	**5.7900e-003**	**1.5300e-003**	**1.0000e-005**	**1.5500e-003**	**0.0000**	**3.1452**	**3.1452**	**2.2000e-004**	**0.0000**	**3.1507**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0521	1.2624	0.4555	0.0143	0.4375	4.7900e-003	0.4423	0.1197	4.5700e-003	0.1243	0.0000	1,363.8389	1,363.8389	0.0182	0.0000	1,364.2942
Unmitigated	0.0521	1.2624	0.4555	0.0143	0.4375	4.7900e-003	0.4423	0.1197	4.5700e-003	0.1243	0.0000	1,363.8389	1,363.8389	0.0182	0.0000	1,364.2942

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	50.00	50.00	50.00	1,019,200	1,019,200
Total	50.00	50.00	50.00	1,019,200	1,019,200

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	56.00	56.00	56.00	59.00	28.00	13.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000	0.900000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8512	5.8512	1.3000e-004	3.0000e-005	5.8628
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.8512	5.8512	1.3000e-004	3.0000e-005	5.8628
NaturalGas Mitigated	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
NaturalGas Unmitigated	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	32490	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
Total		**1.8000e-004**	**1.5900e-003**	**1.3400e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**1.7338**	**1.7338**	**3.0000e-005**	**3.0000e-005**	**1.7441**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	32490	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7338	1.7338	3.0000e-005	3.0000e-005	1.7441
Total		**1.8000e-004**	**1.5900e-003**	**1.3400e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**1.7338**	**1.7338**	**3.0000e-005**	**3.0000e-005**	**1.7441**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	10150	5.8512	1.3000e-004	3.0000e-005	5.8628
Total		**5.8512**	**1.3000e-004**	**3.0000e-005**	**5.8628**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	10150	5.8512	1.3000e-004	3.0000e-005	5.8628
Total		**5.8512**	**1.3000e-004**	**3.0000e-005**	**5.8628**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	4.6000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.6100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**4.6100e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.8092	7.5700e-003	1.9000e-004	2.0540
Unmitigated	1.8092	7.5700e-003	1.9000e-004	2.0540

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	1.8092	7.5700e-003	1.9000e-004	2.0540
Total		**1.8092**	**7.5700e-003**	**1.9000e-004**	**2.0540**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.23125 / 0	1.8092	7.5700e-003	1.9000e-004	2.0540
Total		**1.8092**	**7.5700e-003**	**1.9000e-004**	**2.0540**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2517	0.0149	0.0000	0.6236
Unmitigated	0.2517	0.0149	0.0000	0.6236

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	1.24	0.2517	0.0149	0.0000	0.6236
Total		**0.2517**	**0.0149**	**0.0000**	**0.6236**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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G-1 Biological Technical Report

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BIOLOGICAL TECHNICAL REPORT FOR THE DESERT VALLEY COMPANY MONOFILL CELL 4 EXPANSION PROJECT IMPERIAL COUNTY, CALIFORNIA

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by Terraphase Engineering, Inc. (Terraphase) to conduct a literature review and reconnaissance-level survey for the proposed Desert Valley Company Non-Municipal Solid Waste Landfill Cell 4 Project (proposed project). The survey identified vegetation communities and the potential for the occurrence of sensitive species, or habitats that could support sensitive wildlife species. Information contained in this Biological Technical Report is in accordance with accepted scientific and technical standards that are consistent with the requirements of United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

1.1 PROJECT BACKGROUND

CalEnergy Operating Corporation (CalEnergy) in cooperation with the Desert Valley Company (DVC) are proposing the expansion of the existing DVC Monofill Facility to establish a new cell (Cell 4). The proposed Cell 4 would be used to deposit nonhazardous waste generated from filter cake and scale formed in the transport, flashing, and handling of geothermal brine from a total of four energy generating facilities. Cell 4 would also be designed to handle soils contaminated with geothermal materials, geothermal drilling muds and cuttings, and incidental plastic sheeting (truck bed liners/materials). The additional facilities will allow the existing monofill location to continue operations beyond the expected date in 2025 when the current facilities will reach capacity in 2025. The proposed project includes the establishment of a fourth waste disposal cell consisting of two subunits totaling approximately 1.3 million cubic yards capacity and occupying a surface area of approximately 50 acres. Cell 4A will be constructed first along the southern edge of the proposed project site, with Cell 4B being constructed as Cell 4A approaches capacity. A leachate pond will also be constructed along the eastern edge of Cell 4B. The expected life of Cell 4 is 28.6 years, with a projected disposal rate of 45,454.54 cubic tons per year. To maintain design capacity operational integrity, a series of proposed diversion berms will be extended and/or established to divert surface water runoff from multiple existing ephemeral surface water features around the site. The surface water flow would be routed around the landfill facilities and allowed to rejoin the existing surface waters downstream of the proposed project site. The proposed diversion berms would be located along the southern and western edge of the location for Cell 4. A 50-foot buffer would also be established along the outer edge of the proposed cell. A leachate pond will also be constructed along the eastern edge of Cell 4B. The proposed improvements are shown in Figure 1.

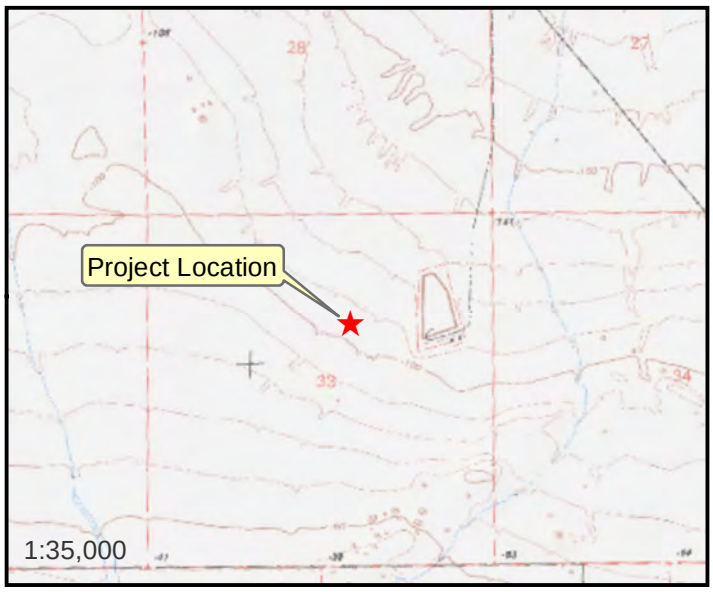
As part of the proposed monofill expansion, the facility design took into consideration several important considerations, two of which included maintaining a 200-foot setback from the geologic faults at the southern end of the proposed project site and orientation of the development footprint to avoid or minimize potential impacts to sensitive species and associated habitats.

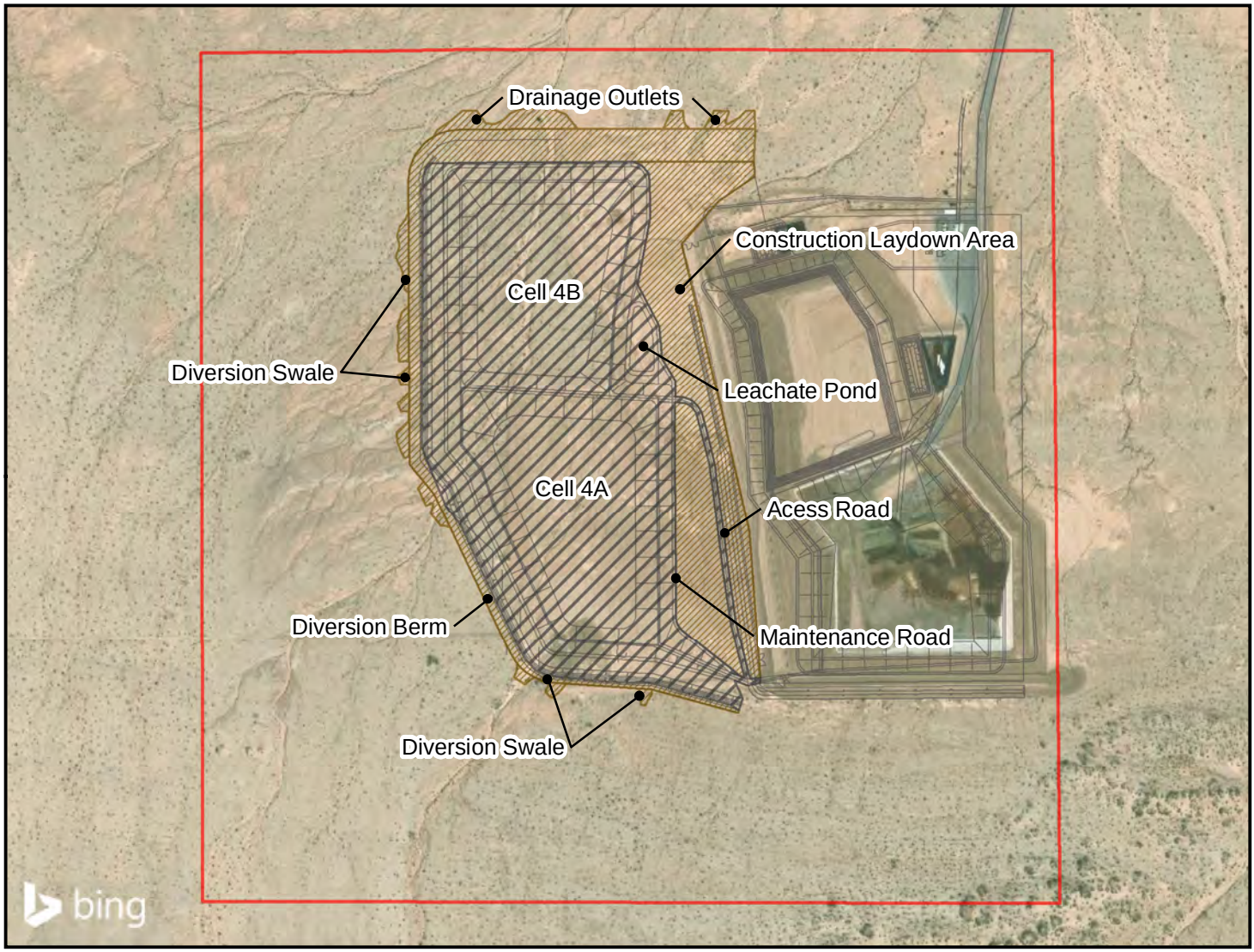
1.2 PROPOSED PROJECT LOCATION

The proposed project site is located near the southwest corner of the Salton Sea, southwest of State Route 86 and northwest of the cities of Westmoreland and Brawley in Imperial County, California. The proposed project is located in Section 33, Range 11 East, Township 12 South within the U.S. Geological Survey (USGS) *Kane Spring*, California 7.5-minute topographic quadrangle (Figure 1). Figure 1 shows the existing landfill and the proposed expansion area. The existing landfill is made up of Cells 1, 2, and 3 (Solid Waste Facility Number 13-AA-0022) and is owned and operated by CalEnergy. The facility is licensed to accept only non-hazardous geothermal wastes from CalEnergy facilities. A large, graded area consisting primarily of bare ground is located immediately west of the existing landfill area, and it is in this area

where the new proposed cell would be located. Surrounding the existing and proposed project site is desert scrub lands with isolated trees with a network of ephemeral streams flowing south to northeast.

For this technical study, the area of study (herein referred to as the Survey Area) is located entirely within Section 33 and includes the existing landfill and surrounding lands. The 359.92-acre Survey Area is shown in Figure 1. The Survey Area is surrounded by agricultural fields and the Salton Sea to the north and west. Highway 86 is located approximately 1 mile northeast of the Survey Area and runs northwest to southeast. The elevation at the proposed project site ranges from approximately 100 to 160 feet below mean sea level (bmsl).





Legend

Survey Area

Proposed Project Area

Permanent Impact

Temporary Impact

Figure 1

Desert Valley Monofill
CEQA Tech Studies
Project Location and Vicinity

Name: 21163 BIO Fig 1 Location & Vicinity.Mxd
Print Date: 7/26/2019, Author: pcarlos

CHAMBERS GROUP

SECTION 2.0 – METHODOLOGY

2.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the proposed survey area was reviewed. The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (CDFW 2019), the USFWS Critical Habitat Mapper (USFWS 2019) and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2019) were reviewed. The review included the following quadrangles: *Kane Spring, Kane Spring NW, Kane Spring NE, Obsidian Butte, Westmorland, Brawley NW, Superstition Mountain, Plaster City NW,* and *Harpers Well*, California USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federal- or state-listed endangered or threatened species, California Species of Concern (SSC), or otherwise sensitive species or habitats that may occur within or in the immediate vicinity of the Survey Area.

2.2 SOILS

Before conducting the survey, soil maps for Imperial County were referenced online (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) to determine the soil types found within the Survey Area. Soils were determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2019).

2.3 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Chambers Group biologists conducted a general reconnaissance survey within the Survey Area to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could support sensitive wildlife species. As stated previously, the Survey Area includes all of Section 33 including the Cell 4 proposed project site. The proposed project site is defined as a sub-area within the Survey Area and includes Cell 4A, Cell 4B, diversion berm, construction laydown yard and associated access roads. The survey was conducted on foot throughout the Survey Area between 1000 and 1600 hours on May 8, 2019. Weather conditions during the survey included temperatures ranging from 77 to 91 degrees Fahrenheit, with zero percent cloud cover, and no precipitation. Photographs of the Survey Area were recorded to document existing conditions (Appendix A).

2.3.1 Vegetation

All plant species observed within the Survey Area were recorded. Vegetation communities within the Survey Area were identified, qualitatively described, and mapped onto a high-resolution drone-based imagery aerial photograph. Plant communities were classified in accordance with the *Manual of California Vegetation*, *Second Edition* (2009). Plant nomenclature follows that of *The Jepson Manual* (2012). A comprehensive list of the plant species observed during the survey is provided in Appendix B.

A focused plant survey was conducted by Hernandez Environmental Services (HES), a subcontractor to FUGRO on April 5 and April 10, 2019. The Survey Area was systematically surveyed by walking all accessible portions ensuring that all habitats were sufficiently inventoried. The greatest focus was in areas likely to support target species. Thus, scrubby areas and drainages were carefully searched for rare annuals and

perennials. The *2019 Botanical Survey for the Desert Valley Company Expansion Project, Imperial County, California* report is provided in Appendix C.

2.3.2 Wildlife

All wildlife and wildlife signs observed and detected within the Survey Area, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state- and/or federal-listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Survey Area. A comprehensive list of the wildlife species observed during the survey is provided in Appendix D.

A habitat assessment and focused surveys were conducted for sensitive small mammal species June 17 through June 22, 2019, by biologists who are permitted to trap and handle Palm Springs pocket mouse under authority of a Memorandum of Understanding (MOU) with CDFW. The Survey Area contains habitat suitable and is located within the species range of the Palm Springs pocket mouse (*Perognathus longimembris bangsi*), a CDFW SSC (CDFW 2019). The surveys were conducted to determine if Palm Springs pocket mouse or any other nocturnal small mammal species are present within the Survey Area.

The biologists identified three potential trapping locations within the Survey Area. The trapping locations contained suitable habitat for this species and allowed for adequate sampling of all the different vegetation communities on the site. The trapping locations were identified within the Survey Area while design of the project site was being refined to minimize potential impacts to sensitive resources. Trapping area 1 was located west of the existing landfill access road and spanned across almost the entire northern border of the Survey Area, trapping area 2 was located west of the existing landfill within the southwest quadrant of the Survey Area, and trapping area 3 was located south of the existing landfill in the southeast corner of the Survey Area. Traps were not placed within the bare ground and developed areas, as these areas were almost devoid or devoid of vegetation and contained very low quality or unsuitable habitat for Palm Springs pocket mouse. The 2019 *Small Mammal Trapping Survey Report* is provided in Appendix E.

Focused surveys were conducted in 2019 for burrowing owl (*Athene cunicularia*) by Hernandez Environmental Services (HES). The surveys were conducted in accordance with CDFW Staff Report Burrowing Owl Mitigation, March 7, 2012. The 2019 Burrowing Owl Report is provided in Appendix F.

2.4 JURISDICTIONAL WATERS

A Jurisdictional Delineation Survey was conducted by HES, a subconsultant to FUGRO USA Land, Inc. (FUGRO; HES 2019). HES delineated the extent of drainages considered to be state or federal jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW for the Survey Area.

Based on the clarifications of the definition of waters of the United States (WOUS) in the 2020 Navigable Waters Protection Rule, USACE regulates the discharge of dredged and/or fill material into WOUS, which includes “(1) the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; (2) tributaries; (3) lakes and ponds and impoundments of jurisdictional waters; and (4) adjacent wetlands” (33 Code of Federal Regulations 328.3(a)), pursuant to provisions of Section 404 of the Clean Water Act (CWA).

The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Section 401 of the CWA specifies that certification from the State is required for any project requesting a federal license or permit to conduct any activities including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters.

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. A Section 1602 Lake or Streambed Alteration Agreement is required if the proposed project impacts the following:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream or lake.

The jurisdictional delineation was conducted by HES on May 29 and May 30, 2018. During the field survey, four to six transects were walked across the width of the Survey Area perpendicular to the flow of the existing streams, noting the presence or absence of fluvial activity, boundaries of geomorphic units, changes in plant species composition between different geomorphic units, and mapping the watercourse and watercourse boundaries. The guidelines followed are those established in the *2014 Mapping Episodic Stream Activity (MESA) Field Guide*. Areas measured were recorded using a handheld Global Positioning System (GPS) for accurate location reference. The *Jurisdictional Delineation for the New Non-Municipal Solid Waste Landfill (CELL 4) at Desert Valley Company, Imperial County, California* report (HES 2018) is provided in Appendix G.

SECTION 3.0 – RESULTS

3.1 ENVIRONMENTAL CONDITIONS

According to the Western Regional Climate Center (WRCC) for Imperial County, rainfall was far below normal for the 2018/2019 rain season. The season average for the general area is approximately 2.49 inches. The rain season total between July 2018 and April 2019 was approximately 1.49 inches, a deficit of about 60 percent of normal annual rainfall. Based on the temperatures provided by the University of California Agriculture and Natural Resources, average annual temperatures are approximately 87.8 degrees Fahrenheit, consistent with the average temperatures from May 2018 to April 2019.

3.2 SOILS

After review of USDA Soil Conservation Service and by referencing the USDA NRCS Web Soil Survey (USDA 2019), it was determined that the Survey Area is located within the Anza-Borrego area (CA804) and the Imperial Valley area (CA683). Based on the results of the database search, no soil data exists for these areas.

Based on Section 4.2 Soils in the 2018 Jurisdictional Delineation (Appendix G), soils within the Survey Area are of three origins: erosional soils on lacustrine deposits; alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces and eolian soils on windblown sand and silt. Although the USDA Web Soil Survey indicates that soils within the Survey Area have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils. The Glenbar series consists of very deep, well-drained soils that formed in stratified stream alluvium. They occur on flood plains and alluvial fans and have slopes of 0 to 3 percent. The Niland series is a member of the sandy over clayey, mixed (calcareous), hyperthermic family of Typic Torrifluvents. Typically, Niland soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches.

3.3 GEOLOGY AND HYDROLOGY

The topography of the Survey Area is level and relatively flat land over which water flows. The Survey Area is south of the Salton Sea and within the Salton Trough geological area. This is a tectonically complex area that is the northernmost and landward extension of the Gulf of Mexico (Appendix C: *2019 Botanical Survey for the Desert Valley Company Expansion Project, Imperial County, California*). It marks the boundary between the Pacific and North America tectonic plates. The Colorado River has drained the interior of the North American plate since before the formation of the current rift zone, and the historically recent and modern sediment deposition has increased during Colorado River flood events. The occurrence of the Colorado River delta sediments keeps the Gulf of California from inundating the Salton Trough, which is below sea level (Appendix C: *2019 Botanical Survey for the Desert Valley Company Expansion Project, Imperial County, California*). The Project is located within the Ocotillo-Clark Valley groundwater basin (Figure 2).

3.4 JURISDICTIONAL WATERS

Streams throughout the Survey Area were identified as ephemeral (HES 2018). They were characterized as a braided channel system that contains multiple channels that divide and rejoin to form a pattern of gently curved channel segments, separated by exposed ephemeral islands or channel bars (Appendix G).

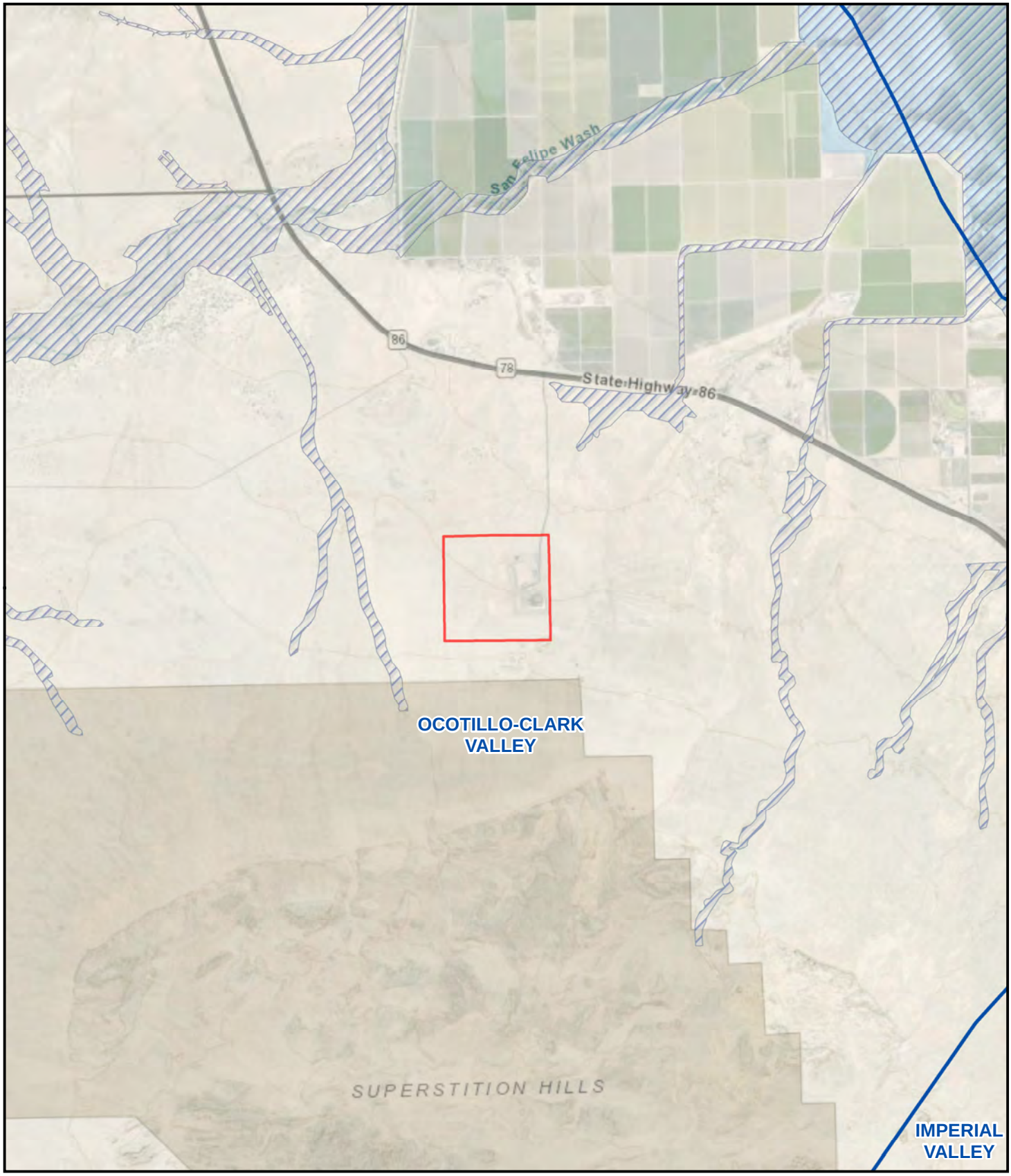
Most of the streams are tributaries to the Salton Sea, which is part of the Colorado River Basin Plan and administered by the Colorado River RWQCB. The streams located within the northwest corner of the Survey Area flow northwest and are tributary to San Felipe Creek, which is tributary to the Salton Sea, a Traditional Navigable Water (TNW). The ephemeral braided channels in the Survey Area are tributaries of the Salton Sea and may be subject to RWQCB and CDFW jurisdiction. Although tributary to the Salton Sea, based on the fact that all waters were identified as ephemeral, there are no USACE jurisdictional waters within the Survey Area. The acres identified within the Survey Area and the proposed project area are provided in Table 1 below.

Table 1. Area of Jurisdictional Waters Found Within Survey and Proposed Project Areas

Agency	Within Survey Area (acres)	Within Proposed Project Area (acres)
CDFW	35.2	7.37
RWQCB	29.4	6.15
USACE	0	0

All of the identified ephemeral streams are considered CDFW jurisdictional drainage features. Based on the 2018 Jurisdictional Delineation, a total of 71,222 linear feet (comprising 35.2 acres) of ephemeral streams occur within the Survey Area, with a total of 24,895 linear feet (7.37 acres) occurring within the proposed project area regulated by CDFW. These streams flow from south to northeast and terminate in the Salton Sea, are characterized by a low gradient, and have a braided channel structure. Vegetation is composed primarily of desert riparian scrub. Soils within the drainages consist of alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces and eolian soils on windblown sand and silt.

Based on the current definition of WOUS, no acres within the Survey Area are considered jurisdictional and regulated by the USACE. As such, RWQCB typically would identify waters of the State subject to their jurisdiction to be the same as CDFW, minus any additional riparian vegetation dripline acreage. Refer to Appendix G for the 2018 Jurisdictional Delineation report. Maps showing the delineation of the Ordinary High Water Mark (OHWM) and waters of the State are provided in Figure 3 and Figure 4, respectively.



Legend

- Survey Area
- Groundwater Basins
- 100-year Flood Zone

N

0 0.375 0.75 1.5

Miles

Figure 2

Desert Valley Monofill
CEQA Tech Studies
Ground Water Basins and FEMA
100-year Flood Zone

Name: 21163 BIO Fig 2 Groundwater Basins and FEMA 100-year Flood Zone.Mxd
Print Date: 10/5/2020, Author: pcarlos

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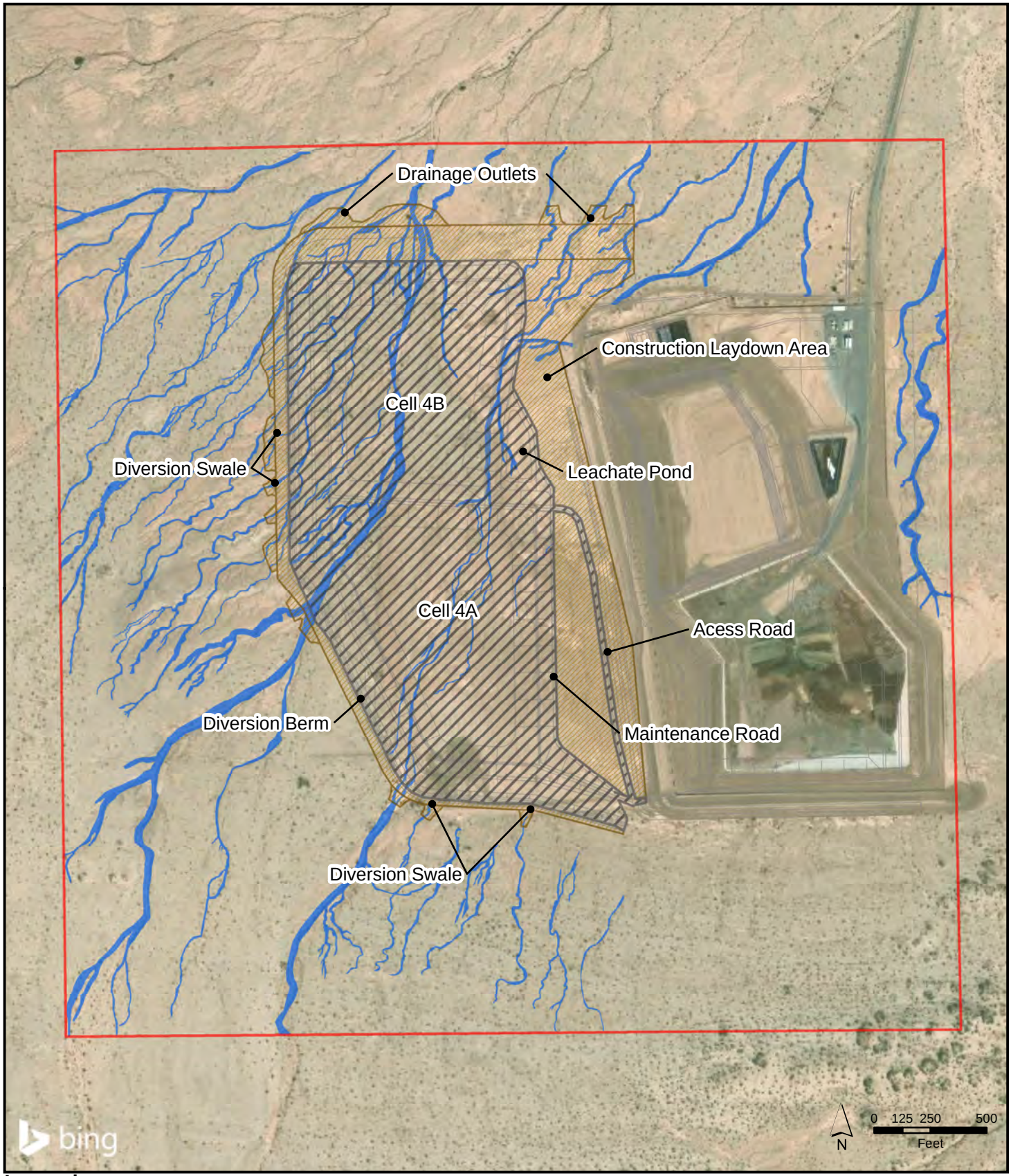

Legend

Survey Area

OHWM

Proposed Project Area

Permanent Impact

Temporary Impact

Figure 3

Desert Valley Monofill
CEQA Tech Studies
OHWM of Ephemeral Waters

Name: 21163 BIO Fig 3 Ordinary High Water Mark of Ephemeral Waters.Mxd
Print Date: 10/5/2020, Author: pcarlos

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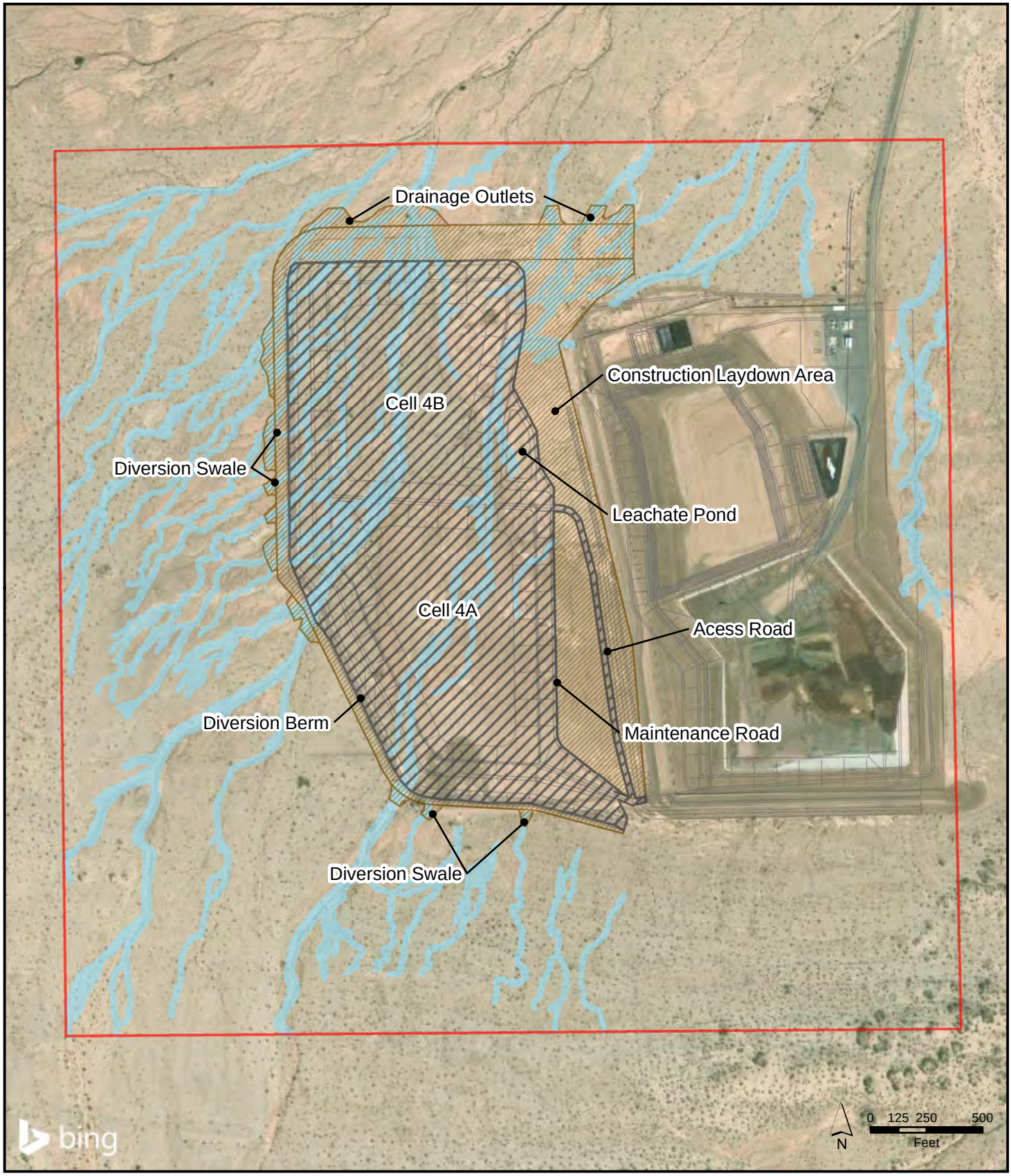

Legend

- Survey Area
- **Proposed Project Area**
- Permanent Impact
- Temporary Impact
- Bank to Bank
- Temporary Impact (2.64 acres)
- Permanent Impact (4.73 acres)

Figure 4

Desert Valley Monofill
CEQA Tech Studies
Waters of the State

Name: 21163 BIO Fig 4 Waters of the State.Mxd
Print Date: 10/5/2020, Author: pcarlos

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3.5 VEGETATION COMMUNITIES

Four vegetation communities totaling approximately 226.15 acres of vegetation were observed within the Survey Area and 42.07 acres within the proposed project area: Creosote Bush Scrub, Creosote Bush – Honey Mesquite Scrub, Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance, and Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub. Bare ground and developed areas totaling approximately 133.41 acres within the Survey Area and 42.46 within the proposed project area were also found.

Habitat quality throughout the Survey Area was generally moderate- to high-quality with isolated occurrences of off-highway vehicle (OHV) use that originate primarily from existing access roads or developed areas. Due to the isolated nature of the existing landfill and military training area to the south, public recreational use of the Survey Area is limited compared to surrounding locations. Sahara mustard (*Brassica tournefortii*), a California Invasive Plant Council (Cal-IPC) high risk species, was recorded within the Survey Area. This species was found in highest concentrations within areas denoted as Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance and in isolated areas along existing ephemeral drainage features. The vegetation communities are described in the following subsections. A map showing the vegetation communities observed is provided in Figure 5. The acreage of each vegetation community and land type within the Survey Area and the proposed impact area is found in Table 2.

Table 2. Vegetation Communities within the Survey and Proposed Project Area

Vegetation Community	Survey Area (acres)	Proposed Project Area Impacts (acres)
Creosote Bush Scrub	214.80	39.73
Creosote Bush – Honey Mesquite Scrub	9.50	0.7
Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance	1.85	1.57
Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub	0.36	0.7
Total Vegetation Communities	*226.51*	*42.07*
Bare Ground	63.31	42.09
Developed	70.10	0.37
Totals	**359.92**	**84.53**

3.5.1 Creosote Bush Scrub

Creosote bush scrub areas are dominated by: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and cattle spinach (*Atriplex polycarpa*) with scattered occurrences of desert tea (*Ephedra californica)*. Vegetation within the community is primarily open with large bare ground areas between creosote bushes. Isolated herbaceous species were found in low concentrations throughout the habitat. A higher density of herbaceous species is found throughout the small drainage features compared to the Creosote Bush scrub vegetation located outside the drainages. Approximately 214.80 acres of creosote

bush scrub is present within the Survey Area; and of this amount, 39.73 acres is present within the proposed project area.

3.5.2 Creosote Bush – Honey Mesquite Scrub

Creosote Bush – Honey Mesquite Scrub is dominated by: creosote bush, honey mesquite (*Prosopis glandulosa*), white bursage, fourwing saltbush (*Atriplex canescens*), Acton brittlebush (*Encelia actoni*) and is found in areas where creosote bush and honey mesquite co-dominate the species makeup. Local topography is highly modified by the honey mesquite thickets and associated loose sand. This habitat is generally less species rich than the surrounding creosote bush scrub but provides high-quality burrowing habitat for various reptilian and mammalian species. This habitat is generally of high quality with limited invasive species infiltration. Extensive networks of small mammal/reptile burrows extend throughout the dune complexes that form under the honey mesquite, increasing habitat structural complexity and nutrient loads. Approximately 9.50 acres of Creosote Bush – Honey Mesquite Scrub is located along the southeastern corner of the Survey Area, and of this amount 0.7 acre is present within the proposed project area.

3.5.3 Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance

Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance habitat is dominated by herbaceous annuals including: rigid spineflower (*Chorizanthe rigida*), hairy desert sunflower, Sahara mustard (*Brassica tournefortii*), desert plantain, common cryptantha (*Cryptantha* sp.), and shining pepperweed (*Lepidium nitidum*). This habitat is characterized as large open areas with very little plant density. Soils consisted primarily of gravely sand with some isolated areas of silty sand. These habitat areas are associated with locations that appear to experience ephemeral water infiltration and support a higher level of herbaceous species than surrounding areas. Species richness is higher than the surrounding Creosote Bush Scrub within this habitat type, but also present is an increased level of invasive or non-native species present. Overall this habitat quality is low due to the non-native species present within this community. A large contributing factor for the low-quality aspect of this habitat type is the presence of Sahara mustard. This species is considered highly invasive, and while generally restricted to this habitat type, the potential for this species to spread into outlying areas is possible without proper management. Approximately 1.85 acres of Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance is present within the Survey Area, and of this amount 1.57 acres is within the proposed project area.

3.5.4 Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub

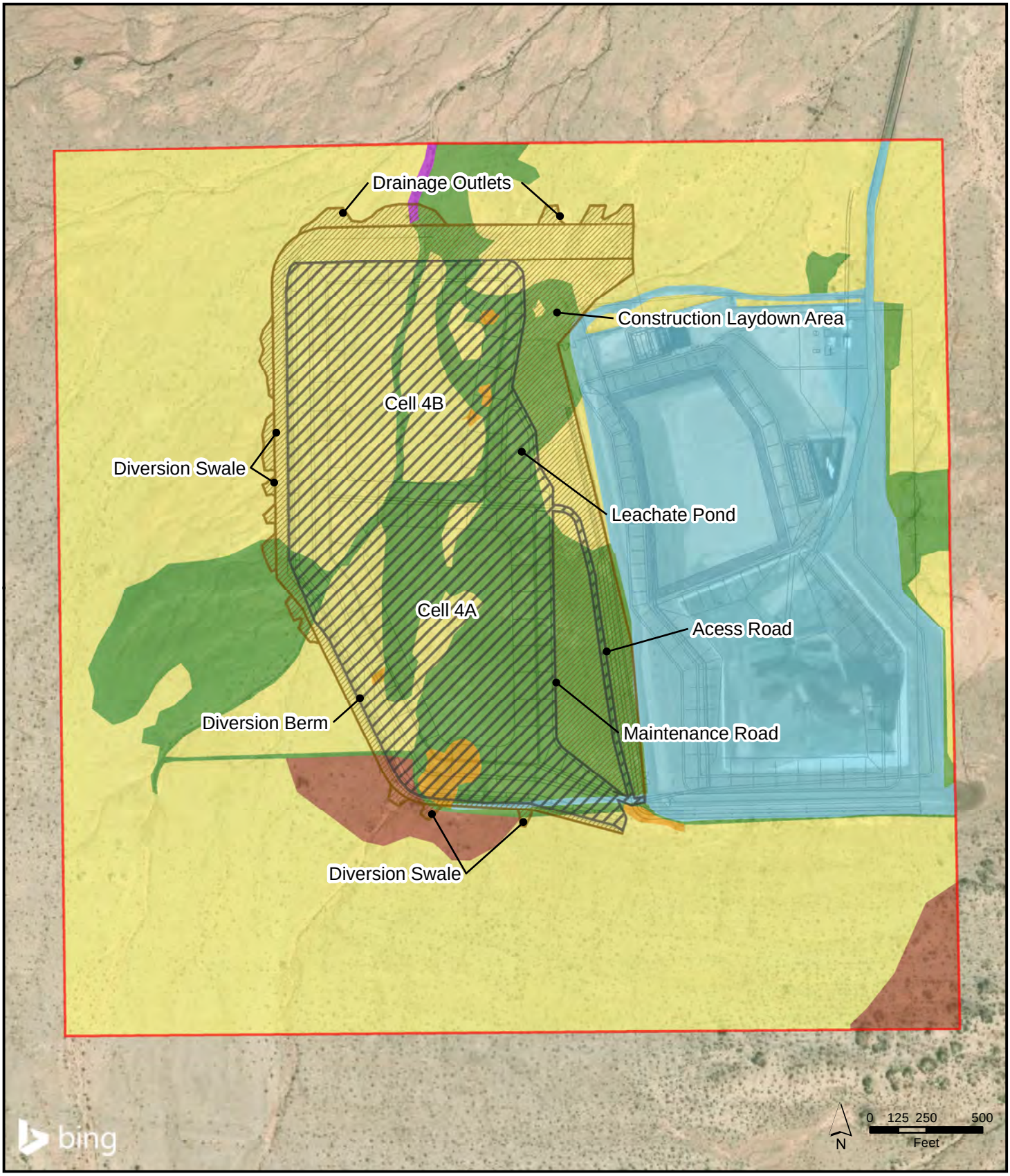
Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub is dominated by: Tamarisk (*Tamarisk* sp.), honey mesquite, and fourwing saltbush. Habitat is found along a large wash in the northwestern portion of the Survey Area and is the only location where arborescent vegetation is present. Vegetation remains very sparse, maintaining approximately the same vegetation density as the surrounding creosote bush scrub. This habitat type is restricted to a small area within the northwest corner of the Survey Area and in association with a large drainage. Overall, there is a low level of non-native species within this habitat type, with isolated native and non-native trees widely spaced. Approximately 0.36 acre of Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub is present within the Survey Area, and 0.07 acre of this community occurs within the proposed project area.

3.5.5 Bare Ground

Bare Ground (BG) areas are generally devoid of vegetation but do not contain any form of pavement. These areas typically have been previously cleared and compacted by earth-moving machinery and are characterized by dirt access roads and maintained areas within the developed portions of the site. Compared to Developed areas, BG has higher water permeability and slightly higher fossorial rodent habitat potential. Approximately 63.31 acres of BG is present in the Survey Area; and of this amount, 42.09 acres of BG is present within the proposed project area, primarily within the eastern portion of the proposed project area and surrounding the existing landfill.

3.5.6 Developed

Developed (DV) areas are those where various forms of pavement cover the soil surface; the ground has been highly compacted and is part of the existing landfill operations or is used for semi-permanent vehicle placement, staging, or loading. This community type is recorded as separate from bare ground due to the erosional, use, and hydric features associated with the feature. Due to the lack of permeability, these areas channel water runoff and can result in unique erosional management considerations. Approximately 70.07 acres of DV area is present in the Survey Area; and of this amount, 0.37 acre is present in the proposed project area, primarily within the existing landfill area.



Legend

- Survey Area
- **Proposed Project Area**
- Permanent Impact
- Temporary Impact
- **Vegetation Communities**
- Bare Ground
- Creasote Bush Scrub
- Creosote Bush - Honey Mesquite Scrub
- Developed
- Rigid Spineflower-Hairy Desert Sunflower Sparsely Vegetated Alliance
- Tamarisk/Honey Mesquite/Four Wing Saltbush Scrub

Figure 5

Desert Valley Monofill
CEQA Tech Studies
Vegetation Communities

Name: 21163 BIO Fig 5 Vegetation Communities.Mxd
Print Date: 7/26/2019, Author: pcarlos

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3.6 SENSITIVE SPECIES

Several factors are taken into consideration when determining the significance of biological resources (wildlife, plants, habitats, etc.). The factors include the listing status of a species (federal, state) which identifies the weighted legal protection afforded a species, whether critical habitat for a species is present, the regional scarcity of a species, and other legal protections in place for species not formally listed but considered unique or rare, such as those species afforded protection under CEQA or considered species of concern by the CDFW. Plant species in California are also ranked by the California Native Plant Society according to a hierarchy of rarity or threat of extinction. This combined evaluation of factors determines the potential significance of impacts to a species/population. The complete list of abbreviations associated with species occurrence/ranking is described below.

In addition, Table 3 provides the criteria used to determine the likelihood of special status species to potentially occur within the Survey Area and proposed project site.

The following information is a list of abbreviations used to help determine the significance of biological sensitive resources potentially occurring on the proposed project site.

Rare Plant Rank (RPR)

List 1A	=	Plants presumed extinct in California
List 1B	=	Plants rare and endangered in California and throughout their range
List 2	=	Plants rare, threatened or endangered in California but more common elsewhere in their range
List 3	=	Plants about which we need more information; a review list
List 4	=	Plants of limited distribution; a watch list

RPR Extensions

0.1	=	Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2	=	Fairly endangered in California (20-80 percent occurrences threatened).
0.3	=	Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

FE	=	Federally listed; Endangered
FT	=	Federally listed; Threatened

State

ST	=	State listed; Threatened
SE	=	State listed; Endangered
RARE	=	State-listed; Rare (Listed “Rare” animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SSC	=	State Species of Special Concern

Table 3. Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO)

PFO	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Survey Area. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Survey Area it was considered absent.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Survey Area, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the immediate vicinity of the Survey Area (approximately 3 miles) and marginal habitat exists on the Survey Area, or the habitat requirements or environmental conditions associated with the species occur within the Survey Area, but no historical records exist within 5 miles of the Survey Area.
High:	Both a historical record exists of the species within the Survey Area or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Survey Area.
Present:	Species was detected within the Survey Area at the time of the survey.

* PFO: Potential for Occurrence

3.6.1 Sensitive Plants

Factors used to determine the potential for occurrence included the quality of habitat, elevation, and the results of the reconnaissance and focused surveys. In addition, the location of prior CNDDB records of occurrence were used as additional data; but, since the CNDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Current database searches (CDFW 2019; CNPSEI 2019) resulted in a list of five federal- and/or state-listed threatened and endangered or rare sensitive plant species documented to occur within 5 miles of the Survey Area. After the literature review and the reconnaissance-level survey, it was determined that two of the five species are considered absent from the proposed project site based on the assessment of the various habitat types observed. Three species are considered to have a low potential to occur at the proposed project site due to low quality and/or disturbed suitable habitat and CNDDB records within 5 miles. A map showing sensitive plant occurrences is provided in Figure 5.

The following two plant species are considered **Absent** from the proposed project site due to lack of suitable habitat within the Study Area. The species, if present, would have been identified due to its conspicuous nature; and the species known range is found outside the elevation range of the proposed project site.

- Thurber's pilostyles (*Pilostyles thurberi*) – CRPR List 4.3
- Wiggin's cholla (*Opuntia wigginsi*) – CRPR List 3.3

The analysis of the CNDDB search and field survey resulted in six species with a **low** potential to occur on the proposed project site. A combination of low-quality habitat, historic records within 3 to 5 miles, and previous Chambers Group surveys in the surrounding area (Unpublished data, Chambers Group Inc., April 2015) support the determinations below:

- Abram's spurge (*Euphorbia abramsiana*)- CRPR List 2B.2
- gravel milk vetch (*Astragalus sabulonum*)- CRPR List 2B.2
- Mojave indigo bush (*Psorothamnus arborescens*) – CRPR List 4.3
- sand food (*Pholisma sonorae*) - CRPR List 1B.2
- Salton's milk vetch (*Astragalus crotalariae*) – CRPR List 4.3
- Torrey's box thorn (*Lycium torreyi*) – CRPR List 4.2

No previously recorded listed or sensitive species are anticipated to have a **moderate** or **high** potential for occurrence.

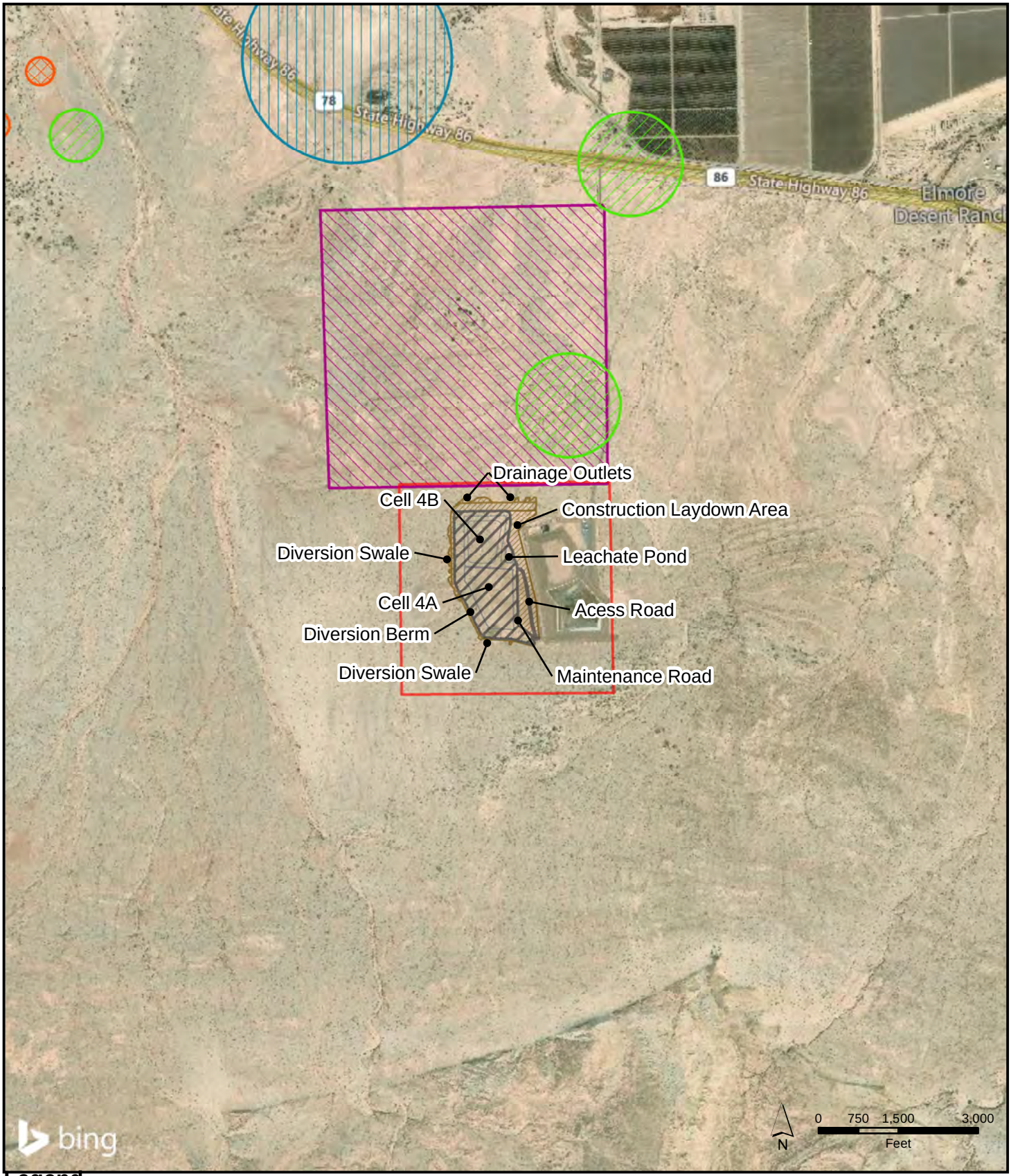
A focused rare plant survey was conducted by HES in April of 2019. According to the *2019 Botanical Survey for the Desert Valley Company Expansion Project*, although conditions for the survey were considered suitable for most of the targeted rare species, general conditions on the site were not conducive to finding flowering plants due to the low rainfall preceding the surveys. No rare plants were identified within the Survey Area. The complete rare plant survey with further details is found in Appendix C.

3.6.2 Sensitive Wildlife

A current database search (CNDDB 2019) resulted in a list of 20 federal- and/or state-listed endangered or threatened, Species of Concern, or otherwise sensitive wildlife species that may potentially occur within the Survey Area. After a literature review and the assessment of the various habitat types within the Survey Area, it was determined that 13 sensitive wildlife species were considered absent from the Survey Area based on habitat needs, 3 species had a low potential to occur, 2 species had a moderate potential to occur, and 2 species were determined to be present within the Survey Area. Factors used to determine potential for occurrence included the quality of habitat and the location of prior CNDDB records of occurrence. A map showing sensitive wildlife occurrences is provided in Figure 6.

The following 13 wildlife species are considered **absent** from the Survey Area due to lack of suitable habitat present on the Survey Area:

- American badger (*Taxidea taxus*)- SSC
- black skimmer (*Rynchops niger*)- SSC
- California black rail (*Laterallus jamaicensis coturniculus*)- **ST**
- crissal thrasher (*Toxostoma crissale*)- SSC
- desert pupfish (*Cyprinodon macularius*)- **FE**, **SE**
- Gila woodpecker (*Melanerpes uropygialis*)- **SE**
- gull-billed tern (*Gelochelidon nilotica*)- SSC
- lowland leopard frog (*Lithobates yavapaiensis*)- SSC
- razorback sucker (*Xyrauchen texanus*)- **FE**, **SE**
- short-eared owl (*Asio flammeus*)- SSC
- western snowy plover (nesting; *Charadrius alexandrinus nivosus*)- **FE**, SSC
- western yellow bat (*Lasiurus xanthinus*) - SSC
- Yuma Ridgeway's rail (*Rallus obsoletus yumanensis*)- **FE**, **ST**



Legend

- Survey Area

Proposed Project Area

- Permanent Impact
- Temporary Impact

Sensitive Species Occurrences

- Thurber's pilostyles
- flat-tailed horned lizard
- pallid bat
- sand food

Figure 6

Desert Valley Monofill
CEQA Tech Studies
Sensitive Species Occurrences

Name: 21163 BIO Fig 6 Sensitive Species Occurrences.Mxd
Print Date: 7/26/2019, Author: pcarlos

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The analysis of the CNDDB search and field survey resulted in three species with a **low** potential to occur on the Survey Area due to low quality habitat::

- Colorado Desert fringe-toed lizard (*Uma notata*)- SSC
- mountain plover (*Charadrius montanus*)- SSC
- pallid bat (*Antrozous pallidus*)- SSC

Colorado Desert fringe-toed lizard, mountain plover, and pallid bat have low potential to occur within the Survey Area. No habitat for fringe-toed lizard or the pallid bat occurs within the proposed project site, and low- quality habitat occurs within and/or directly adjacent to the Survey Area. In addition, no occurrences of these species have been documented within or immediately adjacent to the Survey Area. Low quality habitat for the mountain plover occurs within the Survey Area; however, no occurrences have been documented within 5 miles of the Survey Area, and none have been observed during the focused survey efforts. Therefore, these species are not anticipated to occur within the proposed project area.

The analysis of the CNDDB search and field survey resulted in two species with a **moderate** potential to occur on the Project site. Burrowing owl (*Athene cunicularia*) and Le Conte's thrasher (*Toxostoma lecontei*) have a moderate potential to occur and are described below:

Burrowing owl – SSC

Burrowing owl inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). Burrowing owls typically use burrows made by mammals such as California ground squirrels (*Spermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). Burrowing owls often are found within, under, or in close proximity to man-made structures. Focused surveys have been conducted for burrowing owl. No burrowing owls were detected during the 2019 survey effort (Appendix F).

Le Conte's thrasher – SSC

Le Conte's thrasher occurs in habitat including open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub. This species commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat. Suitable habitat for this species occurs within the Survey Area within the Creosote Bush Scrub, Creosote Bush – Honey Mesquite Scrub, and Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub communities; however, the Le Conte's thrasher has not been recorded within 5 miles of the site, and no individuals were observed during the reconnaissance or focused burrowing owl surveys. Therefore, this species has a moderate potential to forage and a low potential to nest within the Survey Area. A complete list of bird species recorded during the burrowing owl surveys will be provided in a separate report once the survey effort for burrowing owls is completed.

Field surveys results confirmed the presence of two species, the flat-tailed horned lizard (*Phrynosoma mcallii*) and the Palm Springs pocket mouse (*Perognathus longimembris bangsi*) within the proposed project site.

Flat-tailed horned lizard- SSC

The flat-tailed horned lizard is a California SSC. It occurs in desert dunes, Mojavean scrub, and Sonoran scrub; and it is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial Counties. The species requires a high abundance of harvester ants, as this is the primary food source. Adult flat-tailed horned lizards begin hibernation as early as October and emerge as late as March. Breeding of flat-tailed horned lizards is believed to take place in early spring after emergence from winter hibernation. Four individuals were observed incidentally within the Survey Area during the Palm Springs pocket mouse surveys, directly adjacent to the proposed project site during the small mammal surveys. All of the flat-tailed horned lizards were observed within creosote bush scrub habitat; however, this species likely occurs within the other three natural vegetation communities on the Survey Area. According to the 2019 *Small Mammal Trapping* Survey *Report* (Appendix E), flat-tailed horned lizard is not expected to occupy the disturbed bare ground and developed areas of the proposed project area but could be present in low numbers along the edges and transition zones between suitable and unsuitable habitats. The locations of the individuals observed are provided in Figure 7.

Palm Springs pocket mouse - SSC

The Palm Springs pocket mouse is a California SSC. According to the 2019 *Small Mammal Trapping Survey Report* (Appendix E), the Palm Springs pocket mouse typically occurs in sparsely vegetated creosote bush scrub, desert scrub, and grassland communities containing loose, sandy soils. These habitats are typically flat or contain gentle slopes less than 15 percent in grade. This species is most commonly found in creosote-dominated desert scrub and is rarely found in areas containing rocky soils. This species is active only during the spring, summer, and fall and hibernates during the cold months (from approximately October to March). This species resides in the daytime in underground burrows that are plugged near the entrance for protection from predators and temperature regulation. These burrows consist of several different chambers and tunnels used for giving birth and raising young (breeding from January to August, with March to May being the peak months), food storage, and protection.

Focused surveys for this species were conducted between June 17 and June 22, 2019. Three trapping locations with approximately 430 traps were set in the Survey Area in creosote bush scrub, small isolated patches of Creosote Bush Scrub/Honey Mesquite Scrub, Rigid Spineflower/Hairy Desert Sunflower/Desert Pavement Alliance, and Tamarisk/Honey Mesquite/Four Wing Saltbush Scrub. A total of 263 small mammal captures included six rodent species: desert pocket mouse (*Chaetodipus penicillatus*), desert kangaroo rat (*Dipodomys deserti*), Merriam's kangaroo rat (*Dipodomys merriami*), white-throated woodrat (*Neotoma albigula*), Palm Springs pocket mouse, and round-tailed ground squirrel (*Xerospermophilus tereticaudus*). All species are considered common throughout the Colorado Desert with the exception of the Palm Springs pocket mouse.

A total of 47 Palm Springs pocket mice were caught over a period of four days within three general trapping area locations within the Survey Area; however, only three individuals were caught within the proposed project area. The occurrences were concentrated in the natural habitat communities surrounding the proposed project area and along the northwestern edge of the proposed project area. No individuals were observed within the developed or bare ground areas within the proposed project area. Locations of Palm Springs pocket mouse are provided in Figure 7. Trapping did not occur on the fifth day due to high winds and unsafe trapping conditions. The 2019 *Small Mammal Trapping Survey Report* is provided in Appendix E.

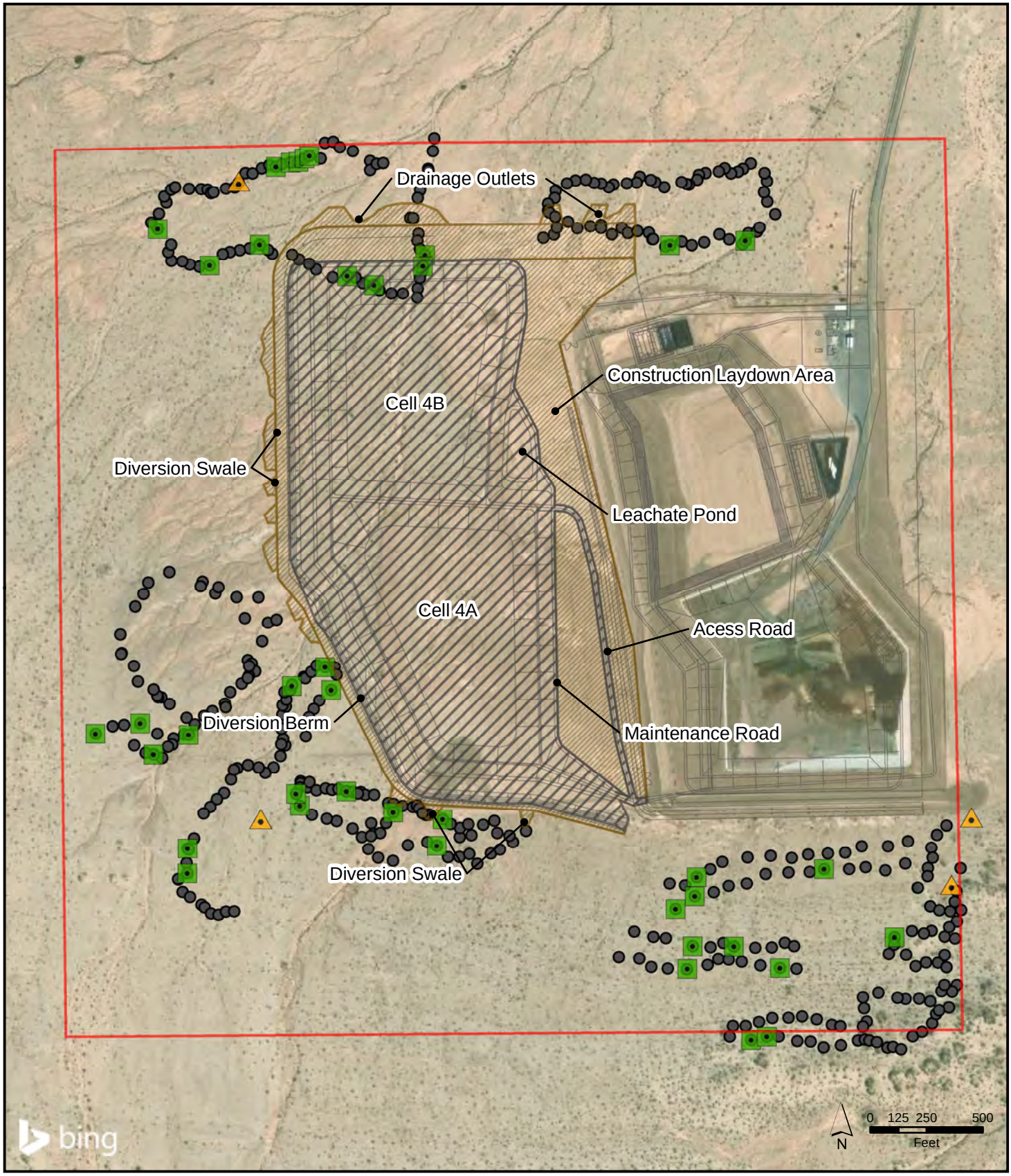
No federal- or state-listed threatened or endangered species were identified during the biological surveys. Two species, the flat-tailed horned lizard and the Palm Springs pocket mouse are California SSCs. An SSC is an administrative designation and does not carry any formal legal status listing. The intent of designating a species as an SSC is to focus attention to animals considered a conservation risk by CDFW, stimulate research and data on species that are not commonly known, and achieve conservation and recovery of these species before they meet California Endangered Species Act criteria for state threatened or endangered listing.

3.7 GENERAL PLANTS

A total of 19 plant species were observed during the general reconnaissance survey; a total of 30 species were observed during the focused survey conducted by HES. Plant species observed or detected during the site survey were representative of the existing site conditions. No sensitive species were observed during the survey efforts. A complete list of plants observed is provided in Appendix B.

3.8 GENERAL WILDLIFE

A total of 19 wildlife species were observed during the general reconnaissance and focused small mammal surveys. Wildlife species observed or detected during the site surveys were characteristic of the existing site conditions. A complete list of wildlife observed is provided in Appendix D.



Legend

- Survey Area
- Trap Location

Proposed Project Area

- Permanent Impact
- Temporary Impact

Species Occurrences

- Palm Springs pocket mouse
- Flat-tailed horned lizard

Figure 7

Desert Valley Monofill
CEQA Tech Studies
Flat-Tailed Horned Lizard and
Palm Springs Pocket Mouse Occurrences

Name: 21163 BIO Fig 6 Flat-Tailed Horned Lizard and Palm Springs Pocket Mouse Occurences.mxd
Print Date: 7/26/2019, Author: pcarlos

CHAMBERS GROUP

SECTION 4.0 – PROPOSED IMPACTS AND RECOMMENDATIONS

The proposed project will be in compliance with federal, State, and County ordinances protecting sensitive resources. As previously stated, the proposed project site was designed to maintain a 200-foot setback from the faults at the southern end of the proposed project site and to minimize potential impacts to sensitive species and associated habitats through careful siting, while allowing the existing monofill location to continue operations beyond the expected date the current facilities will reach capacity in 2025. The following sections provide a summary of the biological surveys, potential impacts based on current design, and recommended protection measures to avoid and minimize potential impacts to sensitive resources.

4.1 VEGETATION COMMUNITIES

Four vegetation communities are present within the Survey Area: (1) Creosote Bush Scrub, (2) Creosote Bush – Honey Mesquite Scrub, (3) Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance, and (4) Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub. Bare ground and developed areas were also identified within the Survey Area. The total acres within the Survey Area and proposed project area are found in Table 2. The temporary and permanent impacts associated with the proposed project are provided in Table 4 below.

Table 4. Proposed Project Temporary and Permanent Impacts

Vegetation Community	Proposed Project Area Temporary Impacts (acres)	Proposed Project Area Permanent Impacts (acres)
Creosote Bush Scrub	5.76	33.97
Creosote Bush – Honey Mesquite Scrub	0.16	0.53
Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance	0.0	1.57
Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub	0.07	0
Total Vegetation Communities	*6.0*	*36.07*
Bare Ground	11.13	30.96
Developed	0.03	0.34
Totals	**17.16**	**67.37**

Creosote Bush Scrub is generally of moderate to high quality with low plant density overall. Large areas of bare ground separate individual creosote bush shrubs with only limited plant species being located within the bare ground matrix of the habitat. Approximately 5.76 acres of temporary impacts and 33.97 acres of permanent impacts to this community are anticipated.

Creosote Bush – Honey Mesquite Scrub habitat is generally of high-quality with limited invasive species infiltration. Extensive networks of small mammal/reptile burrows extend throughout the dune complexes that form under the honey mesquite, increasing habitat structural complexity and nutrient loads. Although approximately 9.50 acre of habitat is within the Survey Area, the proposed project has been designed to minimize impacts to sensitive habitat including Creosote Bush – Honey Mesquite Scrub.

Approximately 0.16 acre of temporary impacts and 0.53 acre of permanent impacts to this community are anticipated.

Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance habitat areas are associated with locations that appear to experience ephemeral water infiltration and support a higher level of herbaceous species than surrounding areas but also have an increased level of invasive or non-native species present and are therefore considered low quality habitat. Invasive Sahara mustard populations can be addressed through targeted hand weeding efforts between the time the plant bolts and when it goes to seed. Approximately 0.0 acre of temporary impacts and 1.57 acres of permanent impacts to this community are anticipated.

Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub habitat areas includes a small area within the northwest corner of the Survey Area outside the proposed project and in association with a large drainage totaling 0.36 acre of area. Overall, habitat characteristics of this habitat are similar to the surrounding creosote bush scrub but with the addition of *Tamarix* and *Prosopis* species. Approximately 0.07 acre of temporary impacts and no permanent impacts to this community are anticipated. Tamarisk is a component of this community; it is an invasive species that competes for water in drainage features and changes the natural chemistry of the soil (salt-saturated) that inhibits the survival of native species. The presence of tamarisk decreases the habitat value of area. Enhancement by removal of this species within the Survey Area and adjacent areas will provide higher biological value and increase the native species composition within the drainage areas.

Creosote Bush Scrub, Creosote Bush – Honey Mesquite Scrub, and Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance are not considered sensitive vegetation communities. Palm Springs pocket mouse and flat-tailed horned lizard were identified within the native vegetation communities found within the Survey Area. Although these species are not designated threatened or endangered species under the California Endangered Species Act (CESA), impacts to these species and their associated habitat will likely be required by the agencies and the County of Imperial Planning & Development Services (County of Imperial).

To minimize impacts to native plant communities, Chambers Group recommends the following measures:

- Prior to construction, a qualified restoration specialist should evaluate the habitats within the areas to be temporarily disturbed/impacted to determine if habitat restoration is possible. Habitat restoration may not be possible given prevailing winds and the potential inoculation of additional invasive species from adjacent areas. If the specialist determines restoration is possible, then a Habitat Restoration Plan (HRP) for the temporarily impacted area should be prepared. The plan should include sufficient detail to address all aspects of the restoration effort (further site evaluation, site preparation, planting, maintenance, and monitoring to determine success (i.e., plant survival, etc.) and additional maintenance needs. In general restoration of temporarily impacted areas involves recontouring the land, decompaction, replacing the topsoil (if collected), planting seed and/or container stock, maintaining (i.e., weeding, replacement planting, supplemental watering, etc.). Monitoring the restored area for a period of up to five years and/or until year 5 success criteria are met is normally what is required by the regulatory agency(ies). The Habitat Restoration Plan that shall be subject to approval by the CDFW and County of Imperial and may also require approval of regulatory agencies and the County of Imperial.

- If restoration and/or enhancement of the proposed project area is not feasible, enhancement of habitat within the Survey Area (i.e., removal of tamarisk trees in the northwestern portion of the Survey Area, removal of exotics including Sahara mustard) may be considered suitable on-site, but out-of-kind mitigation. Another mitigation option would be off-site acquisition and preservation of the vegetation communities. Mitigation ratios shall be developed through consultation with CDFW and County of Imperial.

- A biological monitor shall be present prior to initiation of ground-disturbing activities to demark limit of disturbance boundaries. Flagging and/or staking will be used to clearly define the work area boundaries and avoid impacts to adjacent native communities.

4.2 SENSITIVE PLANTS

The results of the *2019 Botanical Survey for the Desert Valley Company Expansion Project* (Appendix C) were negative for rare plants with a potential to occur within the Survey Area. The following protection measure is recommended to avoid potential impacts to sensitive plant species that may occur adjacent to the Survey Area:

- A biological monitor will be present prior to initiation of ground-disturbing activities to demark limit of disturbance boundaries. Flagging and/or staking will be used to clearly define the work area boundaries and avoid impacts to sensitive plant species with the potential to occur near the proposed project boundaries.

4.3 SENSITIVE WILDLIFE

Of the 20 sensitive wildlife species identified in the literature review, it was determined that 13 sensitive wildlife species were considered absent from the Survey Area, 3 had a low potential to occur, 2 had a moderate potential to occur, and 2 are present within the Survey Area. The two species known to occur are the Palm Springs pocket mouse and flat-tailed horned lizard. The two species with a moderate potential to occur within the Survey Area include burrowing owl and Le Conte's thrasher. Table 5 provides a summary of the sensitive species present, their associated habitat(s), and the amount of associated habitat that would be affected by the monofill project.

Burrowing owl and Le Conte's thrasher are considered to have a moderate potential to forage and a low potential to nest within the Survey Area. Suitable habitat for these species occurs within the Survey Area within Creosote Bush Scrub, Creosote Bush – Honey Mesquite Scrub and Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub; however, neither of these species have been recorded within 5 miles of the site, and none were observed during the reconnaissance survey or the three of four focused burrowing owl surveys conducted in the Survey Area. The 2019 Burrowing Owl Report is provided in Appendix F.

During the focused small mammal surveys, the flat-tailed horned lizard was observed incidentally within the Survey Area. No individuals were observed within the proposed project area. Although this species is an SSC, it is not a federal- or state-listed species. The proposed project site was designed to minimize potential impacts to sensitive species and associated habitats. The location of the proposed project site was identified in areas where primarily bare ground and developed areas exist to minimize impacts to sensitive resources to the greatest extent possible. Approximately 5.76 acres of temporary impacts and 33.97 acres of permanent impacts to Creosote Bush Scrub are anticipated. Approximately 0.16 acre of temporary impacts and 0.53 acre of permanent impacts to Creosote Bush – Honey Mesquite Scrub are

anticipated. Approximately 0.22 acre of temporary impacts and 1.57 acres of permanent impacts to Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance are anticipated. Approximately 0.07 acre of temporary impacts to Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub are anticipated.

The Palm Springs pocket mouse was observed within the native vegetation communities within the Survey Area. The location of the proposed project site was identified in areas where primarily bare ground and developed areas exist to minimize impacts to sensitive resources to the greatest extent possible. Palm Springs pocket mice were captured within Creosote Bush Scrub, Creosote Bush – Honey Mesquite Scrub, Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance, and Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub communities within the Survey Area. Although Palm Springs pocket mice were not captured within the small strip of Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub habitat located near the center of the north border, there is no reason to believe that they would not occupy this area of suitable habitat, as Palm Springs pocket mice were captured immediately south, east, and west of this vegetation community and the habitat and soils are suitable within the proposed project area. A large portion of the proposed impact area is located within bare ground and adjacent to existing developed areas, with existing Creosote Bush Scrub habitat being more fragmented than surrounding areas. While the proposed project area may facilitate dispersal/movement between locations where Palm Springs pocket mouse was identified, areas of core habitat to the north, west, and south would most likely be preferential to the fragmented habitat and bare ground within the proposed project area. While jurisdictional features within the proposed project area may facilitate animal movement, the habitat is largely flat and open and may be less suitable as a movement corridor than surrounding features or habitat.

Table 5. Temporary and Permanent Impacts to Habitat Associated with Sensitive Species

Species Present within Survey Area	Vegetation Community Within Proposed Impact Areas	Temporary Impact (acres)	Permanent Impact (acres)
Flat-tailed horned lizard and Palm Springs pocket mouse	Creosote Bush Scrub	5.76	33.97
	Creosote Bush – Honey Mesquite Scrub	0.16	0.53
	Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance	0.0	1.57
	Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub	0.07	0.0
Total Proposed Impacts for Flat-tailed Horned Lizard and Palm Springs Pocket Mouse		**6.0**	**36.07**

No federal- or state-listed threatened or endangered species were identified during the biological surveys. Palm Springs pocket mouse and the flat-tailed horned lizard were identified within the proposed project area; however, the proposed impacts to these species should not be considered significant to the overall survival of these species. These species were identified during the surveys in relatively low numbers. A total of 263 small mammal captures were made within the Survey Area, with a total of 47 captures of Palm Springs pocket mouse. A total of four incidental flat-tailed horned lizards were also documented within the Survey Area.

The proposed project has been located in an area primarily composed of bare ground and adjacent to the existing landfill facility. These species are not expected to occupy the bare ground and disturbed areas. Suitable and higher quality habitat (less bare ground and disturbed areas) for these species exists to the north, south, and west of the proposed project area.

Although the Palm Springs pocket mouse and the flat-tailed horned lizard are considered SSCs by CDFW, an SSC designation is an administrative designation and does not carry any formal legal CESA status listing. Mitigation requirements for impacts to these species and their associated habitats should be mitigated at a level "roughly proportional" to the impacts of the proposed project and should not be required to meet the "fully mitigated" standard for state-listed species as required by CESA.

As demonstrated by court decisions *Dolan v. City of Tigard, 512 U.S. 374 (1994) and Ehrlich v. City of Culver City (1996) 12 Cal.4th 854* and established in CEQA Guidelines Section *15126.4.(a)(4)*, mitigation measures applied to minimize significant effects must be "roughly proportional" to the impacts of the project and where the mitigation measure is an ad hoc exaction, it must be "roughly proportional" to the impacts of the project. Further, there must be an essential nexus (i.e., connection) between the mitigation measure and a legitimate governmental interest (*Nollan v. California Coastal Commission, 483 U.S. 825 [1987]*). The mitigation required for species covered under the CESA is required to be held to a higher degree when compared to CEQA's "roughly proportional" standard.

In deciding *Environmental Protection Information Center v. California Dept. of Forestry and Fire Protection on July 17, 2008*, the Court invalidated an incidental take permit issued by CDFW for the taking of endangered species incidental to timber harvesting activities. The Court ruled that "*the landowner is only required to mitigate its own impacts on the species*" and "*when that obligation can be met in several ways, the way most consistent with the landowner's objectives should be chosen*." As such, the Court affirmed that a heightened mitigation requirement would be applied to species listed under CESA, particularly when compared to mitigation requirements under CEQA. Species that are not listed under CESA are therefore afforded the "roughly proportional" standard of mitigation, which, as affirmed by the Court, would not and should not meet CESA's standard of "fully mitigated". It therefore should be concluded that mitigation for significant impacts to species labeled as Species of Special Concern, or other designations other than listing under CEQA, should be mitigated at a level "roughly proportional" to the impacts of the project and are not required to meet the "fully mitigated" standard required by CESA.

The following protection measures are recommended to avoid and/or minimize potential impacts to these sensitive wildlife species:

- Prior to construction, a Capture/Relocation Plan for flat-tailed horned lizard shall be prepared by a qualified biologist. The plan shall include preconstruction survey and monitoring methods, capture and relocation methods, and suitable relocation areas. The plan may include additional protection measures during construction including:
    - Creating areas of land or small paths/culverts between project facilities for wildlife movement
    - Installing silt fencing around work areas to prevent migration of adjacent wildlife into impact areas

- Installing pitfall traps in spring/summer/fall to trap any individuals that remain on the site for removal from work areas)

- Biological monitoring during construction to inspect fencing and pitfall traps and relocate wildlife species out of harm's way, if required

The plan shall be approved by CDFW and the County of Imperial (or an agency delegated to oversee this program).

- Prior to Construction, a Capture/Relocation Plan for Palm Springs pocket mouse shall be prepared by a qualified biologist. The plan shall include preconstruction survey and monitoring methods, capture methods, and suitable relocation areas. The plan may include additional protection measures during construction including:

  - Creating areas of land or small paths/culverts between project facilities for wildlife movement

  - Installing silt fencing around work areas to prevent migration of adjacent wildlife into impact areas

  - Implementing vegetation removal and initial ground disturbance activities between September and December if possible, avoiding the peak breeding season (March to May), and limiting activity as much as possible during the rest of the breeding season (January to February and June to August) to allow dispersing juveniles to potentially move out of the impact area

  - Biological monitoring during construction to inspect fencing, if required

  The plan shall be approved by CDFW and the County of Imperial (or an agency delegated by the department to oversee this program).

- An environmental training program shall be developed and presented to all crew members prior to the beginning of all project construction. The training shall describe special status wildlife species and sensitive habitats that could occur within project work areas, protection afforded to these species and habitats, and avoidance and minimization measures required to avoid and/or minimize impacts from the project. The training program will be approved by a qualified biologist. Records of training will be kept on site.

- Vegetation clearing should take place outside the general bird breeding season (February 15 to September 15), to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, a qualified biologist should conduct a nesting bird survey to comply with California Fish and Game Code 3503 and 3503.5 and the Migratory Bird Treaty Act. The survey should occur no more than 30 days prior to initiation of proposed project activities, and any occupied passerine and/or raptor nests occurring within or adjacent to the proposed project area should be delineated. Additional follow-up surveys may be required by the resource agencies and the County of Imperial. If an active nest is identified, an avoidance buffer zone around occupied nests (as determined by the avian biologist) shall be maintained during physical ground-disturbing activities. The buffer zone shall be sufficient in size to prevent impacts to the nest. Once nesting

has ceased, the buffer may be removed. A nesting bird survey report shall be provided to the County of Imperial.

- A biological monitor shall be present prior to initiation of ground-disturbing activities to demark the limit of disturbance boundaries. Flagging and/or staking will be used to clearly define the work area boundaries and avoid impacts to adjacent native communities. The biological monitor will be present to conduct preconstruction sweeps and inspect compliance with project protection measures. If a sensitive species is found, the species shall be relocated out of harm's way according to the capture/relocation plan. Any mortalities shall be reported to the agencies and County of Imperial. A final monitoring report will be submitted to CDFW and County of Imperial. The annual report shall include a summary of preconstruction surveys, biological monitoring, avoidance measures implemented, and whether the avoidance measures were effective.

- A qualified biologist shall work with construction crews to determine access routes that will avoid native habitat and burrows as much as feasible. Furthermore, during construction activities, the biological monitor should ensure that connected, native habitat with sandy soils are avoided and remain intact to the greatest extent possible. If vegetation removal cannot be avoided, clearing of habitat should be avoided during the peak breeding season (March to May), and activity should be limited as much as possible during the rest of the breeding season (January to February and June to August).

4.4 JURISDICTIONAL WATERS

Several jurisdictional features occur within and adjacent to the proposed project site. Approximately 7.37 acres within the proposed project area are considered jurisdictional under CDFW and RWQCB. Temporary and permanent impacts are provided in Table 6.

Table 6. Temporary and Permanent Impacts to Federal and State Waters

Agency	Temporary (acres)	Permanent Impacts (acres)
CDFW	2.64	4.73
RWQCB	2.64	4.73
USACE	0	0

USACE, CDFW, and RWQCB jurisdictional waters are regulated by federal, state, and local governments under a no-net-loss policy; and all impacts are considered significant and should be avoided to the greatest extent practicable. No impacts to wetlands or playas are anticipated. The proposed project has been designed to minimize impacts to sensitive resources; however, impacts to all waters could not be avoided based on the need to maintain a 200-foot setback from faults located near the proposed project site. To minimize impacts to drainages, a diversion berm and diversion swale will be constructed to divert runoff from multiple jurisdictional features around the proposed monofill facility and rejoin the original features downstream. The diversion swale has been designed to divert surface water runoff at the south end of the site and direct the flow around the west end of the proposed monofill site to the north end of the site. Drainage outlets along the north end of the site divert surface water back into the existing drainage north of the proposed monofill facility. A smaller drainage swale will be constructed along the maintenance road

to the east of the proposed monofill facility and will divert water back into the temporary staging yard area. See Figure 3 and Figure 4 for the diversion swale layout.

Since impacts to jurisdictional waters are not avoidable, the proposed project will require mitigation through habitat creation, enhancement, or preservation as determined by consultation with the regulatory agencies and the County of Imperial during the permitting process. Any impacts to CDFW jurisdictional waters would require a 1602 Streambed Alteration Agreement from the CDFW. Impacts to RWQCB jurisdictional waters would require a 401 State Water Quality Certification, Waste Discharge Requirement, and/or be covered by an existing General Order from the RWQCB. Any impacts to WOUS will require a Section 404 permit authorization from the USACE. Impacts to jurisdictional waters will result from project implementation. Mitigation for impacts to jurisdictional water resources will be addressed in a mitigation plan to be submitted for approval with the permit application packages.

To minimize additional impacts to drainages, Chambers Group recommends the following:

- Temporary and permanent impacts to all jurisdictional resources shall be compensated through a combination of habitat creation (i.e., establishment), enhancement, preservation, and/or restoration at a minimum of a 1:1 ratio or as required by the permitting agencies. Any creation, enhancement, preservation, and/or restoration effort shall be implemented pursuant to a Habitat Restoration Plan, which shall include success criteria and monitoring specifications and shall be approved by the permitting agencies and County of Imperial. A habitat restoration specialist will be designated and approved by the permitting agencies and will determine the most appropriate method of restoration.

- Temporarily impacted drainage features shall be recontoured to preconstruction conditions. Temporary impacts shall be restored sufficient to compensate for the impact to the satisfaction of the permitting agencies (depending on the location of the impact). If restoration of temporary impact areas is not possible to the satisfaction of the appropriate agency, the temporary impact shall be considered a permanent impact and compensated accordingly.

- A biological monitor shall be present prior to initiation of ground-disturbing activities to demark the limit of disturbance boundaries. Flagging and/or staking will be used to clearly define the work area boundaries and avoid impacts to adjacent drainage features.

- Erosion protection and sediment control Best Management Practices (BMPs) would be implemented in compliance with the General Construction General Permit and the Stormwater Pollution Prevention Plan (SWPPP).

- Graded areas would be stabilized to promote infiltration and reduce runoff potential.

- Any excess soil would be spread on site outside the jurisdictional drainages.

SECTION 5.0 – REFERENCES

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APPENDIX A – SITE PHOTOGRAPHS

APPENDIX A: SITE PHOTOGRAPHS

Photo 1:

Overview of worksite taken from the northwest corner. Habitat features creosote bush that is open and sparsely vegetated. Photo facing southeast.

Photo 2:

Overview of work site taken from the northeastern corner. Open creosote bush scrub habitat continues west to the boundary of the site. In the foreground are water features created by recent rains. Photo facing west.

APPENDIX A: SITE PHOTOGRAPHS

Photo 3:

Creosote bush-mesquite scrub habitat stretching to the northwest from the southern portion of the project. Habitat contains slightly more vegetation than creosote scrub. Photo facing north.

Photo 4:

Overview of creosote bush-mesquite scrub occurring to the north west with large areas of bare ground to the east. Photo facing north.

APPENDIX A: SITE PHOTOGRAPHS

Photo 5:

Creosote bush vegetation stretching to areas of developed habitat beyond the fence in the background. Photo facing southeast.

Photo 6:

Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance habitat occurring in large water features where a higher percentage of vegetation is present. Photo facing southwest.

APPENDIX A: SITE PHOTOGRAPHS

Photo 7:

Overview from the southeast corner of the project site. Creosote bush scrub remains the dominant habitat. Photo facing northwest.

Photo 8:

Areas of Rigid Spineflower – Hairy Desert Sunflower Sparsely Vegetated Desert Pavement Alliance habitat before transitioning into large swaths of bare ground. Photo facing northeast.

APPENDIX A: SITE PHOTOGRAPHS

Photo 9:

Bare ground habitat stretching north from the southern portion of the project site. Photo facing northwest.

Photo 10:

Large wash containing Tamarisk – Honey Mesquite – Four Wing Saltbush Scrub habitat. Vegetation remains sparse in these areas. Photo facing northeast.

APPENDIX B – PLANT SPECIES LIST

APPENDIX B: PLANT SPECIES LIST

Chambers Group Survey Results

Scientific Name	Common Name
GYMNOSPERMS	
EPHEDRACEAE	**EPHEDRA FAMILY**
Ephedra californica	desert tea
ANGIOSPERMS (EUDICOTS)	
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia dumosa	white bur-sage
Encelia actoni	Acton daisy
Geraea canescens	desert sunflower
Palafoxia arida var. *arida*	Spanish needles
BORAGINACEAE	**BORAGE FAMILY**
Cryptantha sp.	cryptantha
Phacelia sp.	phacelia
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara mustard
Lepidium nitidum	shining peppergrass
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex canescens	four-wing saltbush
Atriplex polycarpa	allscale
FABACEAE	**LEGUME FAMILY**
Prosopis glandulosa var. *torreyana*	honey mesquite
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Oenothera deltoides subsp. *deltoides*	dune evening-primrose
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago ovata	woolly plantain
POLYGONACEAE	**BUCKWHEAT FAMILY**
Eriogonum thomasii	Thomas eriogonum
SOLANACEAE	**NIGHTSHADE FAMILY**
Lycium andersonii	Anderson's wolfberry
TAMARICACEAE	**TAMARISK FAMILY**
Tamarix sp.	tamarisk
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
*Schismus arabicus**	Arabian schismus

*Non-Native Species

HES Survey Results

Scientific Name	Common Name
GYMNOSPERMS	
EPHEDRACEAE	**EPHEDRA FAMILY**
Ephedra trifurca	three-fork ephedra
ANGIOSPERMS (EUDICOTS)	
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia dumosa	white bur-sage
Baileya pauciradiata	short-ray desert marigold
Chaenactis stevioides	desert pincushion
Dicoria canescens	desert dicoria
Geraea canescens	desert sunflower
Isocoma acradenia var. *eremophila*	desert alkali goldenbush
Pluchea sericea	arrow weed
Psathyrotes ramosissima	velvet rosettes, turtleback
BORAGINACEAE	**BORAGE FAMILY**
Cryptantha angustifolia	narrowleaf cryptantha
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara mustard
Dithyrea californica	California spectacle-pod
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex lentiformis	big saltbush
Atriplex polycarpa	allscale
FABACEAE	**LEGUME FAMILY**
Prosopis glandulosa var. *torreyana*	honey mesquite
Psorothamnus emoryi	dye plant
MALVACEAE	**MALLOW FAMILY**
Sphaeralcea orcuttii	Carrizo mallow
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Chylismia claviformis subsp. *peirsonii*	Peirson's evening-primrose
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago ovata	woolly plantain
POLYGONACEAE	**BUCKWHEAT FAMILY**
Centrostegia thurberi	Thurber's spineflower
Chorizanthe rigida	rigid spineflower
Eriogonum deserticola	Colorado desert buckwheat
RESDACEAE	**MIGNONETTE FAMILY**
Oligomeris linifolia	narrow-leaved oligomeris
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix aphylla**	athel

Scientific Name	Common Name
*Tamarix ramosissima**	Mediterranean tamarisk
VISCACEAE	**MISTLETOE FAMILY**
Phoradendron californicum	desert mistletoe
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTS)	
POACEAE	**GRASS FAMILY**
Aristida adscensionis	six-week's three-awn
*Cynodon dactylon**	Bermuda grass
*Schismus barbatus**	Mediterranean schismus

*Non-Native Species

APPENDIX C – FOCUSED RARE PLANT REPORT

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Fugro Project No. 04.72170065
Document No. 04.7217065-L-007 (Rev.0)
July 11, 2019

CalEnergy
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Re: DVC Cell 4 Project: Transmittal of Rare Plant Survey, N ½ of Section 33

Dear Ms. Wu,

Fugro is pleased to deliver the attached rare plant survey of the north half of Section 33, prepared in support of the DVC Cell 4 siting studies. This constitutes partial deliverable for Task 13: Burrowing Owl and Botanical Surveys, under CalEnergy Purchase Agreement #245885.

The survey was conducted by a qualified botanist working under subcontractor Hernandez Environmental Services, Inc.

Please do not hesitate to contact me if you have questions. We look forward to continuing to support CalEnergy on the DVC Cell 4 project.

Sincerely,
Fugro USA, Inc.

Janet M. Sowers, Ph.D, P.G
Principal Geologist

Attachment: 2019 Botanical Survey for the Desert Valley Company Expansion Project, July 2019

2019 BOTANICAL SURVEY FOR THE DESERT VALLEY COMPANY EXPANSION PROJECT

IMPERIAL COUNTY, CALIFORNIA

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 92596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Ricardo Montijo and Juan J. Hernandez
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14010 Poway Road, Suite A
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July 2019

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Appendix C. CNPS List Definitions

1 INTRODUCTION

Hernandez Environmental Services (HES) was retained to conduct biological surveys and studies that support a at Desert Valley Company (DVC) facilities expansion project near the Salton Sea, Imperial County, California. The expansion is the construction of a new non-municipal solid waste landfill (Cell 4). The project site is within the approximately 320-acre survey area located in the northern portions of Section 27 of the Township 12 South, Range 11 East of the Kane Spring USGS 7.5-minute Quadrangle.

A review of available information from the California Native Plant Society (CNPS), the California Consortium of Herbaria (CCH), and the California Natural Diversity Database (CNDDB) indicates that the sensitive and protected plants in Table 1 can occur on or near the survey area and may be of concern to the project:

Table 1. List of Sensitive Plants Potentially Occurring on the Project Site or its Vicinity

Abronia villosa var. *aurita*	Yellow hairy sand verbena
Astragalus crotalariae	Salton milk vetch
Astragalus insularis var. *harwoodii*	Harwood's milk vetch
Astragalus sabulonum	Gravel milk vetch
Berberis nevinii	Nevin's barberry
Castela emoryi	Crucifixion thorn
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion
Crossosoma californicum	Catalina crossosoma
Cryptantha costata	Ashen forget me not
Cylindropuntia wolfii	Wolf's opuntia
Euphorbia abramsiana	Abrams' spurge
Euphorbia platysperma	Flat-seeded spurge
Grusonia parishii	Matted cholla
Johnstonella costata	Ribbed cryptantha
Lycium torreyi	Torrey's box thorn
Opuntia wigginsii	Wiggins's cholla
Pholisma sonorae	Sand food
Pilostyles thurberi	Thurber's pilostyles
Psorothamnus arborescens var. arborescens	Mojave indigo bush
Xylorhiza orcuttii	Orcutt's woody aster

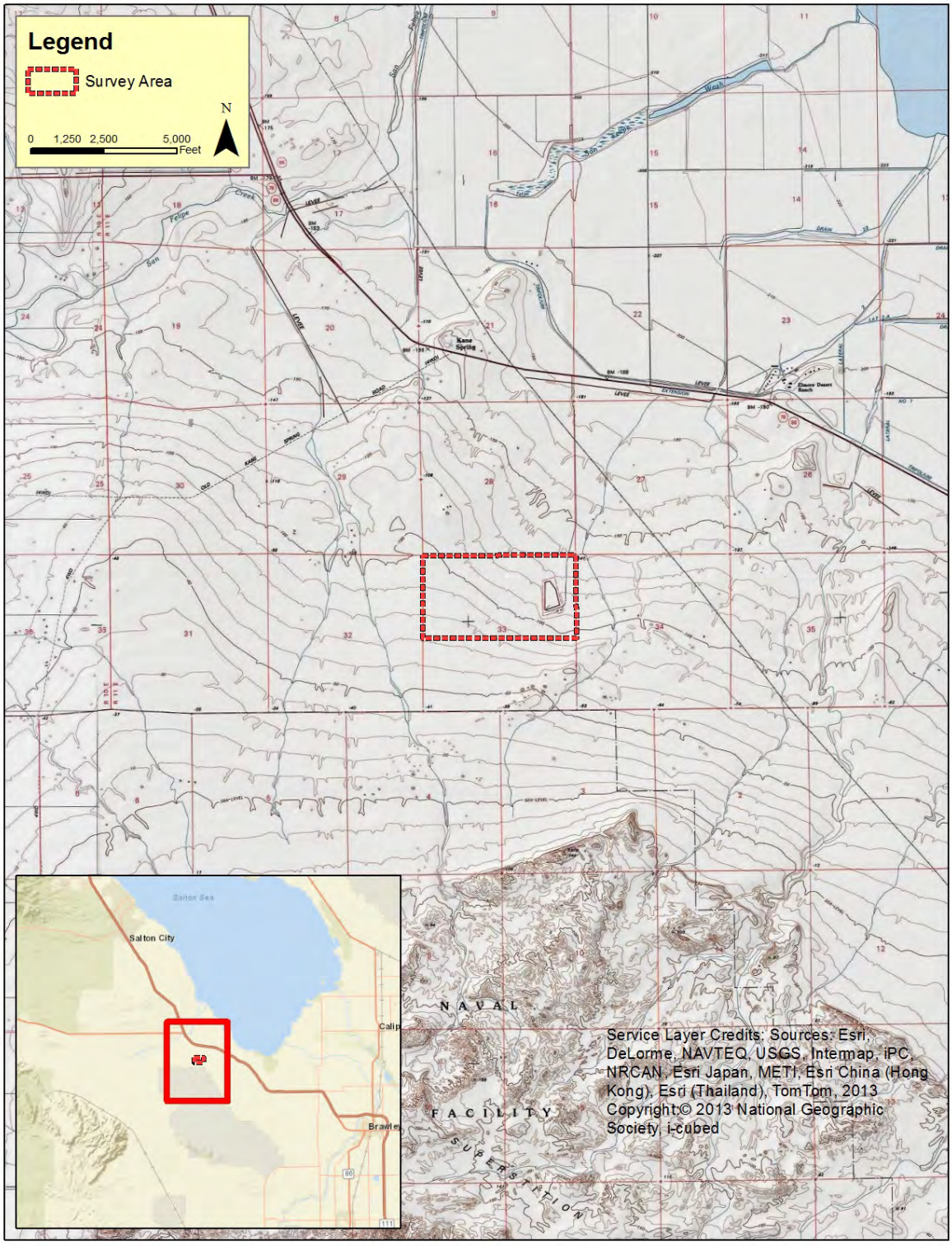
The following report summarizes the results of the 2019 botanical survey on the 320-acre project site, or survey area.

1.1 Property Description

1.1.1 Geographic Setting

The project site (survey area) is located southwest of the Salton Sea, Imperial County, California (Figure 1). It is relatively flat and level, with a slight northeast-facing slope ranging from 100 to 140 feet below average mean sea level (AMSL). Drainage from the survey area is, therefore, to the northeast and is evidenced by several incised drainage features that cross the project site and that are oriented in a roughly southwest to northeast direction.

Figure 1. Location and Vicinity Map



1.1.2 Adjacent Lands

The survey area encompasses a private Class II monofill facility on its eastern half (Figure 2, lower right-hand corner). The facility (Solid Waste Facility Number 13-AA-0022) is owned and operated by CalEnergy and only accepts non-hazardous geothermal wastes from CalEnergy facilities in Imperial County. Cells 1 and 2 are closed and Cell 3 is projected to reach its capacity in the year 2025. Cell 4, with a capacity of at least 1,300,000 cubic yards (same as Cell 3), would need to be operational before Cell 3 can be closed. Although there is no developed land to the east, west, and south immediately adjacent to the property, there are expansive agricultural fields to the north, opposite of Highway 86. There is no other visible land use in or adjacent to the survey area.

1.1.3 Geology, Hydrology, Soils, and Climate

Plant species composition at individual sites is often the product of substrates, slope, and orientation. The topography of the project site is level and relatively flat land over which water flows. The survey area is south of the Salton Sea and within the Salton Trough geological area. This is a tectonically complex area that is the northernmost and landward extension of the Gulf of Mexico. It marks the boundary between the Pacific and North America tectonic plates. Volcanic rocks and substrates are common, and they define the present-day rift zone (Norton and Hulen 2006). Tertiary sedimentary substrate deposition occurred in the region prior to rift basin development and geologically recent alluvial sediments originate from the uplands adjacent to the rift basin.

The Salton Trough is an example of a graben, a strip of land bounded on opposite sides by roughly parallel faults (Alles 2011). Through movement of the faults, the strip of land subsides; in the Salton Trough, the graben is filled with sediments. Although grabens are not restricted to them, they are characteristic of rift valleys, as is the Salton Trough located at the northern terminus of the Gulf of California (Alles 2011).

The Colorado River has drained the interior of the North American plate since before the formation of the current rift zone and the historically recent and modern sediment deposition has increased during Colorado River flood events. The occurrence of the Colorado River delta

Figure 2. Survey area Map

sediments keep the Gulf of California from inundating the Salton Trough, which is below sea level. Light-colored calcium carbonate deposits along Imperial Valley-adjacent cliffs suggest that the shoreline was once 40 feet above sea level (Mendenhall 1909).

Soils on the site are of three origins:

1. Erosional soils on lacustrine deposits
2. Alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces
3. Eolian soils on windblown sand and silt.

Although the soils on the site have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils on the project site. The Glenbar series consists of very deep, well drained soils that formed in stratified stream alluvium. They occur on flood plains and alluvial fans and have slopes of 0 to 3 percent. The Niland series is a member of the sandy over clayey, mixed (calcareous), hyperthermic family of Typic Torrifluvents. Typically, Niland soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches (Natural Resources Conservation Service 2018).

Evidence of waterflow is visible on the project site. All waterflow over the property originates as rainfall and follows several drainages that flow from the southern portion of the project site to the northeast and toward the Salton Sea. The drainages are deeply incised in places.

The project region's climate is characterized by mild and dry winters with daily maximum temperatures in the 65 to 75ºF (18-24ºC). Summers are hot with daily maximum temperatures of 104 to 115ºF (40-46ºC). The annual rainfall is just over 3 inches (7.5 centimeters) with most of it coming in late summer or midwinter (Ramboll Environmental U.S. Corporation 2017).

2 METHODS

2.1 Background Analysis

Pertinent plant records were reviewed prior to undertaking field surveys. The analysis included a review of records from the following sources:

- A review of collection records from participating herbaria in California available through CCH 2019;
- Documented rare plant occurrences compiled in the CNDDB by the California Department of Fish and Wildlife, 2018-2019;
- A review of documented occurrences of common and rare plants for California in Calflora, 2019;
- Species descriptions from the Jepson Online Interchange[1];
- Geological maps available from the US Geological Survey (i.e., Kennedy and Morton 2003);
- Previous botanical and biological surveys for the area, including the *2018 Botanical Survey For the Desert Valley Company Expansion Project Imperial County, California*, prepared by HES;
- Soils data from the Natural Resources Conservation Service and available from the Web Soil Survey, 2019; and,
- Aerial photographs from Google Earth, ESRI, Digital Globe, GeoEye, US Department of Agriculture, US Geological Survey, i-cubed, Aerogrid and Getmapping.

The background analysis yielded data that were compiled in a Geographic Information System (GIS) using ArcMap 10.6. These data were modified and uploaded to a Trimble Juno Global Navigation Satellite System (GNSS) device for use in the field as reference and for collecting field data. Several maps were also made from the data, which were printed on paper for use during the surveys. Subsequent mapping for this report was also done in ArcGIS 10.6.

2.2 Field Surveys

Biologists Ricardo Montijo and Karen Kirtland conducted botanical surveys over two days during the 2019 growing season. Rainfall has been far below normal for the nine (9) months prior to the survey. The deficit is about 60% of normal annual rainfall (Table 2).

[1] Available at: http://ucjeps.berkeley.edu/interchange/

Table 2. Rainfall totals from July 2018 to April 2019 compared to known average rainfall for each month from 1942 to 2005.[2]

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Season Average	**0.01**	**0.27**	**0.27**	**0.25**	**0.35**	**0.21**	**0.43**	**0.34**	**0.28**	**0.08**	**2.49***
2018-2019	0.01	0.00	0.03	0.06	0.00	0.82	0.41	0.10	0.06	0.00	1.49

The biologists conducted the botanical surveys on 5 and 10 April 2019. The team noted weather and site conditions and recorded plants detected. Plants not readily identified in the field were collected and pressed and keyed out later, or sent to the University of California, Riverside Herbarium for verification. Temperature averaged 70° Fahrenheit on 5 April 2019 and 68° Fahrenheit on 10 April 2019, peaking at 80° and 82° Fahrenheit, respectively. There was trace rainfall on the second survey date. The project site was systematically surveyed by walking all accessible portions ensuring that all habitats were afforded sufficient coverage to be properly inventoried. The greatest focus was in areas likely to support target species. Thus, scrubby areas and drainages (where special status species have been recorded before) were carefully searched for rare annuals and perennials.

A complete list of plants observed is included as Appendix A of this report. All plant nomenclature in this report follows Baldwin *et al.* (2012).

3 RESULTS

3.1 Preliminary Analysis

The preliminary analysis of known and documented rare plant occurrences evaluated in the study revealed populations of several sensitive plants near the property and possible occurrences on the property based on past field collections and investigations (Figure 3). The soil texture is like

[2] https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?caimpe+sca

areas known to support rare plants on adjacent lands and is derived from common parent materials. The following are descriptions of plants compiled from distribution and biological data that were used to evaluate the potential presence of the species during the preliminary analysis. Table 3 summarizes the results of this analysis.

3.1.1 Summary of Rare Plant Findings

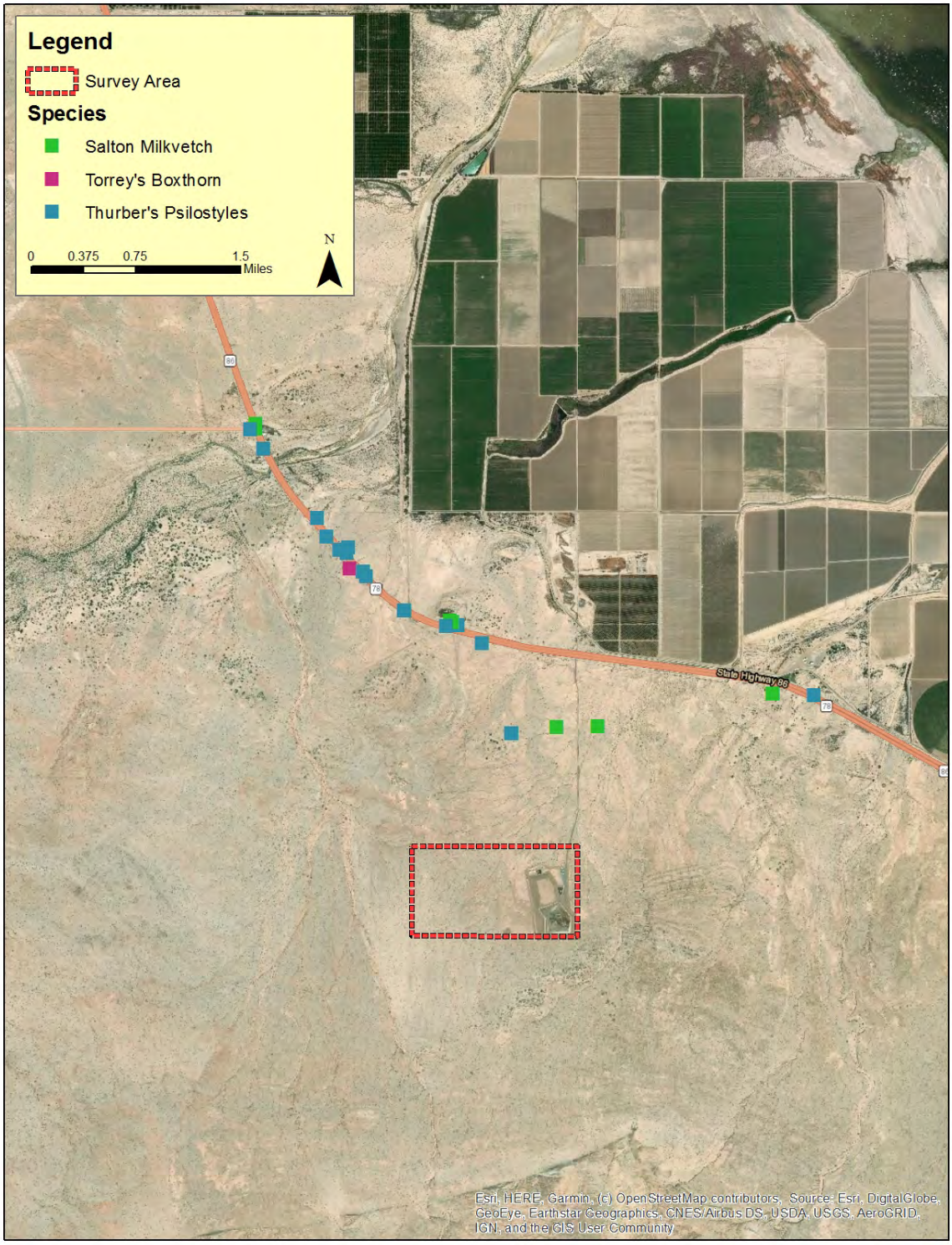
Conditions on the site were not conducive to finding flowering plants comparatively low rainfall preceding the surveys and the late approval for the plant survey. Most annual plants and herbaceous perennials were desiccated, and most were lacking flowers or other distinguishable features.

Most plants presented in Table 1 were eliminated from further analysis due to absence of suitable growing conditions. Table 3 summarizes potential occurrence of rare plants further evaluated for the site. Their CNPS status is included in the text and an explanation of the CNPS classification scheme is provided in Appendix C.

Table 3. Preliminary Analysis Results Summary

Species	Likelihood of Occurrence
Salton milk vetch	May occur. Suitable conditions exist for this species.
Gravel milk vetch	Marginally suitable conditions exist for this species.
Ashen forget me not	Marginally suitable conditions exist for this species.
Torrey's box thorn	Suitable conditions exist for this species but is unlikely to occur.
Thurber's pilostyles	May occur. Suitable conditions exist for this species.
Mojave indigo bush	Unlikely to occur.

Figure 3. Special Status Plants within the Site's Vicinity



3.1.1.1 Salton Milk Vetch

Salton milk vetch (*Astragalus crotalariae*) is a perennial herb that occurs in California, Arizona and northern Baja California. It grows in valleys, washes, foothills, and open sandy gravelly areas. The shrubby plant grows to 24 inches and is often found with honey mesquite (*Prosopis glandulosa*), creosote bush (*Larrea tridentata*), and alkali goldbush. This species produces distinctive purple and white flowers. The fruit, like other members of the genus, consists of an inflated papery pod with a fine net-like pattern (Wojciechowski and Spellenberg 2012). Salton milk vetch produces flowers from January to May.

Past occurrences are to the north and east according to the CCH. Remnants of the species were detected in two drainages during the 2018 survey to the northeast. Related species of the *Astragalus* genus were found on the survey area, but this species was not found.

3.1.1.2 Gravel Milk Vetch

Gravel milk vetch (*Astragalus sabulonum*) is a low-growing annual plant that occurs in California, Utah, New Mexico, and northern Mexico. It grows in creosote bush scrub on sandy and gravelly soils to a height of about 12 inches. It has a silky stem and leaves and hairy fruit and produces creamy white flowers that are often tinged purple. It flowers from February to July.

Gravel milk vetch has been collected on the western side of the Salton Sea at the junction of U.S. 99 and State Highway 78 and near San Felipe Creek at its confluence with Carrizo Wash (CCH 2019). Gravel milk vetch is CNPS List 2B.2 and is considered rare, threatened, or endangered in California, but common elsewhere. No observations were made, but generally suitable conditions for this species exist on the project site.

3.1.1.3 Ashen Forget Me Not

Ashen forget me not (*Cryptantha costata*) is a small annual herb that grows to about 8 inches tall. It grows in creosote bush scrub on fine sandy deposits (dunes and other wind-blown soils) in California, southern Nevada, Arizona, and Baja California (Kelley et al. 2012). Like most cryptanthas, this species has tiny white flowers and, like many, it has stiff white hairs throughout the stems, leaves, and fruits. It flowers from January to May.

There are no recorded observations of this species in the project vicinity, and marginally suitable conditions exist there. Like Salton milk vetch, ashen forget me not is a List 4 plant and is not normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.4 Torrey's Box Thorn

Torrey's box thorn (*Lycium torreyi*) is a perennial shrub of the Nightshade (tobacco, potato, tomato, and others) Family that grows in sandy and rocky washes, streambanks, and desert valleys dominated by creosote bush scrub. According to Benson and Darrow (1981), it reaches height of up to 9 feet and prefers river bottoms and alluvial flats. It typically flowers from March to May.

Torrey's box thorn has been collected on the western side of the Salton Sea at the junction of State Highway 78 and San Felipe Creek opposite the U.S. Customs and Border Protection checkpoint (CCH 2019). It was not found during the survey and likely does not occur there. Torrey's box thorn is a CNPS List 4.2 plant and, like other List 4 plants discussed here, is not normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.5 Thurber's Pilostyles

Thurber's pilostyles (*Pilostyles thurberi*) is a perennial parasitic plant that grows inside the stems of indigo bush (*Psorothamnus* spp.) and particularly dyebush (*P. emoryi*). It is often associated with Sonoran Desert scrubs in California, but it occurs in Arizona, California, Nevada, New Mexico, Texas, and northern Mexico (Yatskievych 2012). It produces flowers on the stems of its host in January.

Thurber's pilostyles has been recorded approximately a half mile north of the survey area (Figure 3). These observations are described as 0.9-mile northwest of Westmorland and 0.8-mile southeast of Kane Spring per specimen records as reported by the CCH (2019). It was not found during this survey, perhaps because survey timing and rainfall conditions were unsuitable for the species. Thurber's pilostyles is a CNPS list 4.3 species.

3.1.1.6 Mojave Indigo Bush

Mojave indigo bush (*Psorothamnus arborescens*) is a large perennial shrub that grows to less than 3 feet, normally in riparian or wash scrub. In California, it has a spotty distribution from Mono County to Imperial County (Benson and Darrow 1981). It produces deep purple, sometimes abundant, showy flowers from March to May.

There are no records of Mojave indigo bush near the project site. The closest record is from Chuckwalla Valley, 10 miles north of Chuckwalla Spring. It is a CNPS List 4.3 species.

3.2 Field Surveys

3.2.1 Vegetation Types

Vegetation on the property is mostly confined to drainages and adjacent areas and nearly completely devoid of annual plants at least partly due to the lack of rainfall. A map depicting vegetation on the site and superimposed on the property is shown in Figure 4.

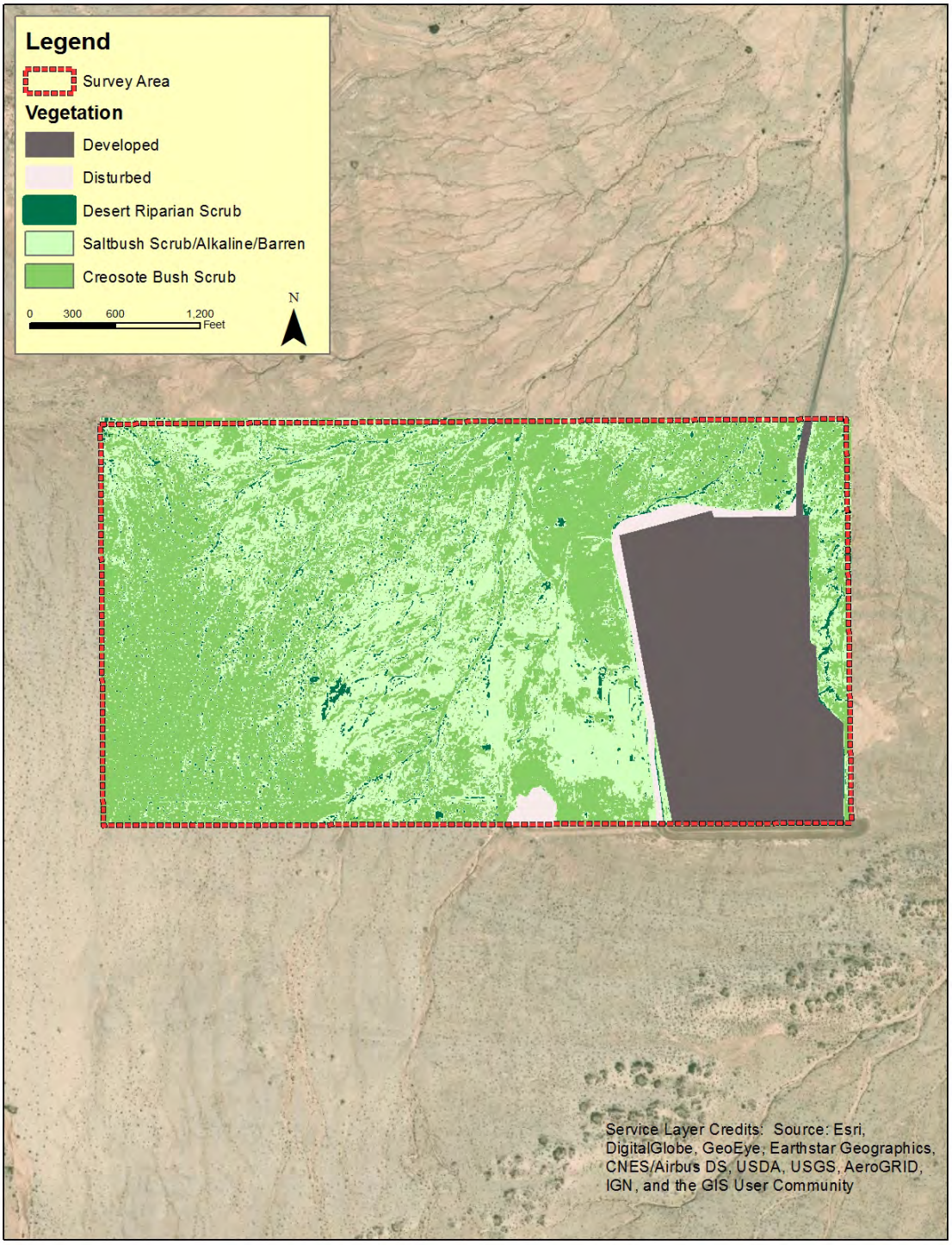
3.2.1.1 Sonoran Creosote Bush Scrub

Creosote bush scrub is the most common vegetation type in the region. It grows in areas where sands have accumulated and is dominated by the namesake plant creosote bush. Other common associates include burrobush (*Ambrosia dumosa*) and longleaf jointfir (*Ephedra trifurca*) (Appendix B, Photographs 1 and 2). Few annuals were growing at the time of the survey, but remnant plants from earlier in the year and the prior year include Emory's indigo bush (*Psorothamnus emoryi*), desert plantain (*Plantago ovata*), and rigid spiny herb (*Chorizanthe rigida*)

3.2.1.2 Desert Riparian Scrub

Desert riparian vegetation consist of groves of low-growing trees or tall shrubs to woodlands of small to medium-sized trees. Such vegetation is normally found adjacent to permanent or ephemeral surface water and create a sharp transition with adjacent open low scrub desert habitats. Desert riparian scrub on within the study area includes several tall shrubs and

Figure 4. Vegetation types overlapping the Property generated by field mapped values and unsupervised image classification in GIS.



phreatophytic trees such as western honey mesquite (*Prosopis glandulosa* var. *torreyana*) and the introduced saltcedar (*Tamarix ramossisima*) and Chinese tamarisk (*Tamarix chinensis*).

3.2.1.3 Saltbush Scrub and Alkaline Barrens

Saltbush vegetation occurs in alkaline and semi alkaline soils. Historically the terms "arid phase" and "salt-tolerant" (or "halophytic") saltbush scrub have been used to describe the vegetation in areas of relatively low and high salinity, respectively. Perennial plant species of the arid phase saltbush scrub include shadscale (*Atriplex polycarpa*) and quailbush (*Atriplex lentiformis*).

3.2.2 Rare Plants

The surveys were conducted in a below-average rainfall year (see Table 2). Although conditions on the property are suitable for most of the remaining rare species on the list, none were detected during the 2019 survey. Survey results are summarized in Table 4.

Table 4. Field Survey Results Summary

Species	Field Survey Result
Salton milk vetch	Not found
Gravel milk vetch	Not found
Ashen forget me not	Not found
Torrey's box thorn	Not found
Thurber's pilostyles	Not found
Mojave indigo bush	Not found

Low rainfall and survey timing for 2019 yielded few and inconclusive results for the botany on site.

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APPENDIX A

Flora Observed

GYMNOSPERMS

Scientific Name	Common Name	Family
Ephedra trifurca	Long leafed ephedra	Ephedraceae

ANGIOSPERMS
DICOTYLEDONS

Scientific Name	Common Name	Family
Ambrosia dumosa	Burro weed	Asteraceae
Baileya pauciradiata	Lax flower	Asteraceae
Chaenactis stevioides	Desert Pincushion	Asteraceae
Dicoria canescens	Desert Dicoria	Asteraceae
Geraea canescens	Hairy desert sunflower	Asteraceae
Isocoma acradenia var. *eremophila*	Solitary leaved alkali goldenbush	Asteraceae
Pluchea sericea	Arrow weed	Asteraceae
Psathyrotes ramosissima	Desert Velvet	Asteraceae
Cryptantha angustifolia	Narrowleaf Cryptantha	Boraginaceae
Brassica tournefortii	Mustard	Brassicaceae
Ditheryea californica	Spectacle Pod	Brassicaceae
Atriplex lentiformis	Quailbush	Chenopodiaceae
Atriplex polycarpa	Shadscale	Chenopodiaceae
Prosopis glandulosa var. *torreyana*	Honey mesquite	Fabaceae
Psorothamnus emoryi	Emory's indigo bush	Fabaceae
Tamarix aphylla	Athel	Fabaceae
Sphaeralcea orcuttii	Carrizo mallow	Malvaceae
Chylismia claviformis ssp. *peirsonii*	Pierson's Primrose	Onagraceae
Plantago ovata	Desert plantain	Plantaginaceae
Centrostegia thurberi	Thurber's Centrostegia	Polygonaceae
Chorizanthe rigida	Rigid spiny herb	Polygonaceae
Eriogonum deserticola	Colorado desert buckwheat	Polygonaceae
Oligomeris linifolia	Leaved cambess	Resedaceae
Tamarix ramosissima	Tamarisk	Tamaricaceae
Phoradendron californicum	California mesquite mistletoe	Viscaceae
Larrea tridentata	Creosote bush	Zygophyllaceae

MONOCOTYLEDONS

Aristida adscensionis	Three awn	Poaceae
Cynodon dactylon	Bermuda grass	Poaceae
Schismus barbatus	Old Han Schismus	Poaceae

APPENDIX B

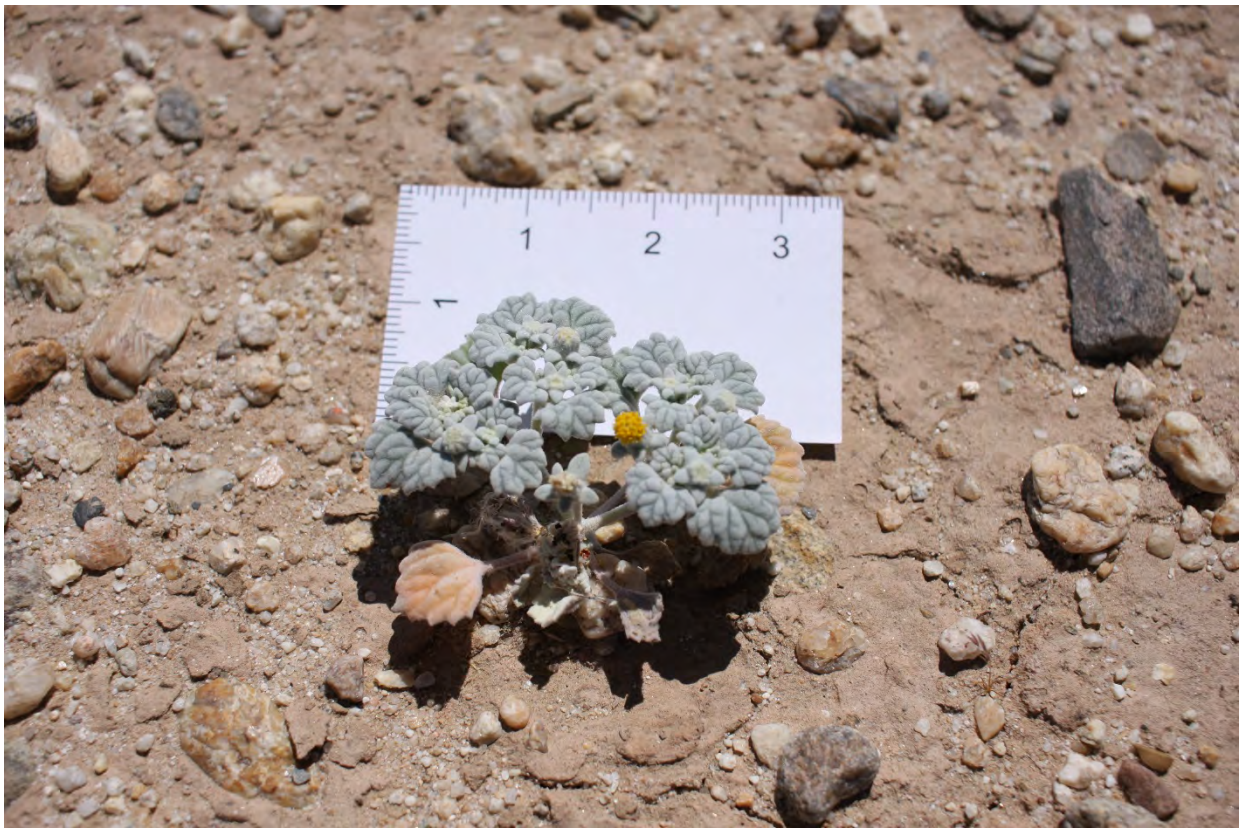
Site Photographs

Photograph 1. The above photograph shows the dominant, but sparse, Creosote Bush Scrub dominated by creosote bush (*Larrea tridentata*).

Photograph 2. The above photograph shows the condition of the annuals.

Photograph 3. This photograph shows *Ephedra trifurca* near the south end of the survey area.

Photograph 4. The above photograph illustrates a typical drainage feature in the Study Area.



Photograph 5. The above photograph shows one of several late-season annual plants, desert velvet (*Psathyrotes ramosissima*).

APPENDIX C

CNPS List Definitions

1A Plants presumed by CNPS to be extinct in California

1B Plants considered by CNPS to be rare or endangered in California and elsewhere

2P Plants considered by CNPS to be rare, threatened or endangered in California, but which are more common elsewhere.

3 Review list of plants suggested by CNPS for consideration as endangered but about which more information is needed.

4 Watch list of plants of limited distribution whose status should be monitored

Threat Code extensions and their Meanings:

1. Seriously endangered in California
2. Fairly endangered in California
3. Not very endangered in California

APPENDIX D – WILDLIFE SPECIES LIST

APPENDIX D – WILDLIFE SPECIES LIST

Scientific Name	Common Name
REPTILES	
IGUANIDAE	**IGUANAS**
Dipsosaurus dorsalis	desert iguana
PHRYNOSOMATIDAE	**ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS**
Callisaurus draconoides	common zebratail lizard
Phrynosoma mcalli	flat-tail horned lizard
Uta stansburiana	side-blotched lizard
TEIIDAE	**WHIPTAIL LIZARDS**
Aspidoscelis tigris tigris	Great Basin whiptail
Crotalus cerastes laterorepens	Colorado desert sidewinder
BIRDS	
COLUMBIDAE	**PIGEONS & DOVES**
Streptopelia decaocto	Eurasian collared-dove
Zenaida macroura	mourning dove
CORVIDAE	**JAYS & CROWS**
Corvus corax	common raven
TROGLODYTIDAE	**WRENS**
Thryomanes bewickii	Bewick's wren
MIMIDAE	**MOCKINGBIRDS, THRASHERS**
Mimus polyglottos	northern mockingbird
PTILOGONATIDAE	**SILKY-FLYCATCHERS**
Phainopepla nitens	phainopepla
FRINGILLIDAE	**FINCHES**
Haemorhous mexicanus	house finch
MAMMALS	
SCIURIDAE	**SQUIRRELS**
Xerospermophilus tereticaudus	round-tailed ground squirrel
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**
Chaetodipus penicillatus	desert pocket mouse
Dipodomys deserti	desert kangaroo rat
Dipodomys merriami	Merriam's kangaroo rat
Perognathus longimembris bangsi	Palm Springs pocket mouse
MURIDAE	**MICE, RATS, AND VOLES**
Neotoma ambigula	white-throated woodrat

APPENDIX E – FOCUSED SMALL MAMMAL REPORT

Small Mammal Trapping Survey Report

Desert Valley Company Landfill Cell 4 Project

Imperial County, California

July 2019

Prepared For:

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ENVIRONMENTAL CONSULTANTS

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Appendix C: Wildlife Species Compendia

1.0 INTRODUCTION

In June 2019, ECORP Consulting, Inc. conducted a nocturnal small mammal trapping survey within CalEnergy Operating Corporation's (CalEnergy) 640-acre property. The survey was conducted at the Request of Chamber's Group, Inc. in support of CalEnergy's Desert Valley Company non-municipal solid waste landfill Cell 4 Project (Project), located in an unincorporated area of Imperial County near the City of Westmoreland (Figure 1). The Survey Area contains habitat suitable and is located within the species range of the Palm Springs pocket mouse (PSPM; *Perognathus longimembris bangsi*), a California Department of Fish and Wildlife (CDFW) Species of Special Concern (SSC) (CDFW 2019). The survey was conducted to determine if PSPM or any other nocturnal small mammal species are present that could be affected by the proposed Project pursuant to the terms of the California Environmental Quality Act (CEQA), and for the purposes of identifying any biological constraints related to special-status small mammals that would affect the site plan for the Project.

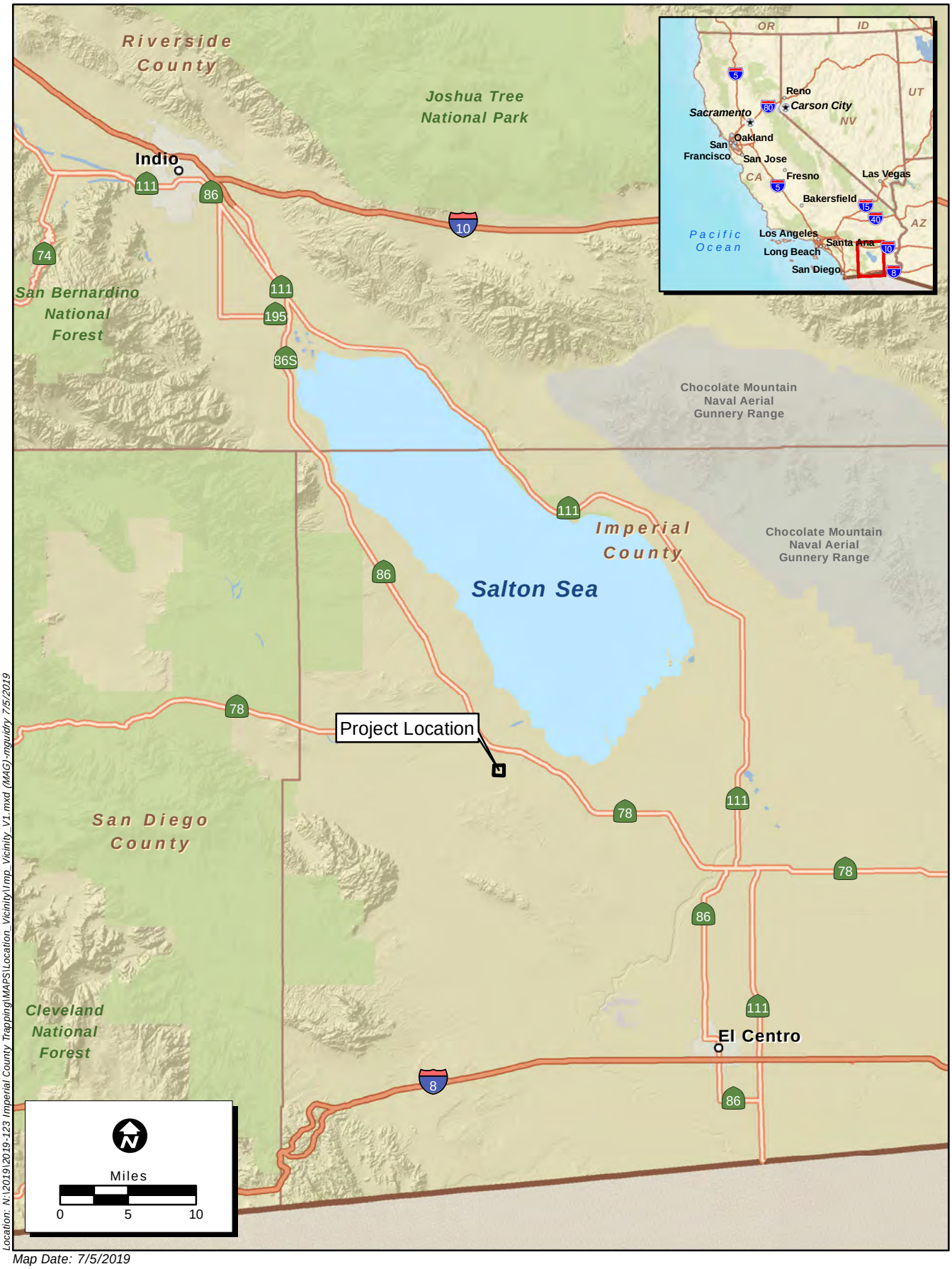
1.1 Survey Area Description and Location

CalEnergy's DVC is a class II non-municipal solid waste disposal facility restricted to the following waste streams: geothermal drilling muds, cuttings, geothermal filter cake, soils contaminated with geothermal material, and incidental plastic sheeting (truck bed liner) materials. The DVC landfill is close to capacity and CalEnergy is proposing a landfill expansion to accommodate future solid waste disposal needs.

The Survey Area, consisting of approximately 640 acres, is located approximately 4.2 miles southwest of the Salton Sea and approximately 12.2 miles northwest of the city of Westmoreland, within Imperial County, California (Figure 2). The Survey Area consists of developed, disturbed, and undisturbed habitats, including CalEnergy's existing Desert Valley Company (DVC) non-municipal solid waste landfill, located approximately 1.3 miles south of State Route 86. The Survey Area is bordered by relatively undisturbed desert habitats on all four sides with surrounding land uses consisting of agriculture, off-highway vehicle (OHV) recreation, and activities associated with the existing DVC landfill. The Survey Area, as depicted on the United States Geological Survey (USGS) Kane Spring 7.5-minute topographic quadrangle, is located within Section 33, Township 12 South, Range 11 East of the San Bernardino Base and Meridian. The elevation on the Survey Area ranges from 60 feet below mean sea level (msl) to 140 feet below msl.

1.2 Palm Springs Pocket Mouse Natural History

The PSPM is a small pocket mouse belonging to the Heteromyidae family, which also includes kangaroo rats, spiny pocket mice, and kangaroo mice, and are characterized by large hind feet and external cheek pouches used for temporary seed storage. The little pocket mouse (*Perognathus longimembris*) is the smallest member of the Heteromyidae family. There are seven subspecies of *P. longimembris*, all of which are different from one another based on range and/or morphological or genetic differences.



Location: N:\2019\2019-123 Imperial County Trapping\MAPS\Location_Vicinity\Imp_Vicinity_V1.mxd (MAG)-mguidry 7/5/2019

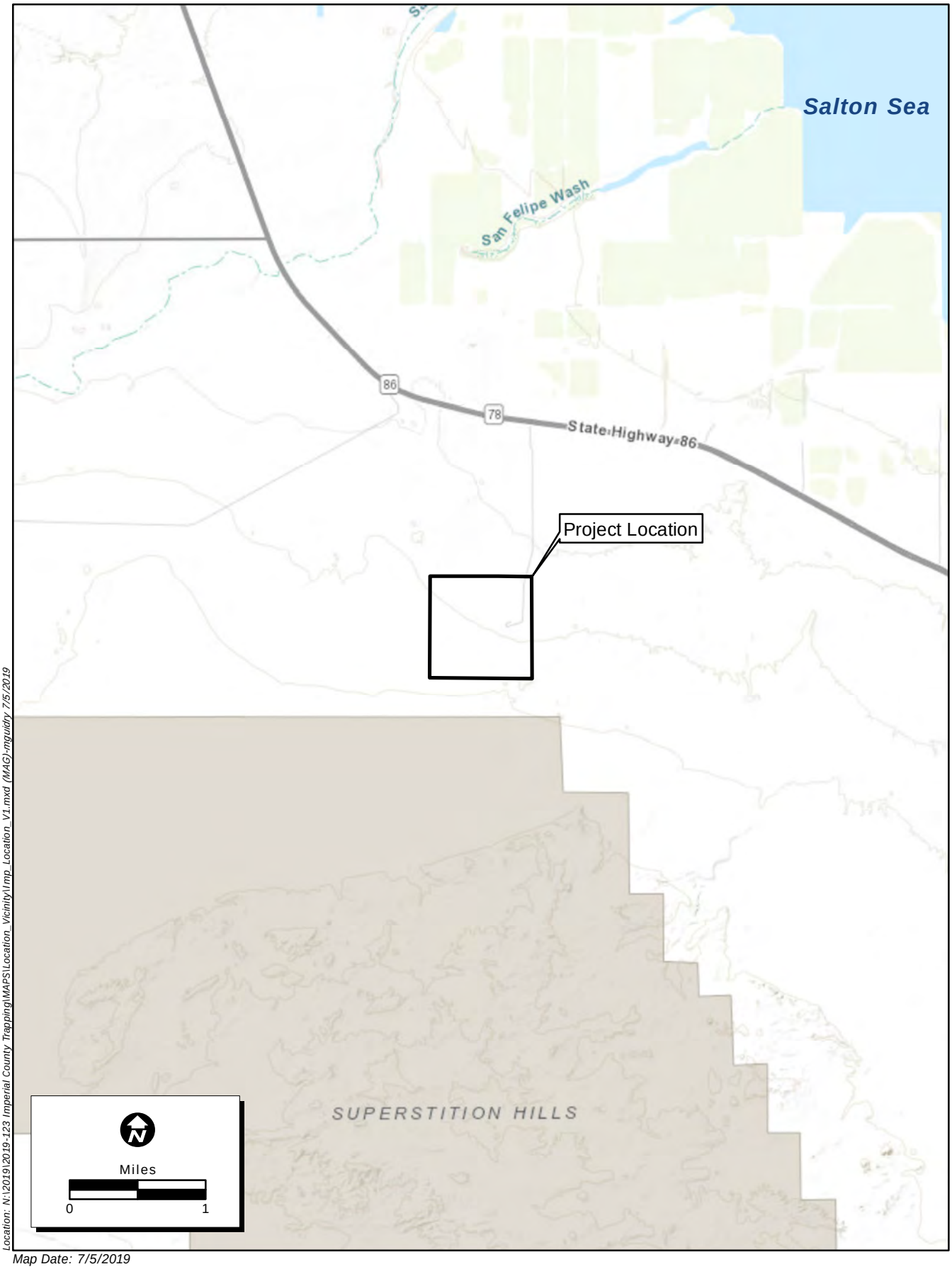
Map Date: 7/5/2019

Service Layer Credits: Sources: Esri, USGS, NOAA

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Vicnity

2019-123 Imperial County Trapping



Location: N:\2019\2019-123 Imperial County Trapping\MAPS\Location_Vicinity\Imp_Location_V1.mxd (MAG)-mguidry 7/5/2019

Map Date: 7/5/2019
Source: ESRI

Figure 2. Project Location

2019-123 Imperial County Trapping

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

This nocturnal pocket mouse has soft, silky pelage that lacks spines. Although the pelage is generally uniform in color, there are usually two small patches of light-colored hairs at the base of each of the ears (Brylski 1998). These patches may or may not be conspicuous, depending on the color variation of the animal. Pelage coloration ranges from "gypsum-colored" to buffy (Brylski 1998). PSPM are distinguished from other pocket mice of the genus *Chaetodipus* by their small size, unlobed antitragus in the outer ear, and the absence of a tail crest (Brylski 1998). *P. l. bangsi* is distinguished from other *P. longimembris* subspecies by its range and genetic studies.

The historic range of the PSPM was from San Gorgonio Pass east to the south of Joshua Tree National Park, south to Borrego Springs and the east end of San Felipe Narrows (Brylski 1998). The current range of this species is not well known, with pockets of known populations scattered throughout the Coachella Valley in native desert habitat. This species appears to be extirpated from Palm Springs to the Salton Sea in areas that have been developed for urban and agricultural purposes (Brylski 1998). The estimated amount of suitable habitat present for this species is approximately 142,000 acres, however, it is unknown if all suitable habitat is occupied (CVAG 2007). Habitats associated with the PSPM include sparsely vegetated creosote bush scrub, desert scrub, and grassland communities containing loose, sandy soils (CVAG 2007; Brylski 1998). These habitats are almost always flat or contain gentle slopes less than 15 percent in grade (CVAG 2007). PSPM are also associated with creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), burro bush (*Ambrosia dumosa*), and Mormon tea (*Ephedra californica*) (Brylski 1998).

Very little life history data are available specifically for the PSPM, therefore the following information is based on *P. longimembris* and other closely related *P. longimembris* subspecies. Little pocket mice are solitary mammals that are known to be quite aggressive in intraspecific interactions (Brylski 1998). This species is active only during the spring, summer, and fall and hibernate during the cold months (probably from approximately October to March) (Brylski 1998). Days are spent in underground burrows, excavated by the mouse, that are plugged near the entrance for protection from predators and temperature regulation. These burrows consist of several different chambers and tunnels used for giving birth, raising young, food storage, and protection.

The PSPM is thought to breed from January to August, with March to May being the peak months (CVAG 2007). It is likely that reproduction is dependent on the amount of precipitation occurring during the previous winter and the presence of available forage, similar to the reproductive activity of other desert rodents (CVAG 2007).

Diet of the PSPM is not well understood; however, closely-related pocket mice species consume seeds and green vegetation when available (Brylski 1998; CVAG 2007). Amount and necessity of water intake by the animal is unknown.

Threats to this species include habitat loss due to urban and agricultural development, OHV use, loss of habitat due to water table reduction, non-native invasive plant species outcompeting native vegetation, domestic pet predation, and illegal trash dumping (CVAG 2007).

2.0 METHODS

2.1 Habitat Assessment

Prior to the start of the trapping study, a habitat assessment, based on the was conducted to identify suitable habitat for and other sensitive rodent species potentially present within the Study Area. The habitat assessment was conducted by biologists who are permitted to trap and handle PSPM under authority of a Memorandum of Understanding (MOU) with CDFW. As a result of the assessment, the biologists identified three potential trapping locations (trapping areas) within the Survey Area, that contained suitable habitat for PSPM and allowed for adequate sampling of all the different vegetation communities on the Survey Area. The trapping areas were identified within the Survey Area while design of the Project Site is being refined to minimize potential impacts to sensitive resources. Trapping area 1 was located west of the DVC landfill access road and spanned across almost the entire norther border of the Survey Area, trapping area 2 was located west of the DVC landfill within the southwest quadrant of the Survey Area, and trapping area 3 was located south of the DVC landfill in the Southeast corner of the Survey Area (Figure 3). Traps were not placed within the bare ground and developed areas, as these areas were almost devoid or devoid of vegetation and contained very low quality or unsuitable habitat for PSPM.

2.2 Nocturnal Small Mammal Trapping Survey

The nocturnal small mammal trapping survey was performed under a Memorandum of Understanding (MOU) with CDFW and under the individual Field Investigators Scientific Collecting Permits (SCP). The survey was conducted according to the methods and requirements described within the permitted biologist's MOU and SCP.

The overall strategy of the trapping survey was to sample all the different vegetation communities within the Survey Area while focusing on habitats suitable for PSPM. The resultant distribution of trap lines and traps was extensive on the property but not comprehensive of the entire Survey Area. Traps were not set in areas that exhibited heavy disturbance or lacked vegetation, such as the area immediately west of the current DVC landfill.

To achieve adequate coverage of all suitable habitats on the Survey Area, traps spaced approximately 5-25 meters apart and placed in meandering lines with a focus on areas of high-quality habitat exhibiting minimal disturbance. However, due to the variety of habitats present on the Survey Area, each of the three trapping areas varied in size, configuration, and number of traps. Trapping area 1 contained 140 traps, trapping area contained 165 traps, and trapping area 3 contained 125 traps, for a total of 430 traps. The trapping survey was completed over the course of five consecutive nights. Traps were opened at dusk each day and baited with a bird seed mixture. Traps were then checked for captures and closed each morning near dawn. Only 12-inch modified (front door shortened slightly) collapsible Sherman live-traps were used during this survey. All captured animals were identified to species and released unharmed at the point of capture. When possible, given weather conditions, additional data recorded included the age class (e.g., adult, subadult, juvenile), sex, reproductive status, and any notes regarding unusual conditions (e.g., disease, parasites). If a sensitive species was captured, the animal's weight and length of head-body,

tail, tail tuft, hind foot, and ear were recorded, as well as any other general health assessment notes. In addition, the trap location was recorded using a Global Positioning System (GPS) receiver.

Map Features

- Project Area

Vegetation Communities [1]

- Bareground
- Creosote Bush Scrub
- Creosote Bush Scrub/Honey Mesquite scrub
- Rigid Spineflower/Hairy Desert Sunflower
- Tamarisk/Honey Mesquite/Four Wing Saltbush scrub
- Developed

Results

- Trap Location
- *Perognathus longimembris bangsi*
- Flat-tailed Horned Lizard

Imagery: NAIP (2018)
[1] Chambers

ECORP- N:\2019\2019-123 Imperial County Trapping\MAPS\Biological_Resources\Imperial_Results_V1.mxd (MAG)-mguildy 7/5/2019

Map Date: 7/3/2019

ECORP Consulting, Inc.
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Scale in Feet
0 500

DRAFT

Figure 3. Trapping Results

2019-123 Imperial County Trapping

Notes and photographs were taken to document habitat conditions where traps were placed. Weather conditions at the time of the trapping study were also noted. Each survey area varied in size, configuration, and number of traps present and were located such that trapping in potential habitat was maximized.

3.0 RESULTS

3.1 Habitat Assessment

The Survey Area is largely level with a gentle southernly slope. Soils on the site are generally suitable for PSPM consisting mainly of sandy soils suitable for burrowing with some isolated areas of rocky, hardpan, or cobble that were less suitable for the species. Vegetation on the Survey Area consisted mainly of creosote bush scrub with small isolated patches of creosote bush scrub/honey mesquite scrub, rigid spineflower/hairy desert sunflower/desert pavement alliance, and Tamarisk/honey mesquite/four wing saltbush scrub (Figure 3).

The Survey Area also contains two land cover types; bare ground and developed. The bare ground and developed areas include all the existing DVC landfill and a large disturbed area immediately west of the landfill. Representative photographs of the Survey Area can be found in Appendix A, and compendia of plants and animal species observed are presented in Appendix B and C, respectively. The Survey Area contains multiple light use dirt roads and exhibits signs of OHV use.

3.2 Nocturnal Small Mammal Trapping Survey

The nocturnal small mammal trapping survey was performed by Field Investigators that are permitted to trap and handle small mammals under MOUs and SCPs with CDFW. Field Investigators for the survey included Bradley Haley (SC-8213), Dana Mclaughlin (SC-6344), Donald Mitchell (SC-1869), Stephen Montgomery (SC-1890), and Phillip Wasz (SC-11389). Field Assistants for the survey included Caroline Garcia and Wendy Turner. Trapping commenced with the setting and baiting of traps on the evening of June 17, 2019. Trapping was intended to continue through the morning of June 22, 2019, but due to extremely high overnight winds starting in the evening of June 21, 2019 and continuing through the morning of June 22, 2019, the Field Investigators did not to open the traps on June 21, 2019 out of concern for the safety of the animals and the survey team. The Field Investigators arrived at the site on June 21, 2019 and recorded sustained winds of 20 miles per hour (mph) with gusts to 30 mph and there was a National Oceanic and Atmospheric Administration-issued High Wind Warning in the area. The winds were so strong that traps were being blown, in some cases, over 100 meters from their original location. Trapping in such conditions puts animals at risk for mortality and can also be dangerous for the surveyors. This did not affect the overall results of the survey. All species of nocturnal small mammals detected during the study were captured on the first night. Subsequent nights did not detect additional species. All traps were picked up on the morning of June 22, 2019. Table 1 provides details on the survey areas, habitats, dates, and surveyors.

Table 1. Survey Area Information Summary

Trapping Area	Habitat Type	Dates	Trap-Nights	Investigator (Assistant)
1	Creosote Bush Scrub and Tamarisk/Honey Mesquite/Four Wing Saltbush scrub	June 17 - June 21	560	Phillip Wasz and Donald Mitchell
2	Creosote Bush Scrub, Rigid Spineflower/Hairy Desert Sunflower, and Creosote Bush Scrub/Honey Mesquite Scrub	June 17 - June 21	660	Stephen Montgomery and Bradley Haley (Caroline Garcia)
3	Honey Mesquite Scrub and Creosote Bush Scrub	June 17 - June 21	500	Dana McLaughlin (Wendy Turner)

Nighttime weather conditions during the four-night trapping session were generally mild and suitable for small mammal trapping, with nightly lows ranging between 68- and 71-degrees Fahrenheit and daytime highs ranging between 97- and 103-degrees Fahrenheit, wind speeds ranging from 1 to 25 mph with gusts of 30 mph on June 21, 2019. Cloud cover ranged from clear to partly cloudy. No precipitation was recorded during the trapping period.

At total of 1720 trap-nights (one trap-night is one trap set for one night) yielded 263 animal captures, including six rodent species: desert pocket mouse (*Chaetodipus penicillatus*), desert kangaroo rat (*Dipodomys deserti*), Merriam's kangaroo rat (*Dipodomys merriami*), white-throated woodrat (*Neotoma albigula*), Palm Springs pocket mouse (*Perognathus longimembris bangsi*), and round-tailed ground squirrel (*Xerospermophilus tereticaudus*). A total of 47 PSPM, 54 desert pocket mice, 16 desert kangaroo rats, 66 Merriam's kangaroo rats, 1 white-throated woodrat, and 2 round-tailed ground squirrels were captured during the four-night trapping survey (Table 2). Small mammals were captured in all three survey areas, with some areas having higher trap success than others. Survey Area 3 resulted in the most captures, whereas Survey Area 1 resulted in the lowest number of small mammal captures. Survey Areas 2 and 3 each captured five different species, while Survey Area 1 captured four different species. Most of these species are very common throughout the Colorado desert except for the Palm Springs pocket mouse which is a CDFW SSC. Figure 3 shows the locations of the traps and PSPM captures and Table 2 contains the species capture data.

Table 2. Trapping Survey Results

Trapping Area	Date Traps Checked	Animals Captured*					
		PELOBA	CHPE	DIDE	DIME	NEAL	XETE
Area 1	6/18/2019	3	6	-	6	1	-
	6/19/2019	7	5	-	4	-	-
	6/20/2019	3	5	-	3	-	-
	6/21/2019	1	3	-	1	-	-
	6/22/2018**	-	-	-	-	-	-

Table 2. Trapping Survey Results

Trapping Area	Date Traps Checked	Animals Captured*					
		PELOBA	CHPE	DIDE	DIME	NEAL	XETE
Area 2	6/18/2019	3	4	2	8	-	-
	6/19/2019	6	9	3	5	-	-
	6/20/2019	8	7	3	8	-	1
	6/21/2019	4	3	1	1	-	-
	6/22/2018**	-	-	-	-	-	-
Area 3	6/18/2019	4	5	2	9	-	-
	6/19/2019	4	3	3	13	-	-
	6/20/2019	3	2	2	6	-	1
	6/21/2019	1	2	-	2	-	-
	6/22/2018**	-	-	-	-	-	-
TOTALS		47	54	16	66	1	2

CHPE = desert pocket mouse (*Chaetodipus penicillatus*)
DIDE = desert kangaroo rat (*Dipodomys deserti*)
DIME = Merriam's kangaroo rat (*Dipodomys merriami*)
NEAL = white-throated woodrat (*Neotoma albigula*)
PELOBA = Palm Springs pocket mouse (*Perognathus longimembris bangsi*)
SPTE = round-tailed ground squirrel (*Xerospermophilus tereticaudus*)
*Does not include recaptured animals
**Traps were not opened in the evening on 6/21/19 due to extremely high winds, thus no animals were captured on 6/22/19.

3.3 Incidental Special-Status Species Observations

Four flat-tailed horned lizards (*Phrynosoma mcalli*) were observed during trapping of the three survey areas. The flat-tailed horned lizard (*Phrynosoma mcalli*) is currently designated as an SSC by the CDFW (CDFW 2019).

This species of horned lizard is typically found in desert flatlands with sparse vegetation but can also be found in low hills or alkali flats (NatureServe 2019). The flat-tailed horned lizard requires fine sand for cover as it burrows just beneath the surface to avoid extreme temperatures. They also use mammal burrows to seek refuge (Stebbins 2003).

The flat-tailed horned lizard has a snout to vent length of 2.5 to 3.4 inches, cryptic coloration, and a distinguishing mid-dorsal stripe that is unique to this species of horned lizard (Stebbins 2003). The flat-tailed horned lizard primarily feeds on native species of ants and is positively associated with ant densities (NatureServe 2019). Adult flat-tailed horned lizards are reported to be obligatory hibernators; individuals begin hibernation as early as October and emerge as late as March. Courtship and breeding of flat-tailed horned lizards are believed to take place in early spring after emergence from winter hibernation. Flat-tailed horned lizards are oviparous (egg-laying, early maturing, and may produce multiple clutches within a breeding season; however, they produce relatively small egg clutches compared to most other horned lizards (NatureServe 2019). The first clutch hatches in early July and the second clutch, if laid, hatches in late August and early September. Hatchlings from the first clutch may reach sexual maturity after their first winter season, whereas hatchlings born later may require an additional growing season to mature.

Threats to this species of horned lizard include urbanization, agriculture, geothermal developments, off-road vehicle use, and sand and gravel mining (Stebbins 2003).

Other than the flat-tailed horned lizards, no other incidental sensitive species detections occurred.

4.0 DISCUSSION

The overall strategy of the trapping survey was to sample all the different vegetation communities within the Survey Area while focusing on habitats suitable for PSPM. The resultant distribution of trap lines and traps was extensive on the property but not comprehensive of the entire Survey Area. Traps were not set in the bare ground or developed areas, such as the area immediately west of the current DVC landfill, as these areas exhibited heavy disturbance, and lacked vegetation. PSPM are not expected to occupy these areas of unsuitable or very low-quality habitat but could be present in low numbers along the edges and transition zones between suitable and unsuitable habitats. The trapping areas were identified within the Survey Area while design of the Project Site is being refined to minimize potential impacts to sensitive resources.

The results of the trapping survey indicate that PSPM is likely ubiquitous across all the four natural vegetation communities on the Survey Area. PSPM were captured within the creosote bush scrub, creosote bush scrub/honey mesquite scrub, and rigid spineflower/hairy desert spineflower communities. Although PSPM were not captured within the small strip of Tamarisk/honey mesquite/fourwing saltbush scrub habitat located near the center of the north border, there is no reason to believe that they would not occupy this area of suitable habitat, as PSPM were captured immediately south, east, and west this vegetation community and the habitat and soils are suitable.

Incidental observations of flat-tailed horned lizard were recorded within each of the three survey areas. All of the flat-tailed horned lizards were observed within creosote bush scrub habitat, but this species likely occurs within the other three natural vegetation communities on the Survey Area. Flat-tailed horned lizard is not expected to occupy the disturbed bare ground areas of the Survey Area but could be present in low numbers along the edges and transition zones between suitable and unsuitable habitats.

5.0 REFERENCES

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APPENDIX A

Representative Site Photographs

Photo 1: Palm Springs pocket mouse (*Perognathus longimembris bangsi*) Survey Area 2.

Photo 2: Flat-tailed horned lizard (*Phrynosoma mcalli*) observed near Survey Area 3.

Photo 3: Representative photo of trap placement under creosote bush.

Photo 4: Creosote bush habitat in Survey Area 1.

Photo 5: Small desert wash within Survey Area 1.

Photo 6: Creosote bush habitat in Survey Area 2.

Photo 7: Creosote bush scrub/honey mesquite scrub habitat in Survey Area 2.

Photo 8: Large desert wash within Survey Area 2.

Photo 9: Creosote bush scrub habitat in Survey Area 3.

Photo 10: Creosote bush scrub/honey mesquite scrub habitat in Survey Area 3.

APPENDIX B

Plant Species Compendium

SCIENTIFIC NAME	COMMON NAME
Ambrosia dumosa	burrobush
Amsinckia menziesii	small flowered fiddleneck
Atriplex canescens	fourwing saltbush
Brassica tournefortii	Saharan mustard
Chorizanthe rigida	rigid spinflower
Cryptantha angustifolia	narrow leaved cryptantha
Ephedra spp.	Mormon tea
Geraea canescens	hairy desert sunflower
Larrea tridentata	creosote bush
Plantago ovata	desert plantain
Prosopis glandulosa	honey mesquite
Schismus barbatus	common Mediterranean grass
Tamarix ramosissima	saltcedar

APPENDIX C

Wildlife Species Compendium

SCIENTIFIC NAME	COMMON NAME
Chaetodipus penicillatus	desert pocket mouse
Corvus corax	common raven
Crotalus cerastes	sidewinder
Dipodomys deserti	desert kangaroo rat
Dipodomys merriami	Merriam's kangaroo rat
Haemorhous mexicanus	house finch
Mimus polyglottos	northern mockingbird
Neotoma albigula	white-throated woodrat
Perognathus longimembris bangsi	Palm Springs pocket mouse
Phrynosoma mcalli	flat-tailed horned lizard
Streptopelia decaocto	Eurasian collard dove
Uta stansburiana	side-blotched lizard
Xerospermophilus tereticaudus	round-tailed ground squirrel
Zenaida macroura	mourning dove

APPENDIX F – 2019 BURROWING OWL REPORT

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Fugro Project No. 04.72170065
Document No. 04.7217065-L-008 (Rev.0)
September 17, 2019

CalEnergy
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Re: DVC Cell 4 Project: Transmittal of Burrowing Owl Survey Report with Bird List

Dear Ms. Wu,

Fugro is pleased to deliver the revised Burrowing Owl Report covering portions of Section 27 and Section 33, prepared in support of the DVC Cell 4 siting studies. The report, initially delivered on September 10, 2019, is revised to include a bird list as Appendix A. The bird list represents bird species identified at the DVC site during the 2019 burrowing owl surveys.

All surveys were conducted by a qualified biologist working for subcontractor Hernandez Environmental Services, Inc. This report constitutes a revised final deliverable for Task 13: Burrowing Owl and Botanical Surveys, under CalEnergy Purchase Agreement #245885.

Please do not hesitate to contact me if you have questions. We look forward to continuing to support CalEnergy on the DVC Cell 4 project.

Sincerely,
Fugro USA, Inc.

Janet M. Sowers, Ph.D, P.G
Principal Geologist

Attachment: Burrowing Owl Survey Report, revised September 2017

BURROWING OWL SURVEY REPORT FOR THE PROPOSED NEW NON-MUNICIPAL SOLID WASTE LANDFILL (CELL 4)

IMPERIAL COUNTY, CALIFORNIA

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 92596

Prepared for:

CalEnergy
7030 Gentry Road
Calipatria, California 92223

Prepared by:

Juan J. Hernandez
Hernandez Environmental Services
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

September 17, 2019

Memorandum

Date: September 17, 2019

To: Brian F. Smith and Associates

From: Juan J. Hernandez, Principal Biologist

Subject: Burrowing Owl Survey Report for the Proposed New Non-Municipal Solid Waste Landfill (Cell 4) in Imperial County, California.

This memorandum provides the methods and results of focused burrowing owl (*Athene cunicularia*) (BUOW) surveys conducted for the proposed new non-municipal solid waste landfill (Cell 4) in Imperial County, California.

Project Location

The proposed project sites are located southwest of Highway 86 and the Salton Sea, and northwest of the cities of Westmoreland and Brawley, within Imperial County, California. The sites consist of Section 27 and Section 33, Range 11 East, Township 12 South within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Kane Spring* Quadrangle. Refer to Figures 1 and 2.

The study area included the 668-acre potential project sites and a 150-meter (500-foot) buffer around the sites (Figure 3), where accessible.

Project Contact Information

Owner/Applicant: Cal Energy
7030 Gentry Road
Calipatria, CA 92223

Principal Investigator: Juan J. Hernandez
Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530
(909) 772-9009

Field Survey Methods

The California Department of Fish and Wildlife *Staff Report on Burrowing Owl Mitigation* (March 7, 2012) recommends a habitat assessment by a qualified biologist be conducted and if suitable habitat is present, burrowing owl surveys should be performed.

BUOW surveys should be conducted during the breeding season of February 1 through August 31 in California. Three or more visits during daylight hours are recommended and should be performed three weeks apart. Non-breeding season (September 1 through January 31) surveys may be performed, but results may be inconclusive.

HES conducted pedestrian transect surveys of the project sites. The habitat assessment and first survey were performed on April 10, 2019. Parallel transects spaced at no more than 30 meter intervals were walked across the project sites. Handheld global positioning system (GPS) units were utilized to ensure that the transects were parallel and to maintain the desired spacing and transect orientation. All burrows of sufficient size to harbor BUOWs were investigated for signs of use by the species, including presence of pellets, feathers, whitewash, or nearby individuals. Where burrows exhibited signs of use, the burrow locations were recorded using GPS technology. Areas that contained suitable BUOW habitat were identified and these areas were the subject of the additional visits.

Site visits were conducted on four separate days during either the dawn survey period consisting of 1 hour before sunrise to 2 hours after sunrise, or the dusk survey period consisting of 2 hours before sunset to 1 hour after sunset. The survey dates, times, and weather conditions are presented in Table 1 below.

Table 1. Survey Information

Survey	Date	Survey Start Time	Sunrise/Sunset	Weather
1	April 10, 2019	0500 hours	0618 hours	55 degrees Fahrenheit, clear, winds 3-5 miles per hour from the northeast
2	June 21, 2019	0500 hours	0533 hours	77 degrees Fahrenheit, clear, winds 0-3 miles per hour from the northeast
3	July 12, 2019	0500 hours	0542 hours	79 degrees Fahrenheit, clear, winds 0-3 miles per hour from the north

Survey	Date	Survey Start Time	Sunrise/Sunset	Weather
4	August 7, 2019	0500 hours	0559 hours	84 degrees Fahrenheit, clear, winds 3-5 miles per hour from the east

All encountered burrows or structure entrances were checked for the presence of BUOWs, molted feathers, cast pellets, prey remains, eggshell fragments, tracks, or excrement. Natural or man-made structures and debris piles that could support BUOWs were also surveyed. The locations of all suitable BUOW habitat, potential burrows, BUOW sign, and any BUOWs observed were recorded and mapped with a handheld GPS unit.

Air temperature, wind speed, and wind direction were recorded at the start and end of each survey. Following completion of each transect survey, the locations of any burrows detected were plotted on a map for use during the remaining protocol surveys. All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Binoculars were used to aid in the identification of observed wildlife. Photographs were taken to document existing conditions within the survey area.

Results

The study area located southwest of the Salton Sea, Imperial County, California. The study area is relatively flat, with a slight north-facing slope ranging from -200 to -140 feet above average mean sea level (AMSL). Although the soils within the study area have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils within the study area. Braided channel streams dominated by desert riparian scrub cross the study area. The study area is situated south of Highway 86 with no developed lands to the east, west, and south immediately adjacent to the property. Expansive agricultural fields exist to the north across Highway 86.

Section 33

A total of 14 burrows that could potentially be suitable for BUOWs were found within the surveyed portion of Section 33 and 150-meter buffer area. Most of these areas were associated with ephemeral drainages. None of these burrows contained BUOWs or any sign of BUOWs. Refer to Figure 4 for burrow locations.

Section 27

A total of 10 burrows that could potentially be suitable for BUOWs were found within the surveyed portion of Section 27 and 150-meter buffer area. Most of these areas were associated with ephemeral drainages. None of these burrows contained BUOWs or any sign of BUOWs. Refer to Figure 4 for burrow locations.

Recommendations

Although the study area provides suitable burrows/nesting opportunities for BUOWs, no BUOWs or evidence (i.e., including scat, pellets, feathers, tracks, and prey remains) were observed within the study area. It is recommended that a preconstruction survey be conducted within 30 days prior to the start of any ground disturbing activities to avoid potential impacts to BUOWs or other nesting birds, and to ensure that no BUOWs have moved onto the project site.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: September 17, 2019

Juan J. Hernandez
Principal Biologist

Enclosures:

Figure 1: Project Location Map
Figure 2: Project Vicinity Map
Figure 3: Study Area
Figure 4: Potential BUOW Burrow Locations Map
Appendix A: Bird Species List
Appendix B: Site Photographs

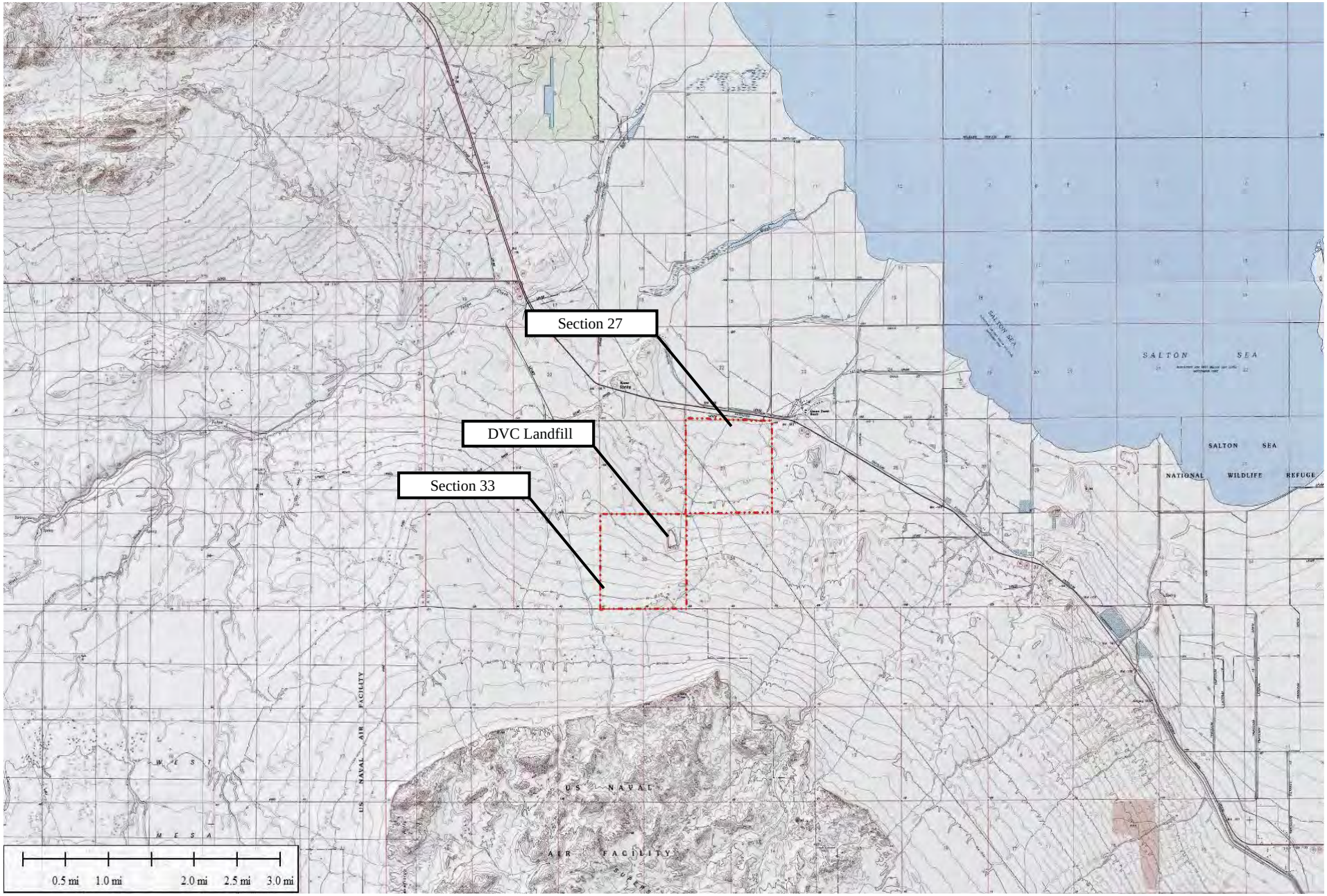

Figure 1

Location Map
DVC Landfill Cell 4
Imperial County, California

Legend

Section Boundary

N

Hernandez Environmental Services

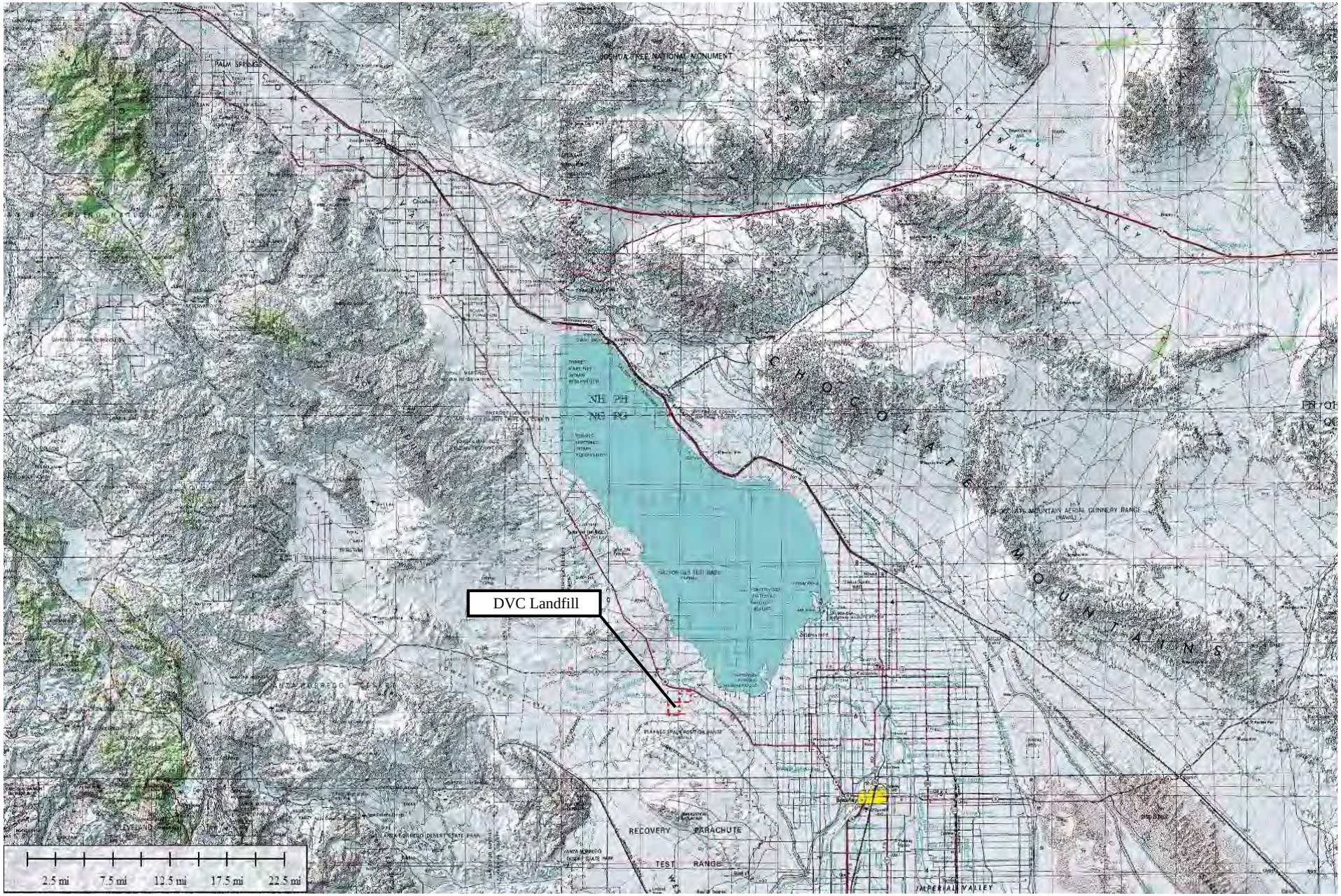

Figure 2

Vicinity Map
DVC Landfill Cell 4
Imperial County, California

Legend

Section Boundary

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Hernandez Environmental Services

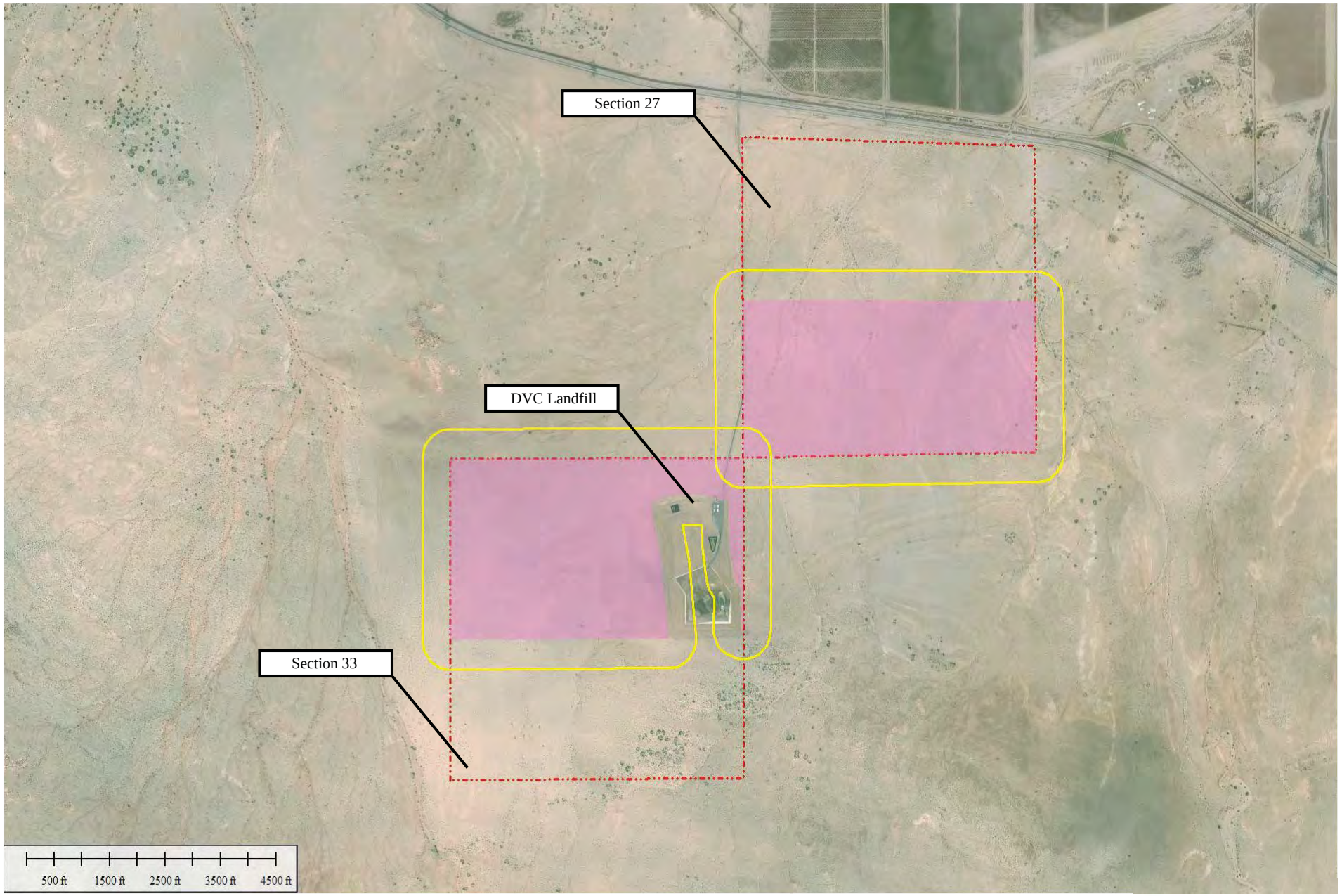

Figure 3

Survey Area Map
DVC Landfill Cell 4
Imperial County, California

Legend

Section Boundary
Survey Areas
150-meter Buffer Areas

N

Hernandez Environmental Services

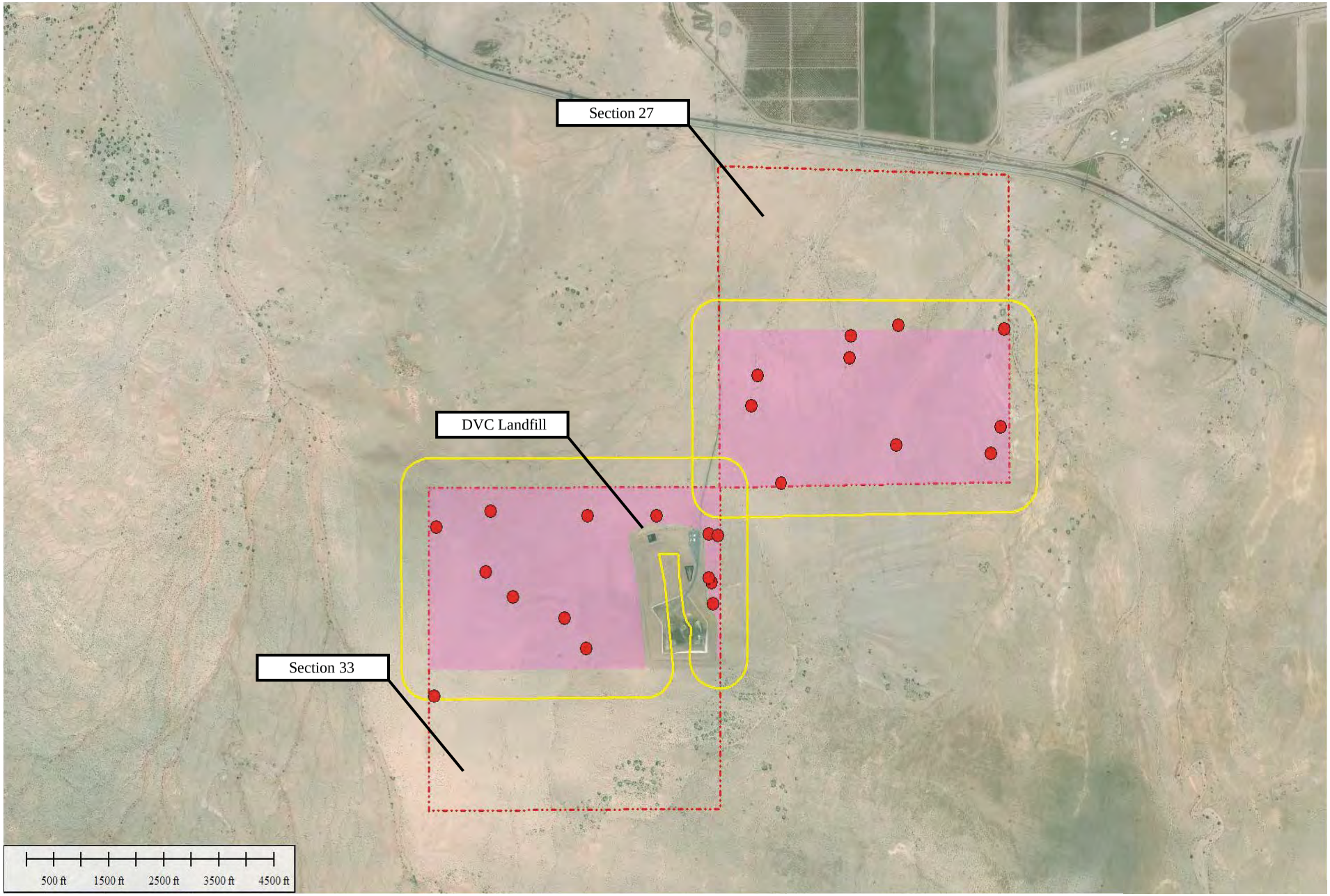

Figure 4

Potential BUOW Burrow Map
DVC Landfill Cell 4
Imperial County, California

Legend

- Section Boundary
- Survey Areas
- 150-meter Buffer Areas
- Non BUOW Burrow Locations

N

Hernandez Environmental Services

New Non-Municipal Solid Waste Landfill (Cell 4) in Imperial County, California.

Appendix A Bird Species List

Ash-throated flycatcher	*Myiarchus cinerascens*
Anna's hummingbird	*Calypte anna*
Black-tailed gnatcatcher	*Polioptila melanura*
Common raven	*Corvus corax*
Eurasian collared dove	*Streptopelia decaocto*
House finch	*Haemorhous mexicanus*
House sparrow	*Passer domesticus*
Mourning dove	*Zenaida macroura*
Northern mockingbird	*Mimus polyglottos*
Red-tailed hawk	*Buteo jamaicensis*
Roadrunner	*Geococcyx californianus*
Say's phoebe	*Sayornis saya*
Starling	*Sturnus vulgaris*
Turkey vulture	*Cathartes aura*
Verdin	*Auriparus flaviceps*

Burrowing Owl Survey

Desert Valley Company
Imperial County, California

Hernandez Environmental Services

Ephemeral streams found on Section 33. These areas had burrows that could potentially be used for BUOWs. No BUOW or BUOW sign were found.

Ephemeral stream in Section 33.

Burrowing Owl Survey

Desert Valley Company
Imperial County, California

Hernandez Environmental Services

Ephemeral stream in Section 27. Typical habitat where potential BUOW burrows were located. No BUOWs or BUOW sign were found.

Ephemeral stream in Section 27.

G-2 Jurisdictional Delineation Survey

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APPENDIX G – JURISDICTIONAL DELINEATION REPORT

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Fugro Project No. 04.72170065
Document No. 04.7217065-L-005 (Rev.0)
August 16, 2018

CalEnergy
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Re: DVC Cell 4 Project: Transmittal of Jurisdictional Delineation Survey

Dear Ms. Wu,
Fugro is pleased to deliver the attached jurisdictional drainage delineation survey of Sections 27 and 33, prepared in support of the DVC Cell 4 siting studies. This report constitutes the final deliverable for Task 6a: Jurisdictional Delineation, under CalEnergy Purchase Agreement #245885.

The survey delineates the extent of drainages considered to be state or federal jurisdictional waters. The California Department of Fish and Wildlife, the U. S. Army Corps of Engineers, and the State Water Quality Control Board regulate the impacts to jurisdictional waters from project implementation. The included report provides background information on the criteria for delineation, and discusses the regulatory environment for mitigation of impacts.

The survey was conducted by Fugro subcontractor Hernandez Environmental Services, Inc.

Please do not hesitate to contact me if you have questions. We look forward to continuing to support CalEnergy on the DVC Cell 4 project.

Sincerely,
Fugro USA, Inc.

Janet M. Sowers, Ph.D, P.G
Principal Geologist

Attachments: Report in pdf format “Jurisdictional Delineation for the new Non-Municipal Solid Waste Landfill (Cell 4) at Desert Valley Company,” August 2018, and associated GIS files

JURISDICTIONAL DELINEATION FOR THE NEW NON-MUNICIPAL SOLID WASTE LANDFILL (CELL 4) AT DESERT VALLEY COMPANY

IMPERIAL COUNTY, CALIFORNIA

APNs 019-100-004 and 019-110-012

Prepared at the Direction of:

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1777 Botelho Drive, Suite 262
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Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Juan J. Hernandez
Hernandez Environmental Services
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

August 2018

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FIGURES

Figure 1 – Location Map
Figure 2 – Vicinity Map
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Figure 5 – Waters of the U.S. Section 27 Map
Figure 6 – CDFW Jurisdictional Stream Section 33 Map
Figure 7 – Waters of the U.S. Section 33 Map

APPENDICES

Appendix A – Site Photos
Appendix B – Soils Map

1.0 INTRODUCTION

1.1 PURPOSE OF JURISDICTIONAL DELINEATION

At your request, Hernandez Environmental Services has prepared a Jurisdictional Delineation (JD) for the proposed new non-municipal solid waste landfill (Cell 4) at Desert Valley Company (DVC). The purpose of this JD is to determine if any state or federal jurisdictional waters are present within the potential project site boundaries.

1.2 LOCATION

The potential project sites are located southwest of Highway 86 and the Salton Sea, and northwest of the cities of Westmoreland and Brawley, within Imperial County, California. The sites consist of Section 27 and Section 33, Range 11 East, Township 12 South within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Kane Spring* Quadrangle. Refer to Figures 1 and 2.

2.0 REGULATORY BACKGROUND

2.1 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The California Department of Fish and Wildlife (CDFW) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the California Fish and Game Code (F&GC), requires that the CDFW be consulted if a proposed development project has the potential to detrimentally effect a stream and thereby wildlife resources that depend on a stream for continued viability (F&GC Division 2, Chapter 5, section 1600-1616). A Section 1602 Lake or Streambed Alteration Agreement is required, should the CDFW determine that the proposed project may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream or lake.

For the purposes of clarification, a stream is defined by CDFW as “a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators.” The historic hydrologic regime is defined as circa 1800 to the present (CDFW 2010).

2.2 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the federal Clean Water Act (CWA) as well as the Porter Cologne Water Quality

Control Act (PCWQCA) section 13260. Section 401 of the CWA specifies that certification from the State is required for any project requesting a federal license or permit to conduct any activities including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharges will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of the CWA. The PCWQCA requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge." Discharge of fill material into "waters" of the State which does not fall under the jurisdiction of the United States Army Corps of Engineers (USACE) pursuant to Section 401 of the CWA, may require authorization through application of waste discharge requirements or through waiver of Waste Discharge Requirements.

2.3 UNITED STATES ARMY CORPS OF ENGINEERS

The USACE regulates "discharge of dredged or fill material" into wetlands and waters of the United States (WUS), which includes tidal waters, interstate waters, and "all other waters, interstate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce or which are tributaries to waters subject to the ebb and flow of the tide" (33 C.F.R. 328.3(a)), pursuant to provisions of Section 404 of the CWA.

The USACE requires that the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratories, 1987) be used for delineating wetlands and WUS. To qualify for wetlands status; vegetation, soils, and hydrologic parameters must all be met. WUS are delineated based upon the "ordinary high water mark" (OHWM) as determined by erosion, the deposition of vegetation or debris, and changes in vegetation within rivers and streams.

For the purposes of this section, the term "fill" is defined as: material placed in WUS where the material has the effect of:

- Replacing any portion of a WUS with dry land; or
- Changing the bottom elevation of any portion of a water of the United States.

Examples of such fill material include, but are not limited to: rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in the WUS. The term fill material does not include trash or garbage.

The definition of "discharge of dredged material" is defined as: any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the WUS. The term includes, but is not limited to, the following:

- The addition of dredged material to a specified discharge site located in WUS;
- The runoff or overflow, associated with a dredging operation, from a contained land or water disposal area; and
- Any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into WUS which is incidental to any activity, including mechanized land clearing, ditching, channelization, or other excavation.

The term discharge of dredged material does not include the following:

- Discharges of pollutants into WUS resulting from the onshore subsequent processing of dredged material that is extracted for any commercial use (other than fill). These discharges are subject to section 402 of the CWA even though the extraction and deposit of such material may require a permit from the USACE or applicable State.
- Activities that involve only the cutting or removing of vegetation above the ground (e.g., mowing, rotary cutting, and chain-sawing) where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities that redeposit excavated soil material.
- Incidental fallback.

3.0 METHODOLOGY

3.1 LITERATURE REVIEW

Prior to the site visit, the project location was reviewed and studied for information that would aid in determining the potential for wetlands; permanent, intermittent or ephemeral drainages; and the resources and project impacts associated with the wetland, riparian, or streambed resources on-site. Project plans, topographic maps, satellite imaging, soil maps, and a Geographic Information System (Global Mapper) were examined to establish an accurate project location, project description, potential drainages, wetlands, vegetation, watershed, soils, and surrounding land uses. Current and historic aerial images of the project area were reviewed for signs of stream activity. Changes in landscape, color, vegetation density, and drainage pattern were noted. Anthropogenic disturbances within the project area were also identified. Potential watercourses and related landform boundaries, such as changes in landscape color, vegetation densities, and drainage patterns, were outlined on aerial photography. Transects were then selected for field verification of stream presence indicators.

3.2 FIELD INVESTIGATION

The project area was walked and assessed for riparian vegetation, wetlands, and jurisdictional drainages on May 29 and May 30, 2018. During the field survey, four to six transects were walked across Sections 33 and 27 perpendicular to the flow of the existing streams, noting the presence or absence of fluvial activity, boundaries of geomorphic units, changes in plant species composition between different geomorphic units, photographing points of transition, and mapping the watercourse and watercourse boundaries (Figure 3). The guidelines followed are those established in the *2014 Mapping Episodic Stream Activity (MESA) Field Guide*. Areas measured were recorded using a handheld Global Positioning System (GPS) for accurate location reference, and site photographs were also taken. Refer to Appendix A.

Furthermore, the presence of an OHWM was recorded. Where the presence of an OHWM was evident, a second measurement was recorded for the width of the OHWM. According to the *MESA Field Guide*, the OHWM is "on non-tidal rivers, the line on the shore established by the fluctuations of water and indicated by the physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area."

Where changes in plant community composition were apparent, the area was examined for the possibility of wetlands. Whether or not adjacent to WUS, the potential wetland area is evaluated for the presence of the three wetland indicators: hydrology, hydric soils, and hydrophytic vegetation. The guidelines followed are those established in the 1987 *Army Corps of Engineers Manual.*

4.0 RESULTS

4.1 HYDROLOGY

The ephemeral streams located within in Sections 27 and 33 flow from south to northeast. The ephemeral streams are characterized as a braided channel system. A braided channel system contains multiple channels that divide and rejoin to form a pattern of gently curved channel segments, separated by exposed ephemeral islands or channel bars (*MESA Field Guide*). The majority of the streams are tributaries to the Salton Sea which is part of the Colorado River Basin Plan which is administered by the Colorado River RWQCB. The 0.59 acre of streams located within the northwest corner of section 33 flow northwest and are tributary to San Felipe Creek, which is tributary to the Salton Sea.

4.2 SOILS

Soils within Sections 27 and 33 are of three origins: erosional soils on lacustrine deposits; alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces; and, eolian soils on windblown sand and silt. Although the USDA Web Soil Survey indicates that soils within sections 27 and 33 have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils. The Glenbar series consists of very deep, well drained soils that formed in stratified stream alluvium. They occur on flood plains and alluvial fans and have slopes of 0 to 3 percent. The Niland series is a member of the sandy over clayey, mixed (calcareous), hyperthermic family of Typic Torrifluvents. Typically, Niland soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches (NRCS 2018). Refer to Appendix B.

4.3 VEGETATION

The ephemeral streams located within Sections 27 and 33 are characterized as braided channel streams dominated by desert riparian scrub. Desert riparian scrub vegetation consists of groves of low-growing trees or tall shrubs to woodlands of small to medium-sized trees. Such vegetation is normally found adjacent to permanent or ephemeral surface water and create a sharp transition with adjacent open low scrub desert habitats. Desert riparian scrub in sections 27 and 33 includes several tall shrubs and phreatophytic trees such as western honey mesquite (*P. glandulosa* var. *torreyana*) and the introduced saltcedar (*Tamarix ramosissima*) and Chinese tamarisk (*Tamarix chinensis*).

4.4 STATE AND FEDERAL JURISDICTIONAL DRAINAGES

Section 27 contains approximately 44.8 acres (78,373 linear feet) of ephemeral streams characterized as a braided channel system. All 44.8 acres of ephemeral braided stream located within this section would be considered CDFW jurisdictional drainage features, which are regulated by Section 1602 of the California Department of Fish and Game Code. Furthermore, approximately 40.7 acres of the ephemeral drainages would be considered jurisdictional WUS, which are regulated by the USACE and the RWQCB under Sections 404 and 401 of the CWA. Refer to Figures 4 and 5.

Section 33 contains approximately 35.2 acres (71,222 linear feet) of ephemeral streams characterized as a braided channel system. All 35.2 acres of ephemeral braided stream located within this section would be considered CDFW jurisdictional drainage features, regulated by Section 1602 of the California Department of Fish and Game Code. Furthermore, approximately 29.4 acres of the ephemeral drainages would be considered jurisdictional WUS, which are regulated by the USACE and the RWQCB under Sections 404 and 401 of the CWA. Refer to Figures 6 and 7.

4.5 REGIONAL WATER QUALITY CONTROL BOARD

Sections 27 and 33 contain waterbodies within the Colorado River Basin Region under the Colorado River Basin Water Quality Control Plan. A beneficial use is one of the various ways that water can be used for the benefit of people and/or wildlife. The designated beneficial uses according to the Water Quality Control Plan for the ephemeral streams within the western Colorado River Basin Region include:

- Freshwater Replenishment (FRSH) waters which are intermittently used for natural or artificial maintenance of surface water quantity or quality, applying only to tributaries to the Salton Sea;
- Ground Water Recharge (GWR) waters which are intermittently used for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting salt water intrusion into fresh water aquifers;
- Non-Contact Water Recreation (REC II) waters which are intermittently used for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities;
- Warm Freshwater Habitat (WARM) waters which could be used to support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates where use, if any, is to be determined on a case-by case basis; and,
- Wildlife Habitat (WILD) waters which are intermittently used to support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

5.0 SUMMARY OF FINDINGS

The ephemeral streams located within in Sections 27 and 33 flow from south to northeast, and are tributary to the Salton Sea. The ephemeral streams are characterized as a braided channel system. Section 27 contains approximately 44.8 acres of CDFW jurisdictional drainages and approximately 40.7 acres WUS. Section 33 contains approximately 35.2 acres of CDFW jurisdictional drainages and approximately 29.4 acres of WUS.

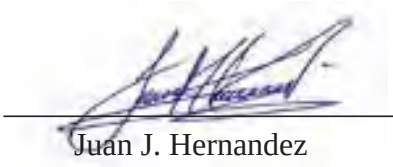
6.0 RECOMMENDATIONS

USACE, CDFW, and RWQCB jurisdictional waters are regulated by federal, state, and local governments under a no-net-loss policy, and all impacts are considered significant and should be avoided to the greatest extent possible. Should impacts to jurisdictional waters and wetlands result from project implementation, the project would require mitigation through habitat creation, enhancement, or preservation as determined by consultation with the regulatory agencies during the permitting process. Any impacts to CDFW jurisdictional waters would require a 1600 Streambed Alteration Agreement from the CDFW. Any impacts to WUS would require a Section 404 permit authorization from the USACE and a 401 State Water Quality Certification from the RWQCB. Should impacts to jurisdictional waters and wetlands result from project implementation, mitigation for impacts to jurisdictional resources will be addressed in a mitigation plan to be submitted for approval with the permit application packages.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: August 8, 2018

Signed: 

Juan J. Hernandez

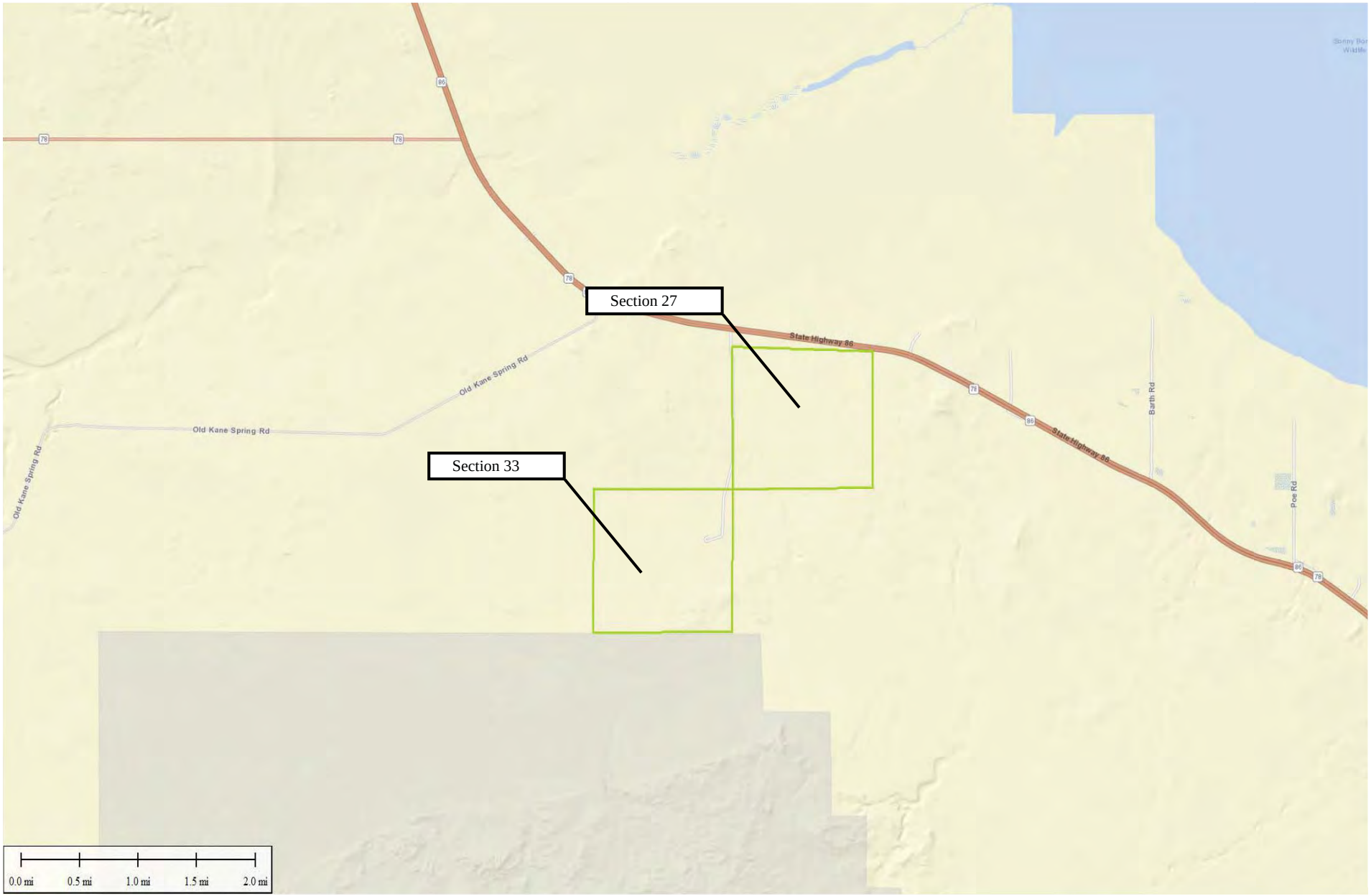


Figure 1 - Location Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services

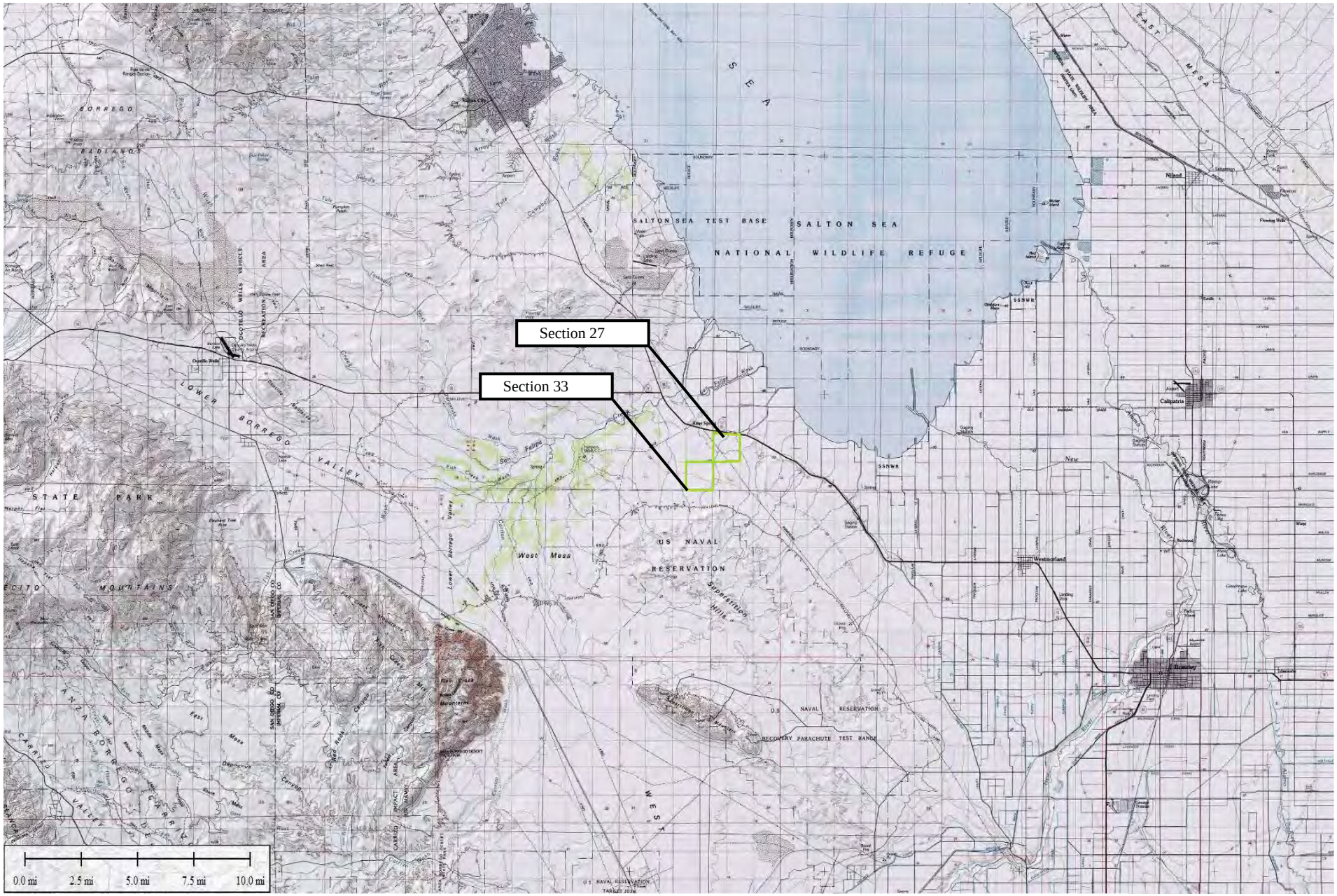


Figure 2 - Vicinity Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services

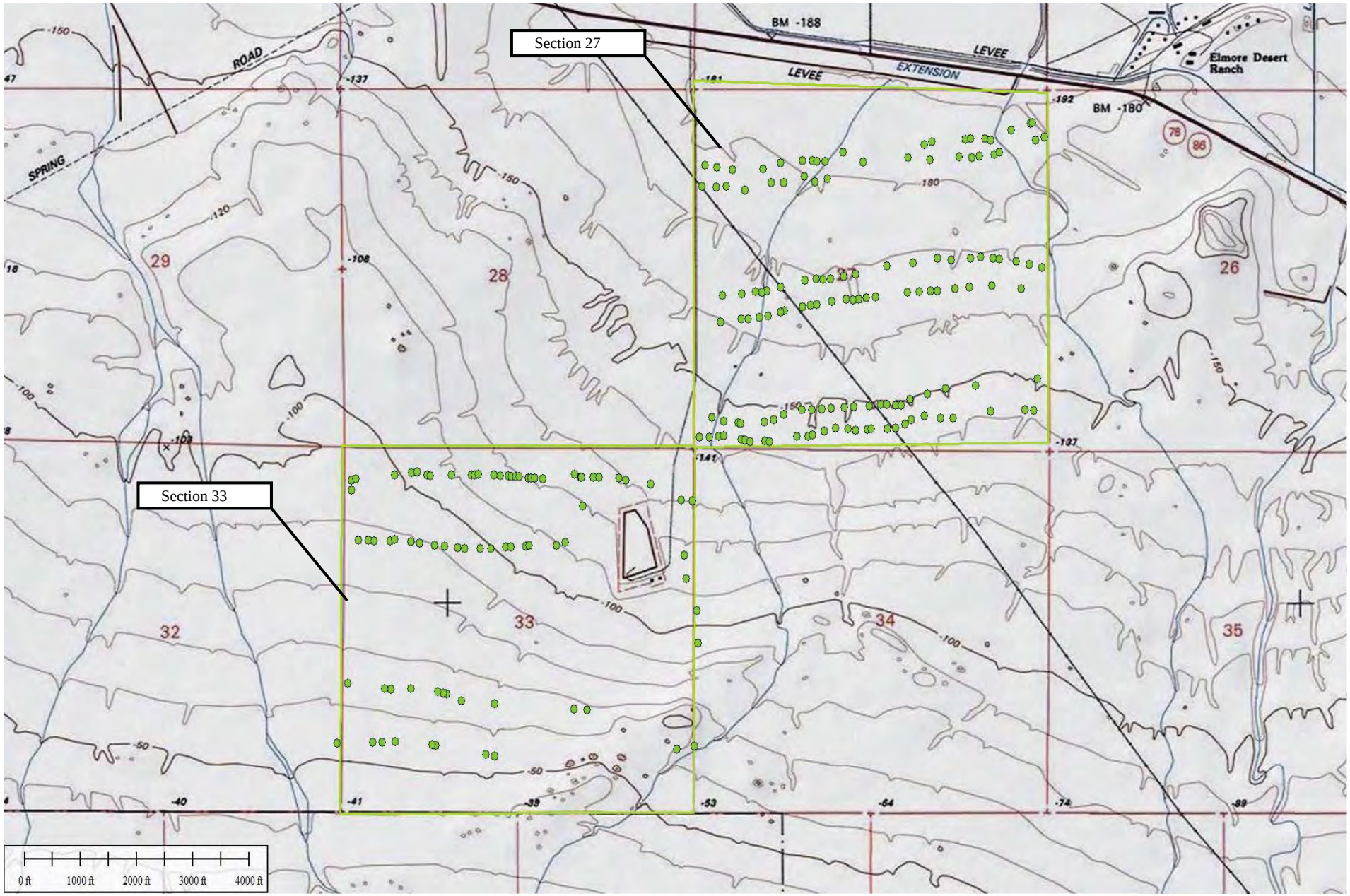


Figure 3 - Sample Points Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Sample Points

Hernandez Environmental Services

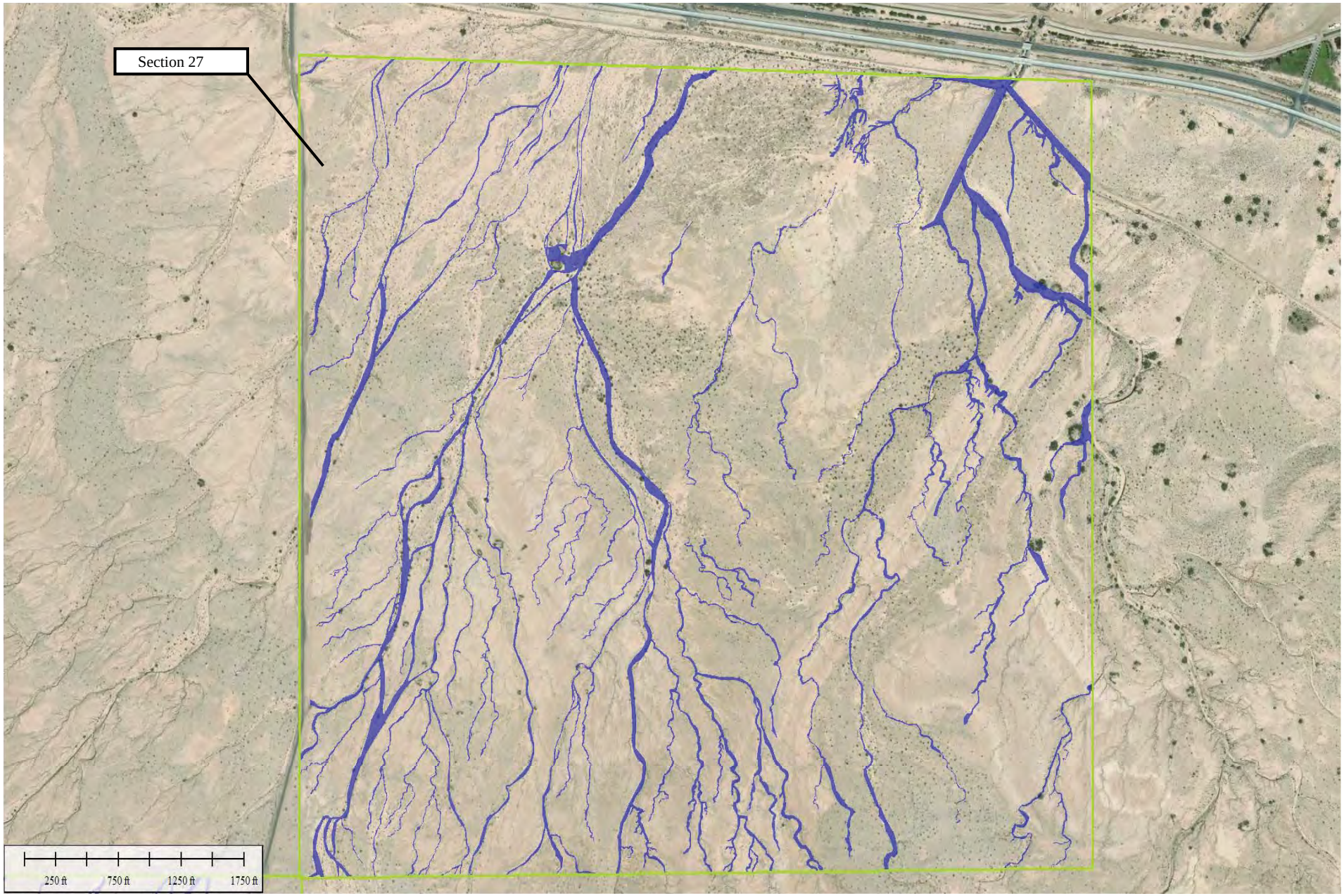


Figure 4 - CDFW Jurisdictional Stream Section 27 Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 27

44.8 Acres of CDFW Jurisdictional Stream

Hernandez Environmental Services

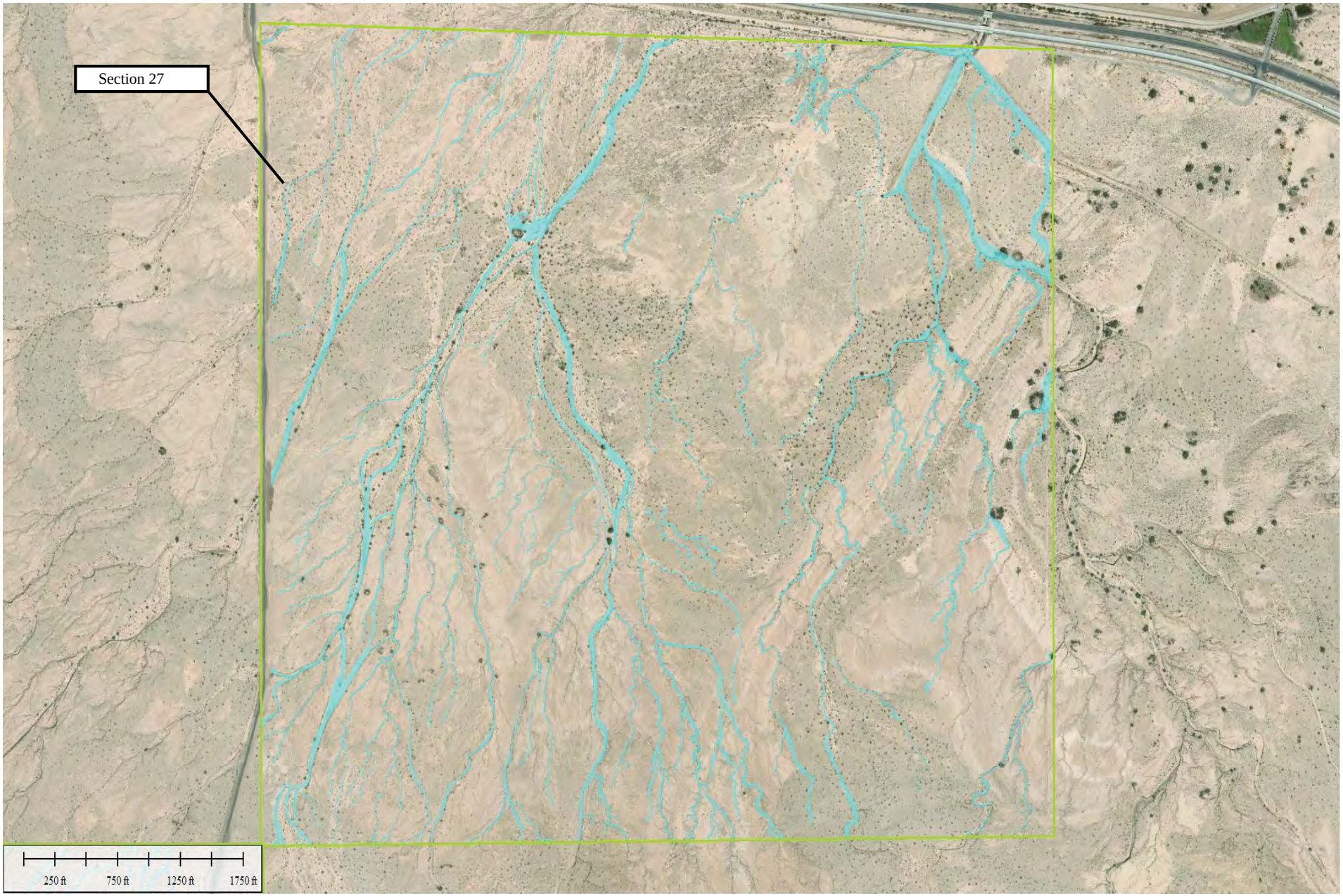


Figure 5 - WUS Section 27 Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 27

40.7 Acres of WoUS

Hernandez Environmental Services

Figure 6 -CDFW Jurisidictional Stream Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 33

35.2 Acres of CDFW Jurisidictional Stream

Hernandez Environmental Services

Figure 7 -WUS Section 33 Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 33

29.4 Acres of WoUS

Hernandez Environmental Services

Jurisidictional Delineation

Desert Valley Company
Imperial County, California

Hernandez Environmental Services

Ephemeral streams found on Sections 27 and 33. Not much difference between state and federal jurisidiction.

Ephemeral Stream in Section 27.

Jurisidictional Delineation

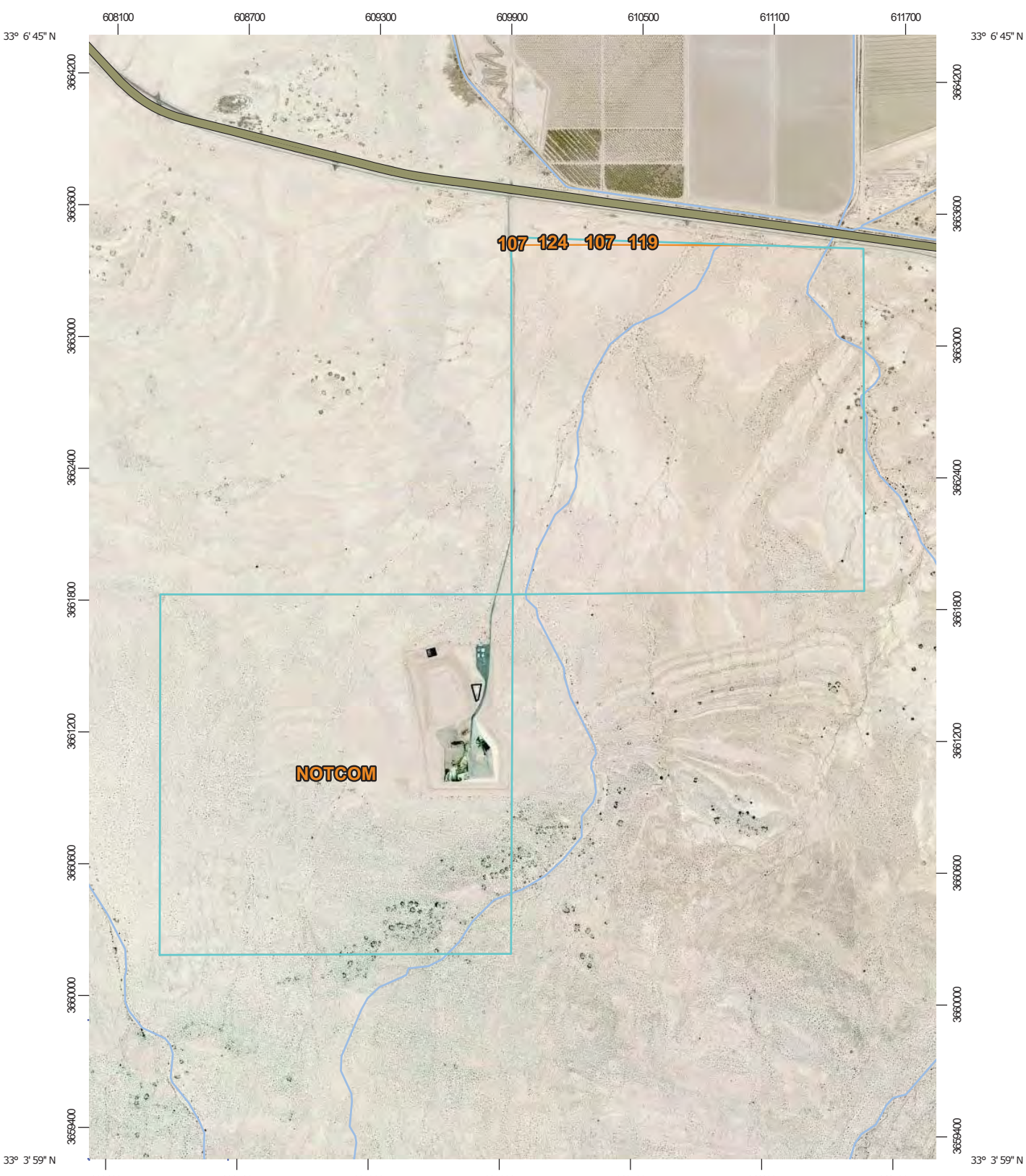
Desert Valley Company
Imperial County, California

Hernandez Environmental Services

Ephemeral Stream in Section 33.

Ephemeral Stream in Section 33.

Soil Map—Anza-Borrego Area, California; and Imperial County, California, Imperial Valley Area
(Section 33 27)



Map Scale: 1:25,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 350 700 1400 2100

Feet
0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Anza-Borrego Area, California
Survey Area Data: Version 1, Dec 13, 2013

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 9, Sep 11, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 23, 2011—Jun 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	1,286.6	99.6%
Subtotals for Soil Survey Area		**1,286.6**	**99.6%**
Totals for Area of Interest		**1,291.5**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
107	Glenbar complex	0.4	0.0%
119	Indio-Vint complex	1.8	0.1%
124	Niland gravelly sand	2.6	0.2%
Subtotals for Soil Survey Area		**4.8**	**0.4%**
Totals for Area of Interest		**1,291.5**	**100.0%**

G-3 Rare Plant Survey, Section 33

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2019 BOTANICAL SURVEY FOR THE DESERT VALLEY COMPANY EXPANSION PROJECT

IMPERIAL COUNTY, CALIFORNIA

Prepared at the Direction of:

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July 2019

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1 INTRODUCTION

Hernandez Environmental Services (HES) was retained to conduct biological surveys and studies that support a at Desert Valley Company (DVC) facilities expansion project near the Salton Sea, Imperial County, California. The expansion is the construction of a new non-municipal solid waste landfill (Cell 4). The project site is within the approximately 320-acre survey area located in the northern portions of Section 27 of the Township 12 South, Range 11 East of the Kane Spring USGS 7.5-minute Quadrangle.

A review of available information from the California Native Plant Society (CNPS), the California Consortium of Herbaria (CCH), and the California Natural Diversity Database (CNDDB) indicates that the sensitive and protected plants in Table 1 can occur on or near the survey area and may be of concern to the project:

Table 1. List of Sensitive Plants Potentially Occurring on the Project Site or its Vicinity

Abronia villosa var. *aurita*	Yellow hairy sand verbena
Astragalus crotalariae	Salton milk vetch
Astragalus insularis var. *harwoodii*	Harwood's milk vetch
Astragalus sabulonum	Gravel milk vetch
Berberis nevinii	Nevin's barberry
Castela emoryi	Crucifixion thorn
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion
Crossosoma californicum	Catalina crossosoma
Cryptantha costata	Ashen forget me not
Cylindropuntia wolfii	Wolf's opuntia
Euphorbia abramsiana	Abrams' spurge
Euphorbia platysperma	Flat-seeded spurge
Grusonia parishii	Matted cholla
Johnstonella costata	Ribbed cryptantha
Lycium torreyi	Torrey's box thorn
Opuntia wigginsii	Wiggins's cholla
Pholisma sonorae	Sand food
Pilostyles thurberi	Thurber's pilostyles
Psorothamnus arborescens var. arborescens	Mojave indigo bush
Xylorhiza orcuttii	Orcutt's woody aster

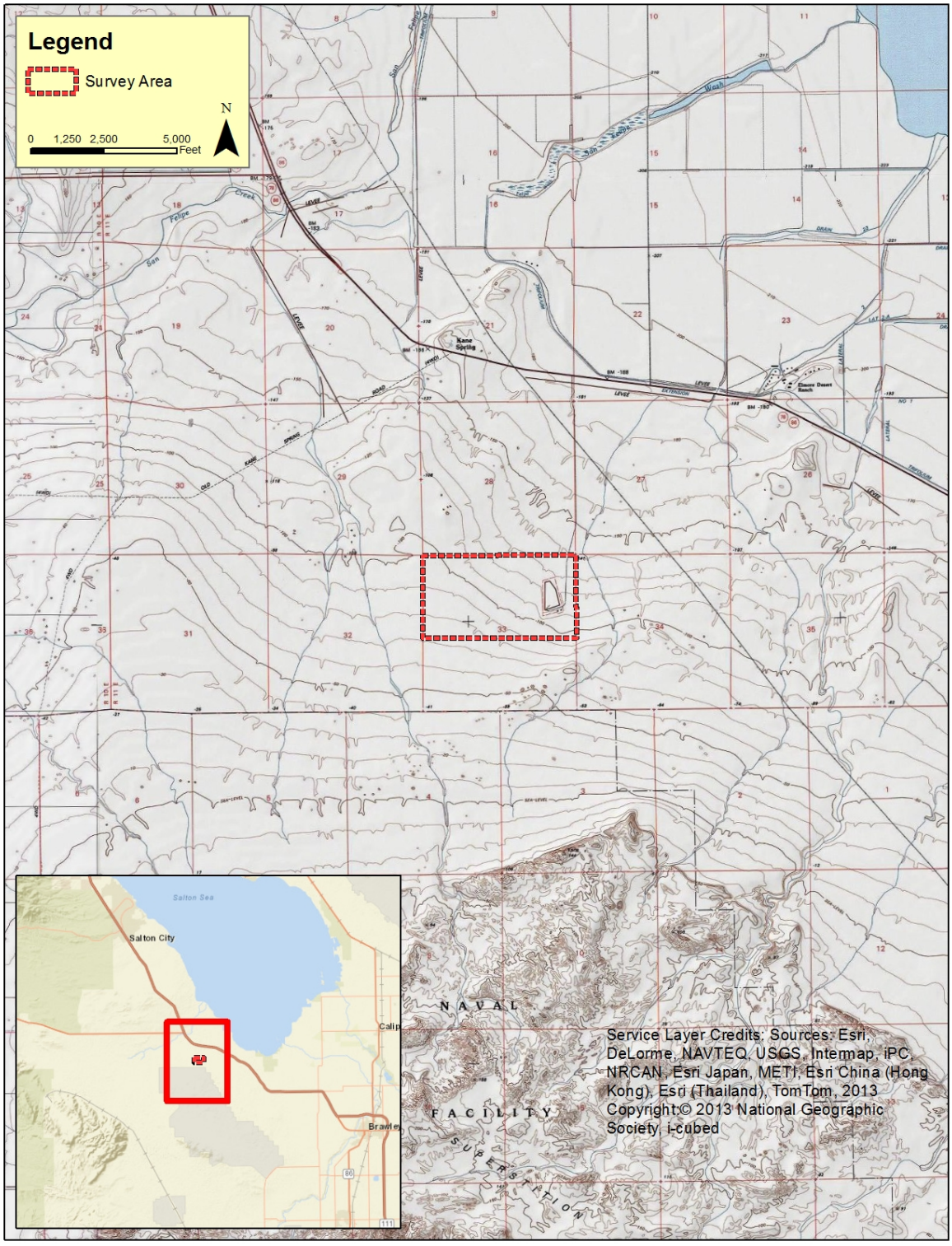
The following report summarizes the results of the 2019 botanical survey on the 320-acre project site, or survey area.

1.1 Property Description

1.1.1 Geographic Setting

The project site (survey area) is located southwest of the Salton Sea, Imperial County, California (Figure 1). It is relatively flat and level, with a slight northeast-facing slope ranging from 100 to 140 feet below average mean sea level (AMSL). Drainage from the survey area is, therefore, to the northeast and is evidenced by several incised drainage features that cross the project site and that are oriented in a roughly southwest to northeast direction.

Figure 1. Location and Vicinity Map



1.1.2 Adjacent Lands

The survey area encompasses a private Class II monofill facility on its eastern half (Figure 2, lower right-hand corner). The facility (Solid Waste Facility Number 13-AA-0022) is owned and operated by CalEnergy and only accepts non-hazardous geothermal wastes from CalEnergy facilities in Imperial County. Cells 1 and 2 are closed and Cell 3 is projected to reach its capacity in the year 2025. Cell 4, with a capacity of at least 1,300,000 cubic yards (same as Cell 3), would need to be operational before Cell 3 can be closed. Although there is no developed land to the east, west, and south immediately adjacent to the property, there are expansive agricultural fields to the north, opposite of Highway 86. There is no other visible land use in or adjacent to the survey area.

1.1.3 Geology, Hydrology, Soils, and Climate

Plant species composition at individual sites is often the product of substrates, slope, and orientation. The topography of the project site is level and relatively flat land over which water flows. The survey area is south of the Salton Sea and within the Salton Trough geological area. This is a tectonically complex area that is the northernmost and landward extension of the Gulf of Mexico. It marks the boundary between the Pacific and North America tectonic plates. Volcanic rocks and substrates are common, and they define the present-day rift zone (Norton and Hulen 2006). Tertiary sedimentary substrate deposition occurred in the region prior to rift basin development and geologically recent alluvial sediments originate from the uplands adjacent to the rift basin.

The Salton Trough is an example of a graben, a strip of land bounded on opposite sides by roughly parallel faults (Alles 2011). Through movement of the faults, the strip of land subsides; in the Salton Trough, the graben is filled with sediments. Although grabens are not restricted to them, they are characteristic of rift valleys, as is the Salton Trough located at the northern terminus of the Gulf of California (Alles 2011).

The Colorado River has drained the interior of the North American plate since before the formation of the current rift zone and the historically recent and modern sediment deposition has increased during Colorado River flood events. The occurrence of the Colorado River delta

Figure 2. Survey area Map

sediments keep the Gulf of California from inundating the Salton Trough, which is below sea level. Light-colored calcium carbonate deposits along Imperial Valley-adjacent cliffs suggest that the shoreline was once 40 feet above sea level (Mendenhall 1909).

Soils on the site are of three origins:

1. Erosional soils on lacustrine deposits
2. Alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces
3. Eolian soils on windblown sand and silt.

Although the soils on the site have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils on the project site. The Glenbar series consists of very deep, well drained soils that formed in stratified stream alluvium. They occur on flood plains and alluvial fans and have slopes of 0 to 3 percent. The Niland series is a member of the sandy over clayey, mixed (calcareous), hyperthermic family of Typic Torrifluvents. Typically, Niland soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches (Natural Resources Conservation Service 2018).

Evidence of waterflow is visible on the project site. All waterflow over the property originates as rainfall and follows several drainages that flow from the southern portion of the project site to the northeast and toward the Salton Sea. The drainages are deeply incised in places.

The project region's climate is characterized by mild and dry winters with daily maximum temperatures in the 65 to 75ºF (18-24ºC). Summers are hot with daily maximum temperatures of 104 to 115ºF (40-46ºC). The annual rainfall is just over 3 inches (7.5 centimeters) with most of it coming in late summer or midwinter (Ramboll Environmental U.S. Corporation 2017).

2 METHODS

2.1 Background Analysis

Pertinent plant records were reviewed prior to undertaking field surveys. The analysis included a review of records from the following sources:

- A review of collection records from participating herbaria in California available through CCH 2019;
- Documented rare plant occurrences compiled in the CNDDB by the California Department of Fish and Wildlife, 2018-2019;
- A review of documented occurrences of common and rare plants for California in Calflora, 2019;
- Species descriptions from the Jepson Online Interchange[1];
- Geological maps available from the US Geological Survey (i.e., Kennedy and Morton 2003);
- Previous botanical and biological surveys for the area, including the *2018 Botanical Survey For the Desert Valley Company Expansion Project Imperial County, California*, prepared by HES;
- Soils data from the Natural Resources Conservation Service and available from the Web Soil Survey, 2019; and,
- Aerial photographs from Google Earth, ESRI, Digital Globe, GeoEye, US Department of Agriculture, US Geological Survey, i-cubed, Aerogrid and Getmapping.

The background analysis yielded data that were compiled in a Geographic Information System (GIS) using ArcMap 10.6. These data were modified and uploaded to a Trimble Juno Global Navigation Satellite System (GNSS) device for use in the field as reference and for collecting field data. Several maps were also made from the data, which were printed on paper for use during the surveys. Subsequent mapping for this report was also done in ArcGIS 10.6.

2.2 Field Surveys

Biologists Ricardo Montijo and Karen Kirtland conducted botanical surveys over two days during the 2019 growing season. Rainfall has been far below normal for the nine (9) months prior to the survey. The deficit is about 60% of normal annual rainfall (Table 2).

[1] Available at: http://ucjeps.berkeley.edu/interchange/

Table 2. Rainfall totals from July 2018 to April 2019 compared to known average rainfall for each month from 1942 to 2005.[2]

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Season Average	**0.01**	**0.27**	**0.27**	**0.25**	**0.35**	**0.21**	**0.43**	**0.34**	**0.28**	**0.08**	**2.49***
2018-2019	0.01	0.00	0.03	0.06	0.00	0.82	0.41	0.10	0.06	0.00	1.49

The biologists conducted the botanical surveys on 5 and 10 April 2019. The team noted weather and site conditions and recorded plants detected. Plants not readily identified in the field were collected and pressed and keyed out later, or sent to the University of California, Riverside Herbarium for verification. Temperature averaged 70° Fahrenheit on 5 April 2019 and 68° Fahrenheit on 10 April 2019, peaking at 80° and 82° Fahrenheit, respectively. There was trace rainfall on the second survey date. The project site was systematically surveyed by walking all accessible portions ensuring that all habitats were afforded sufficient coverage to be properly inventoried. The greatest focus was in areas likely to support target species. Thus, scrubby areas and drainages (where special status species have been recorded before) were carefully searched for rare annuals and perennials.

A complete list of plants observed is included as Appendix A of this report. All plant nomenclature in this report follows Baldwin *et al.* (2012).

3 RESULTS

3.1 Preliminary Analysis

The preliminary analysis of known and documented rare plant occurrences evaluated in the study revealed populations of several sensitive plants near the property and possible occurrences on the property based on past field collections and investigations (Figure 3). The soil texture is like

[2] https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?caimpe+sca

areas known to support rare plants on adjacent lands and is derived from common parent materials. The following are descriptions of plants compiled from distribution and biological data that were used to evaluate the potential presence of the species during the preliminary analysis. Table 3 summarizes the results of this analysis.

3.1.1 Summary of Rare Plant Findings

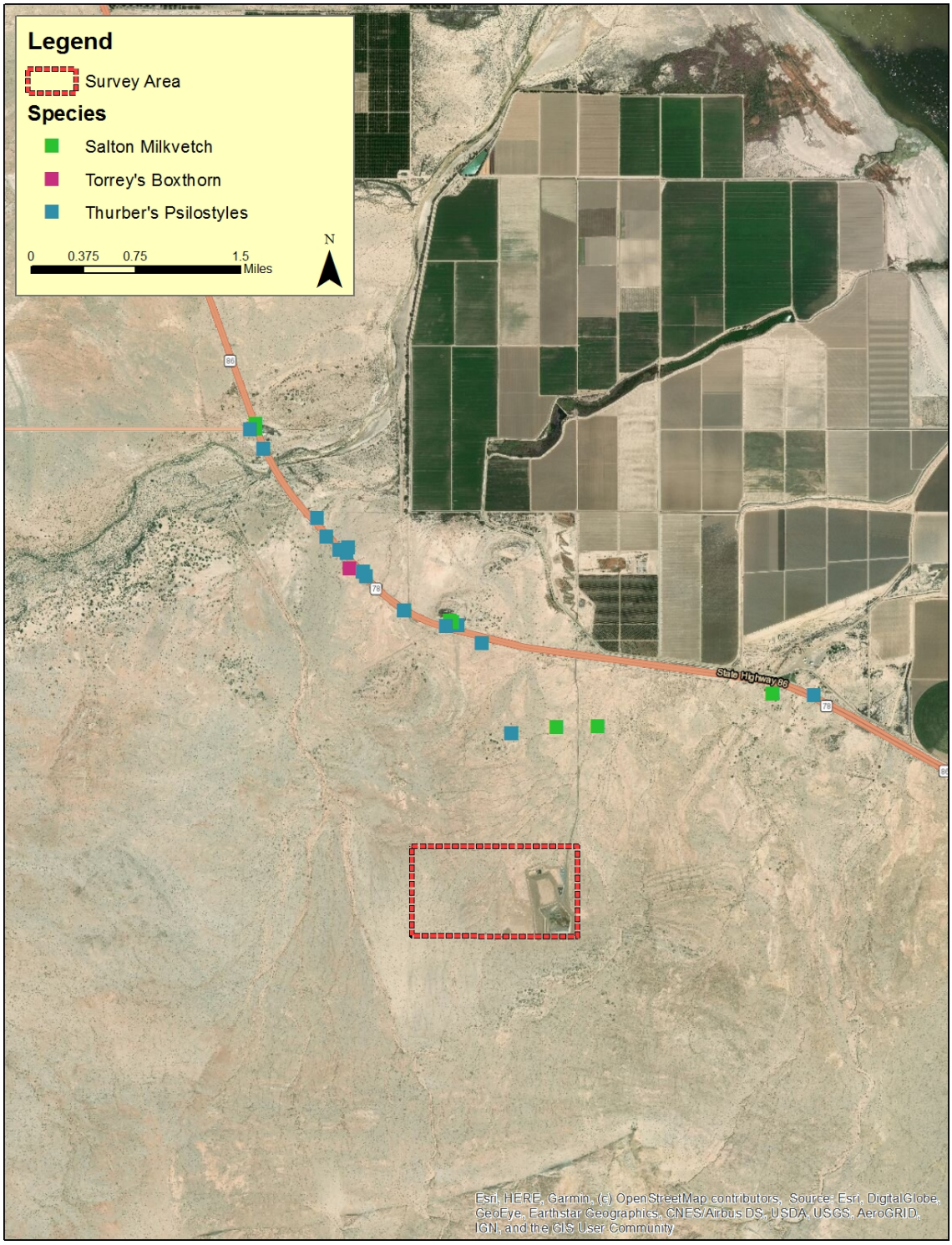
Conditions on the site were not conducive to finding flowering plants comparatively low rainfall preceding the surveys and the late approval for the plant survey. Most annual plants and herbaceous perennials were desiccated, and most were lacking flowers or other distinguishable features.

Most plants presented in Table 1 were eliminated from further analysis due to absence of suitable growing conditions. Table 3 summarizes potential occurrence of rare plants further evaluated for the site. Their CNPS status is included in the text and an explanation of the CNPS classification scheme is provided in Appendix C.

Table 3. Preliminary Analysis Results Summary

Species	Likelihood of Occurrence
Salton milk vetch	May occur. Suitable conditions exist for this species.
Gravel milk vetch	Marginally suitable conditions exist for this species.
Ashen forget me not	Marginally suitable conditions exist for this species.
Torrey's box thorn	Suitable conditions exist for this species but is unlikely to occur.
Thurber's pilostyles	May occur. Suitable conditions exist for this species.
Mojave indigo bush	Unlikely to occur.

Figure 3. Special Status Plants within the Site's Vicinity



3.1.1.1 Salton Milk Vetch

Salton milk vetch (*Astragalus crotalariae*) is a perennial herb that occurs in California, Arizona and northern Baja California. It grows in valleys, washes, foothills, and open sandy gravelly areas. The shrubby plant grows to 24 inches and is often found with honey mesquite (*Prosopis glandulosa*), creosote bush (*Larrea tridentata*), and alkali goldbush. This species produces distinctive purple and white flowers. The fruit, like other members of the genus, consists of an inflated papery pod with a fine net-like pattern (Wojciechowski and Spellenberg 2012). Salton milk vetch produces flowers from January to May.

Past occurrences are to the north and east according to the CCH. Remnants of the species were detected in two drainages during the 2018 survey to the northeast. Related species of the *Astragalus* genus were found on the survey area, but this species was not found.

3.1.1.2 Gravel Milk Vetch

Gravel milk vetch (*Astragalus sabulonum*) is a low-growing annual plant that occurs in California, Utah, New Mexico, and northern Mexico. It grows in creosote bush scrub on sandy and gravelly soils to a height of about 12 inches. It has a silky stem and leaves and hairy fruit and produces creamy white flowers that are often tinged purple. It flowers from February to July.

Gravel milk vetch has been collected on the western side of the Salton Sea at the junction of U.S. 99 and State Highway 78 and near San Felipe Creek at its confluence with Carrizo Wash (CCH 2019). Gravel milk vetch is CNPS List 2B.2 and is considered rare, threatened, or endangered in California, but common elsewhere. No observations were made, but generally suitable conditions for this species exist on the project site.

3.1.1.3 Ashen Forget Me Not

Ashen forget me not (*Cryptantha costata*) is a small annual herb that grows to about 8 inches tall. It grows in creosote bush scrub on fine sandy deposits (dunes and other wind-blown soils) in California, southern Nevada, Arizona, and Baja California (Kelley et al. 2012). Like most cryptanthas, this species has tiny white flowers and, like many, it has stiff white hairs throughout the stems, leaves, and fruits. It flowers from January to May.

There are no recorded observations of this species in the project vicinity, and marginally suitable conditions exist there. Like Salton milk vetch, ashen forget me not is a List 4 plant and is not normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.4 Torrey's Box Thorn

Torrey's box thorn (*Lycium torreyi*) is a perennial shrub of the Nightshade (tobacco, potato, tomato, and others) Family that grows in sandy and rocky washes, streambanks, and desert valleys dominated by creosote bush scrub. According to Benson and Darrow (1981), it reaches height of up to 9 feet and prefers river bottoms and alluvial flats. It typically flowers from March to May.

Torrey's box thorn has been collected on the western side of the Salton Sea at the junction of State Highway 78 and San Felipe Creek opposite the U.S. Customs and Border Protection checkpoint (CCH 2019). It was not found during the survey and likely does not occur there. Torrey's box thorn is a CNPS List 4.2 plant and, like other List 4 plants discussed here, is not normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.5 Thurber's Pilostyles

Thurber's pilostyles (*Pilostyles thurberi*) is a perennial parasitic plant that grows inside the stems of indigo bush (*Psorothamnus* spp.) and particularly dyebush (*P. emoryi*). It is often associated with Sonoran Desert scrubs in California, but it occurs in Arizona, California, Nevada, New Mexico, Texas, and northern Mexico (Yatskievych 2012). It produces flowers on the stems of its host in January.

Thurber's pilostyles has been recorded approximately a half mile north of the survey area (Figure 3). These observations are described as 0.9-mile northwest of Westmorland and 0.8-mile southeast of Kane Spring per specimen records as reported by the CCH (2019). It was not found during this survey, perhaps because survey timing and rainfall conditions were unsuitable for the species. Thurber's pilostyles is a CNPS list 4.3 species.

3.1.1.6 Mojave Indigo Bush

Mojave indigo bush (*Psorothamnus arborescens*) is a large perennial shrub that grows to less than 3 feet, normally in riparian or wash scrub. In California, it has a spotty distribution from Mono County to Imperial County (Benson and Darrow 1981). It produces deep purple, sometimes abundant, showy flowers from March to May.

There are no records of Mojave indigo bush near the project site. The closest record is from Chuckwalla Valley, 10 miles north of Chuckwalla Spring. It is a CNPS List 4.3 species.

3.2 Field Surveys

3.2.1 Vegetation Types

Vegetation on the property is mostly confined to drainages and adjacent areas and nearly completely devoid of annual plants at least partly due to the lack of rainfall. A map depicting vegetation on the site and superimposed on the property is shown in Figure 4.

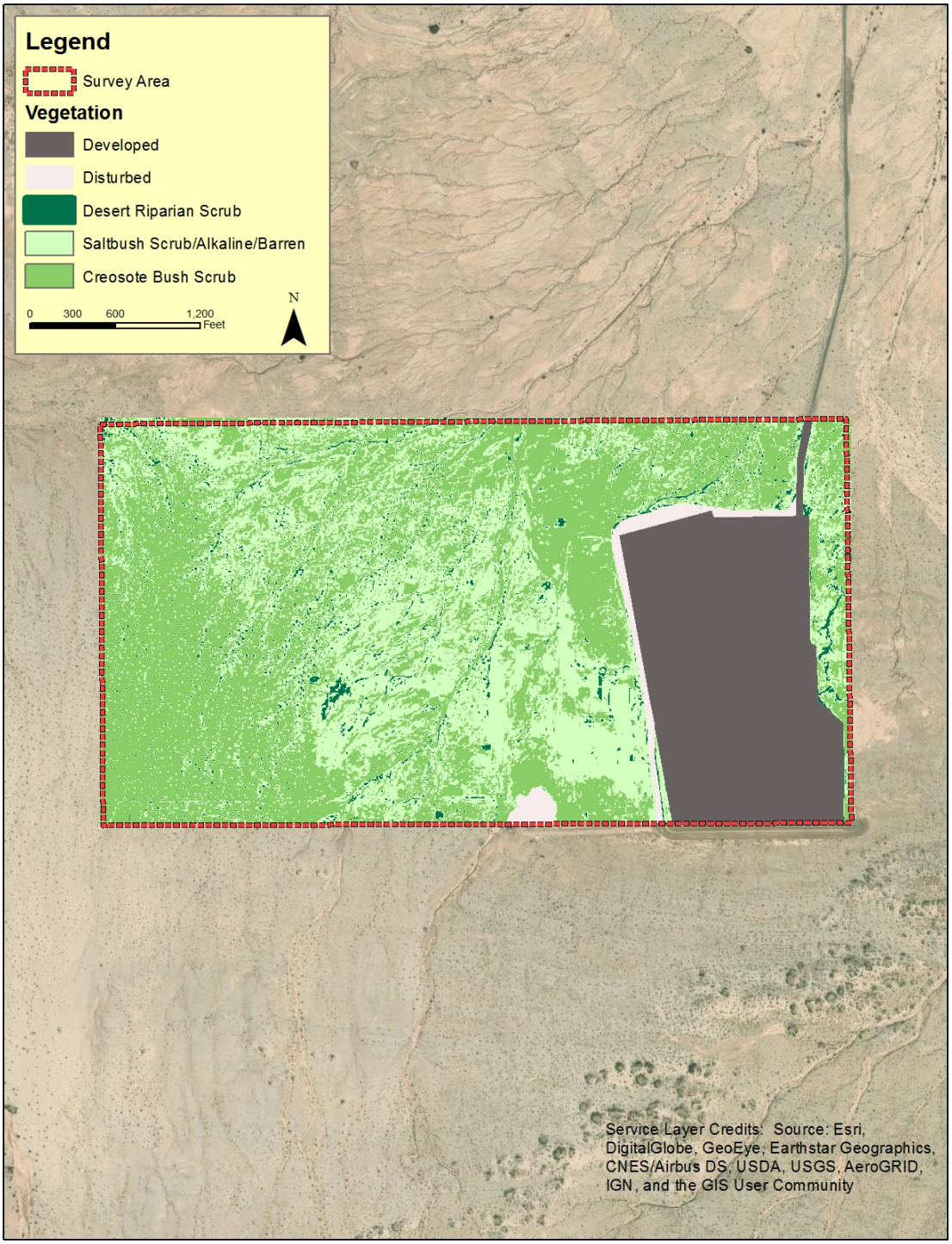
3.2.1.1 Sonoran Creosote Bush Scrub

Creosote bush scrub is the most common vegetation type in the region. It grows in areas where sands have accumulated and is dominated by the namesake plant creosote bush. Other common associates include burrobush (*Ambrosia dumosa*) and longleaf jointfir (*Ephedra trifurca*) (Appendix B, Photographs 1 and 2). Few annuals were growing at the time of the survey, but remnant plants from earlier in the year and the prior year include Emory's indigo bush (*Psorothamnus emoryi*), desert plantain (*Plantago ovata*), and rigid spiny herb (*Chorizanthe rigida*)

3.2.1.2 Desert Riparian Scrub

Desert riparian vegetation consist of groves of low-growing trees or tall shrubs to woodlands of small to medium-sized trees. Such vegetation is normally found adjacent to permanent or ephemeral surface water and create a sharp transition with adjacent open low scrub desert habitats. Desert riparian scrub on within the study area includes several tall shrubs and

Figure 4. Vegetation types overlapping the Property generated by field mapped values and unsupervised image classification in GIS.



phreatophytic trees such as western honey mesquite (*Prosopis glandulosa* var. *torreyana*) and the introduced saltcedar (*Tamarix ramossisima*) and Chinese tamarisk (*Tamarix chinensis*).

3.2.1.3 Saltbush Scrub and Alkaline Barrens

Saltbush vegetation occurs in alkaline and semi alkaline soils. Historically the terms "arid phase" and "salt-tolerant" (or "halophytic") saltbush scrub have been used to describe the vegetation in areas of relatively low and high salinity, respectively. Perennial plant species of the arid phase saltbush scrub include shadscale (*Atriplex polycarpa*) and quailbush (*Atriplex lentiformis*).

3.2.2 Rare Plants

The surveys were conducted in a below-average rainfall year (see Table 2). Although conditions on the property are suitable for most of the remaining rare species on the list, none were detected during the 2019 survey. Survey results are summarized in Table 4.

Table 4. Field Survey Results Summary

Species	Field Survey Result
Salton milk vetch	Not found
Gravel milk vetch	Not found
Ashen forget me not	Not found
Torrey's box thorn	Not found
Thurber's pilostyles	Not found
Mojave indigo bush	Not found

Low rainfall and survey timing for 2019 yielded few and inconclusive results for the botany on site.

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APPENDIX A

Flora Observed

GYMNOSPERMS

Scientific Name	Common Name	Family
Ephedra trifurca	Long leafed ephedra	Ephedraceae

ANGIOSPERMS
DICOTYLEDONS

Scientific Name	Common Name	Family
Ambrosia dumosa	Burro weed	Asteraceae
Baileya pauciradiata	Lax flower	Asteraceae
Chaenactis stevioides	Desert Pincushion	Asteraceae
Dicoria canescens	Desert Dicoria	Asteraceae
Geraea canescens	Hairy desert sunflower	Asteraceae
Isocoma acradenia var. *eremophila*	Solitary leaved alkali goldenbush	Asteraceae
Pluchea sericea	Arrow weed	Asteraceae
Psathyrotes ramosissima	Desert Velvet	Asteraceae
Cryptantha angustifolia	Narrowleaf Cryptantha	Boraginaceae
Brassica tournefortii	Mustard	Brassicaceae
Ditheryea californica	Spectacle Pod	Brassicaceae
Atriplex lentiformis	Quailbush	Chenopodiaceae
Atriplex polycarpa	Shadscale	Chenopodiaceae
Prosopis glandulosa var. *torreyana*	Honey mesquite	Fabaceae
Psorothamnus emoryi	Emory's indigo bush	Fabaceae
Tamarix aphylla	Athel	Fabaceae
Sphaeralcea orcuttii	Carrizo mallow	Malvaceae
Chylismia claviformis ssp. *peirsonii*	Pierson's Primrose	Onagraceae
Plantago ovata	Desert plantain	Plantaginaceae
Centrostegia thurberi	Thurber's Centrostegia	Polygonaceae
Chorizanthe rigida	Rigid spiny herb	Polygonaceae
Eriogonum deserticola	Colorado desert buckwheat	Polygonaceae
Oligomeris linifolia	Leaved cambess	Resedaceae
Tamarix ramosissima	Tamarisk	Tamaricaceae
Phoradendron californicum	California mesquite mistletoe	Viscaceae
Larrea tridentata	Creosote bush	Zygophyllaceae

MONOCOTYLEDONS

Aristida adscensionis	Three awn	Poaceae
Cynodon dactylon	Bermuda grass	Poaceae
Schismus barbatus	Old Han Schismus	Poaceae

APPENDIX B

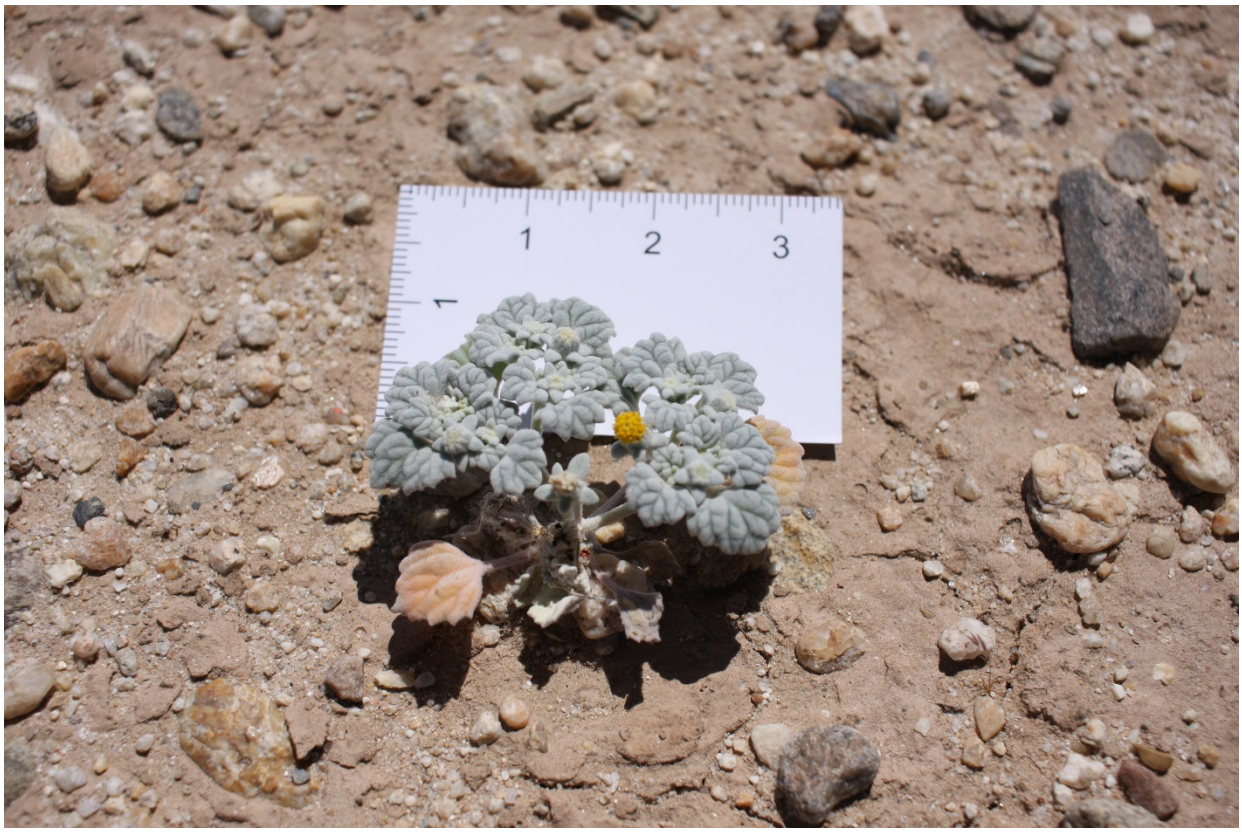
Site Photographs

Photograph 1. The above photograph shows the dominant, but sparse, Creosote Bush Scrub dominated by creosote bush (*Larrea tridentata*).

Photograph 2. The above photograph shows the condition of the annuals.

Photograph 3. This photograph shows *Ephedra trifurca* near the south end of the survey area.

Photograph 4. The above photograph illustrates a typical drainage feature in the Study Area.



Photograph 5. The above photograph shows one of several late-season annual plants, desert velvet (*Psathyrotes ramosissima*).

APPENDIX C

CNPS List Definitions

1A Plants presumed by CNPS to be extinct in California

1B Plants considered by CNPS to be rare or endangered in California and elsewhere

2P Plants considered by CNPS to be rare, threatened or endangered in California, but which are more common elsewhere.

3 Review list of plants suggested by CNPS for consideration as endangered but about which more information is needed.

4 Watch list of plants of limited distribution whose status should be monitored

Threat Code extensions and their Meanings:

1. Seriously endangered in California
2. Fairly endangered in California
3. Not very endangered in California

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H-1 Phase I Cultural Resource Report

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PHASE I CULTURAL RESOURCE REPORT FOR THE DESERT VALLEY MONOFILL CELL 4 EXPANSION PROJECT, BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

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July 29, 2019

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Ted Roberts, Lauren DeOliveira, and Kyle Knabb

Firm: Chambers Group, Inc.

Client/Project Proponent: Terraphase Engineering, Inc

Report Date: July 29, 2019

Report Title: Phase I Cultural Resource Report for the Desert Valley Monofill Cell 4 Expansion Project, Brawley, Imperial County, California

Type of Study: Cultural Resources Phase 1 Pedestrian Survey

New Sites: N/A

Updated Sites: CA-IMP-6145

USGS Quad: Kane Spring 7.5-minute quadrangle

Acreage: 359

Permit Numbers: N/A

Key Words: County of Imperial, City of Brawley, Positive Survey, CEQA, Intensive Pedestrian Survey, *Kane Spring* USGS Quadrangle

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Figure 9: Overview of project area from west side. Looking southwest 30

SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) has been contracted by Terraphase Engineering, Inc., within the City of Brawley, Imperial County, California, to complete an Archaeological Assessment (including a literature review and pedestrian survey) for the proposed Cal Energy Desert Valley Monofill Expansion Project. The proposed project includes the construction of a new geothermal waste landfill (Cell 4). The project is proposed within 359 acres of vacant land surrounding and to the west of the existing Desert Valley Monofill located in Brawley, Imperial County, California.

Chambers Group completed an archaeological literature review and records search and intensive pedestrian survey of the 359-acre project location. This report outlines the archaeological findings and results of both efforts.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA). This report includes appropriate mitigation measures to ensure less than significant impacts to any cultural resources potentially affected during construction.

1.1 REGULATORY FRAMEWORK

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for CRHR eligibility (PRC § 5024.1).

The purpose of the California Register of Historical Resources (CRHR) is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

1.1.1 CALIFORNIA REGISTER OF HISTORIC RESOURCES

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
    - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

SECTION 2.0 – PROJECT DESCRIPTION AND LOCATION

2.1 PROJECT DESCRIPTION

Chambers Group has been contracted by Terraphase Engineering Inc., within the City of Brawley, Imperial County, California, to complete an Archaeological Literature Review and records search along with an intensive pedestrian survey of the entire 359-acre project area. This study is for the proposed construction Desert Valley Cell 4 Monofill, a solid waste facility with a capacity of at least 1,300,000 cubic yards.

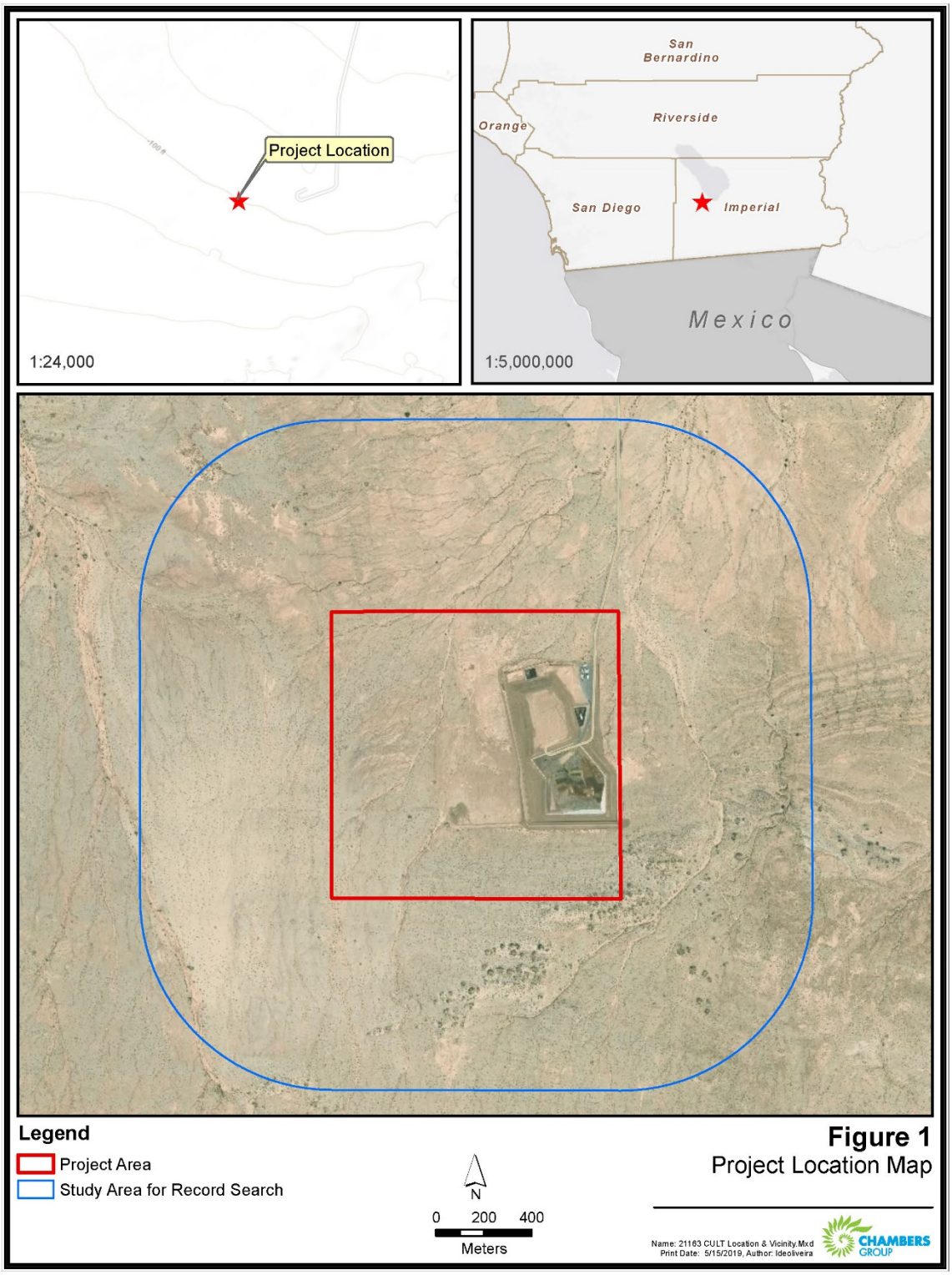
The purpose of this investigation is to assess the potential for significant archaeological deposits and/or materials within the proposed project area and to determine if the current project has the potential to adversely affect any significant cultural materials.

2.2 PROJECT LOCATION

The project is located within the City of Brawley, Imperial County, California. The 359-acre project area is located immediately south of Kane Springs Route CA-86/78. Specifically, the proposed project is located on the Kane Springs 7.5-min quadrangle and includes most of Section 33, in Township 12 South, Range 11 East. Regional access to the project area is provided via CA Route 86/78 in Imperial County, California.

The project area encompasses the existing Desert Valley Monofill and extends westerly past the facility (Figure 1). The pedestrian survey encompassed the entire project area minus the existing monofill. The study area included the project area plus a half mile buffer. This area defined the boundaries of the records search (see Section 4.0)

Figure 1: Project Location and Vicinity Map



SECTION 3.0 – BACKGROUND

3.1 ETHNOGRAPHY AND ARCHAEOLOGY

The Project area was occupied by the Kumeyaay and Cahuilla people. Following is a brief ethnographic and archaeological summary of the Kumeyaay and Cahuilla.

3.1.1 Kumeyaay

The predominant Native American people occupying the region encompassing the current project area were the Kumeyaay. Eighteenth-century Spanish explorers and settlers used the collective term "Diegeño" for these people, which referred to bands living near the presidio and mission of San Diego de Alcalá. Today, members of the tribe prefer to be called Kumeyaay (Luomala 1978).

The territory of the Kumeyaay extended north from Todos Santos Bay near Ensenada, Mexico to the mouth of the San Luis Rey River in north San Diego County, and east to the Sand Hills in central Imperial Valley near the current project area. The Kumeyaay occupied the southern and eastern desert portions of the territory, while the Ipai inhabited the northern coastal region (Luomala 1978).

The primary source of subsistence for the of Kumeyaay was vegetal food. Seasonal travel followed the ripening of plants from the lowlands to higher elevations of the mountain slopes. Buds, blossoms, potherbs, wild seeds, cactus fruits, and wild plums were among the diet of both groups. The Kumeyaay practiced limited agriculture within the floodplain areas of their territory. Melons, maize, beans, and cowpeas were planted. Women sometimes transplanted wild onion and tobacco plants to convenient locations and sowed wild tobacco seeds. Deer, rodents, and birds provided meat as a secondary source of sustenance. Families also gathered acorns and piñon nuts at the higher altitudes. Village locations were selected for seasonal use and were occupied by exogamous, patrilineal clans. Three or four clans would winter together and then disperse into smaller bands during the spring and summer (Luomala 1978).

Kumeyaay structures varied with the seasons. Summer shelter consisted of a wind break, tree, or a cave fronted with rocks. Winter dwellings had slightly sunken floors with dome-shaped structures made of brush thatch covered with grass and earth (Gifford 1931; Luomala 1978).

Upon death, the Kumeyaay cremated the body of the deceased. Ashes were placed in a ceramic urn and buried or hidden in a cluster of rocks. The family customarily held a mourning ceremony one year after the death of a family member. During this ceremony, the clothes of the deceased individual were burned to ensure that the spirit would not return for his or her possessions (Gifford 1931; Luomala 1978).

It is estimated that the pre-contact Kumeyaay population living in this region ranged from approximately 3,000 (Kroeber 1925) to 9,000 (Luomala 1978). Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with European-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay people were forced to adopt a sedentary lifestyle and accept Christianity (Luomala 1978). As of 1968, Kumeyaay population was somewhere between approximately 1,322 (Shipek 1972, included in Luomala 1978) and 1,522 (Luomala 1978) and by 1990 an estimated 1,200 Kumeyaay lived on reservation lands while 2,000 lived elsewhere (Pritzker 2000).

3.1.2 Cahuilla

The project area currently falls within the ethnographic territory of the Cahuilla, whose ancestors may have entered this region of Southern California approximately 3,000 years ago (Moratto 1984: 559-560). The Cahuilla ancestral territory is located near the geographic center of Southern California and varied greatly topographically and environmentally, ranging from forested mountains to desert areas. Natural boundaries such as the Colorado Desert provided the Cahuilla separate territory from the neighboring Mojave, Ipai, and Tipai. In turn, mountains, hills, and plains separated the Cahuilla from the adjacent Luiseno, Gabeielino and the Serrano (Bean 1978: 575).

The Cahuilla relied heavily on the exploitation and seasonal availability of faunal and floral resources through a pattern of residential mobility that emphasized hunting and gathering. Important floral species used in food, for manufacturing of products, and/or for medicinal uses primarily included acorns, mesquite and screw beans, piñon nuts, and various cacti bulbs (Bean 1978:578). Coiled-ware baskets were common and used for a variety of tasks including food preparation, storage, and transportation (Bean 1978:579).

Networks of trails linked villages and functioned as hunting, trading, and social conduits. Trade occurred between the Cahuilla and tribes such as the Gabrieleno as far west as Santa Catalina and the Pima as far east as the Gila River. Trades of both goods and technologies were frequently exchanged between the Cahuilla and nearby Serrano, Gabrielino, and Luiseño cultural groups (Bean 1978:575-582).

The Cahuilla are believed to have first come into contact with Europeans prior to the Juan Bautista de Anza expedition in 1774; however, little direct contact was established between the Cahuilla and the Spanish except for those baptized at the Missions San Gabriel, San Luis Rey, and San Diego (Bean 1978:583-584). Following the establishment of several *asistencias* near the traditional Cahuilla territories, many Spanish cultural forms — especially agriculture and language — were adopted by the Cahuilla people (Bean 1978:583-584; Lech 2012:17-30).

Through the Rancho and American periods, the Cahuilla continued to retain their political autonomy and lands despite more frequent interactions with European-American immigrants. In 1863, a large number of the population were killed by a sweeping smallpox epidemic that affected many of the tribal groups in Southern California. The first reservations established in Riverside County ca. 1865 saw many of the Cahuilla remaining on their traditional lands. After 1891, however, all aspects of the Cahuilla economic, political, and social life were closely monitored by the Federal Government; a combination of missionaries and government schools drastically altered the Cahuilla culture (Bean 1978:583-584).

3.2 PREHISTORY

Archaeological studies have been limited in the Salton Sea desert region. This lack of archaeological investigation has resulted in undefined and imperfect archaeological classification schemas and typologies. Therefore, the prehistoric time periods used to by archaeologists to describe the southern Imperial County desert region borrow heavily from those chronologies established for San Diego County prehistory, with some minor Colorado Desert-specific clarifications. The three general time periods accepted in the region are the San Dieguito Complex, the Archaic period, and the Late Prehistoric period. These periods are briefly described below.

The earliest recognized occupation of the region, dating to 10,000-8,000 years before present (B.P.), is known as the San Dieguito complex (Rogers 1939, 1945). Assemblages from this occupation generally consist of flaked stone tools. Evidence of milling activities is rare for sites dating to this period. It is generally agreed that the San Dieguito complex shows characteristics of the Western Pluvial Lakes Tradition (WPLT), which was widespread in California during the early Holocene. The WPLT assemblage generally includes scrapers, choppers and bifacial knives. Archaeologists theorize this toolkit composition likely reflects a generalized hunting and gathering society (Moratto 1984; Moratto et al. 1994, Schaeffer and Laylander 2007).

The following period, the Archaic (8,500-1,300 B.P.), is traditionally seen as encompassing both coastal and inland adaptations, with the coastal Archaic represented by the shell middens of the La Jolla complex and the inland Archaic represented by the Pauma complex (True 1980). Coastal settlement is also thought to have been significantly affected by the stabilization of sea levels around 4,000 years ago that led to a general decline in the productivity of coastal ecosystems. Artifacts associated with this period include milling stones, unshaped manos, flaked cobble tools, Pinto-like and Elko projectile points, and flexed inhumations (Schaefer and Laylander 2007). Colorado Desert rock art studies have led researchers to suggest Archaic Period origins for many petroglyph and pictograph styles and elements common in later times (Whitley 2005). More recently, several important late Archaic period sites have been documented in the northern Coachella Valley, consisting of deeply buried middens with clay-lined features and living surfaces, cremations, hearths and rock shelters. Faunal assemblages show a high percentage of lagomorphs (rabbits and hares). The larger sites suggest a more sustained settlement type than previously known for the Archaic period in this area (Schaefer and Laylander 2007).

The Late Prehistoric period (1,300-200 B.P.) is marked by the appearance of small projectile points indicating the use of the bow and arrow, the common use of ceramics, and the general replacement of inhumations with cremations, all characteristic of the San Luis Rey complex as defined by Meighan (1954). The San Luis Rey complex is divided temporally into San Luis Rey I and San Luis Rey II, with the latter distinguished mainly by the addition of ceramics. Along the coast of northern San Diego County, deposits containing significant amounts of Donax shell are now often assigned to the Late Prehistoric, based on a well-documented increase in the use of this resource at this time (e.g., Byrd and Reddy 1999). The inception of the San Luis Rey complex is suggested by True (1966; True et al. 1974) to mark the arrival of Takic speakers from regions farther inland. Waugh (1986) is in general agreement with True but suggests that the migration was probably sporadic and took place over a considerable period. Titus (1987) cites burials showing physical differences between pre- and post-1,300 B.P. remains to further support this contention. However, some researchers have suggested that these Shoshonean groups may have arrived considerably earlier, perhaps as early as 4,000 years ago. Vellanoweth and Altschul (2002:102-105) provide an excellent summary of the various avenues of thought on the Shoshonean Incursion.

3.3 HISTORY

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time (Lech 2012: 3-4).

The party was led by Gaspar de Portolá and consisted of two groups; one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012: 1-4).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, their vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941). Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator.

In 1848, The Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, most of whom settled in the north. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s because of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy.

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1905 and continued through 1942 when the All-American Canal was completed. It is this water, conveyed from the Colorado River, that makes Imperial County so rich (Hoover et al. 2002). The City of Brawley was originally going to named Braly after J.H. Braly, a Los Angeles man who was assigned 4,000 acres of land at the center of where the current city sits now. Braly sold his 4,000 acres of the land in 1902, to George E. Carter, after Braly believed the land would be nothing but a hostile

wasteland. Not long after the sale, the Imperial Land Company purchased the land from Carter, and was renamed Brawley. The city of Brawley was officially incorporated in 1908. Today, the city of Brawley encompasses 8.11 square miles of land and has a population of approximately 26,000 people (City of Brawley 2019).

SECTION 4.0 – SOURCES CONSULTED

A records search dated June 18, 2019, was obtained from the South Coastal Information Center (SCIC) at San Diego State University (Appendix A). The records search provided information on all documented cultural resources and previous archaeological investigations within 0.5-mile of the project area. Resources consulted during the records search conducted by the SCIC included the National Register of Historic Places (NRHP), California Historical Landmarks, California Points of Historical Interest, and the California State Historic Resources Inventory. Results of the records search and additional research are detailed below.

4.1 REPORTS WITHIN THE STUDY AREA

Based upon the records search conducted by the SCIC, 15 cultural resource studies have previously been completed within the 0.5-mile records search radius. Of the 15 previous studies, 10 of these studies were within the current project area and are in italics. Please see the following table for further details.

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
IM-00297	*1983*	*Von Werlhof, Jay*	*Archaeological Examinations of Petty Ray Geophysical Transects on West Mesa*	*N/A*
IM-00421	*1989*	*Gallegos, Dennis and Andrew Pigniolo*	*Cultural Resource Survey And Evaluation Of The Monofill Project Area And Access Road Alignment, Imperial County, California*	*N/A*
IM-00422	*1989*	*ERC Environmental and Energy Services CO.*	*Draft Environmental Impact Report For General Plan Amendment, Solid Waste Management Plan Amendment, Zone Change And Conditional Use Permit*	*N/A*
IM-00427	*1989*	*ERC Environmental and Energy Services CO.*	*Final Environmental Impact Report For General Plan Amendment, Solid Waste Management Plan Amendment, Zone Change And Conditional Use Permit*	*N/A*
IM-00430	*1989*	*Gallegos, Dennis and Andrew Pigniolo*	*Cultural Resource Survey And Evaluation Of The Monofill Project Area And Access Road Alignment, Imperial County, California*	*N/A*
IM-00436	*1989*	*Gallegos, Dennis and Andrew Pigniolo*	*Cultural Resource Survey And Evaluation Of The Monofill Project Area And Access Road Alignment, Imperial County, California, Appendix B*	*N/A*
IMP-00440	*1990*	*ERC Environmental and Energy Services CO.*	*Desert Valley Company's Monofill Facility - A Draft Environmental*	*N/A*

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
			Impact Report (Revised)	
IM-00441	1990	ENSR Consulting and Engineering	Environmental Assessment/Initial Study for The Placement of Fiber Optic Facilities Between Salton Microwave Station and Calexico California	N/A
IM-00443	*1990*	*ERC Environmental and Energy Services CO.*	*Desert Valley Company's Monofill Facility Final Environmental Impact Report*	*N/A*
IM-00568	*1989*	*Gallegos, Dennis and Andrew Pigniolo*	*Cultural Recource Survey And Evaluation of The Monofill Project Area and Access Road Alignment, Imperial County, California*	*N/A*
IM-00731	1989	Peak and Associates	Cultural Resource Survey And Clearance - Salton Sea Radio Site To Calexico, Imperial County, California. American Telephone And Telegraph Company's Fiberoptic Communication Cable	N/A
IM-01350	2008	Noah, Anna and Dennis Gallegos	Final Class Iii Archaeological Inventory for The Sdg&E Sunrise Powerlink Project, San Diego And Imperial Counties, California	13-009754
IM-01543	2012	Department of the Navy	Geothermal Probe Testing, Superstition Hills; Naf El Centro, California	N/A
IM-01651	2016	Garfinkel Gold, Alan, O'Neil, Stephen, Webster, Christopher, Bard, James C., and Black, Megan	Archaeological Survey Of Portions of Target Range 101 And The Superstition Hills: An Inventory Of 15,073 Acres Naval Air Facility, El Centro, Imperial County, California	13-017047, 13-017048, 13-017049, 13-017050, 13-017051, 13-017052, 13-017053, 13-017054, 13-017055, 13-017056, 13-017057, 13-017058, 13-017059, 13-017060, 13-017061, 13-017062, 13-017063, 13-017064,

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
				13-017065, 13-017066, 13-017067, 13-017068, 13-017069, 13-017070, 13-017071, 13-017072, 13-017073, 13-017074, 13-017075, 13-017076, 13-017077, 13-017078, 13-017079, 13-017080, 13-017081, 13-017082, 13-017083, 13-017084, 13-017085, 13-017086, 13-017087, 13-017088, 13-017089, 13-017090, 13-017091, 13-017092, 13-017093, 13-017094, 13-017095, 13-017096, 13-017097, 13-017098, 13-017099, 13-017100, 13-017101, 13-017102, 13-017103, 13-017104, 13-017105, 13-017106, 13-017107, 13-017108, 13-017109, 13-017110, 13-017111, 13-017112,

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
				13-017113, 13-017114, 13-017115, 13-017116, 13-017117, 13-017118, 13-017119, 13-017120, 13-017121, 13-017122, 13-017123, 13-017124, 13-017125, 13-017126, 13-017127, 13-017128, 13-017129, 13-017130, 13-017131, 13-017132, 13-017133, 13-017134, 13-017135, 13-017136, 13-017137, 13-017138, 13-017139, 13-017140, 13-017141, 13-017142, 13-017143, 13-017144, 13-017145, 13-017146, 13-017147, 13-017148, 13-017149, 13-017150, 13-017151, 13-017152, 13-017153, 13-017154, 13-017155, 13-017156, 13-017157, 13-017158
IM-01708	*2018*	*Garrison, Andrew and Brian F. Smith*	*A Phase I Cultural Resource Report for The Calenergy Dvc*	*N/A*

Table 1: Previous Cultural Resources Studies within the Study Area

Report Number	Year	Author	Title	Resources
			Cell 4 Project, Imperial County, California	

4.2 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

Based upon the records search conducted by the SCIC, 75 previously recorded cultural resources were recorded within the 0.5-mile records search radius. 46 of the previously recorded resources are within the project area and are in italics.

Table 2: Previously Recorded Cultural Resources within the Study Area

Primary Number	Trinomial	Resource Name	Site Description
P-13-000128	CA-IMP-000128	4-IMP-128	Prehistoric Site
P-13-002376	CA-IMP-002376	4-IMP-2376-I	Prehistoric Isolate
P-13-005574	CA-IMP-005574	4-IMP-5574	Prehistoric Site
P-13-005575	CA-IMP-005575	4-IMP-5575	Prehistoric Site
P-13-006138	CA-IMP-006138	4-IMP-6138	Prehistoric Site
P-13-006139	CA-IMP-006139	4-IMP-6139	Prehistoric Site
P-13-006140	CA-IMP-006140	4-IMP-6140	Prehistoric Site
P-13-006141	*CA-IMP-006141*	*4-IMP-6141*	*Prehistoric Site*
P-13-006142	*CA-IMP-006142*	*4-IMP-6142*	*Prehistoric Site*
P-13-006143	*CA-IMP-006143*	*4-IMP-6143*	*Prehistoric Site*
P-13-006144	*CA-IMP-006144*	*4-IMP-6144*	*Prehistoric Site*
P-13-006145	*CA-IMP-006145*	*4-IMP-6145*	*Prehistoric Site*
P-13-006146	*CA-IMP-006146*	*4-IMP-6146*	*Prehistoric Site*
P-13-006147	*CA-IMP-006147*	*4-IMP-6147*	*Prehistoric Site*
P-13-006148	*CA-IMP-006148*	*4-IMP-6148*	*Prehistoric Site*
P-13-006149	*CA-IMP-006149*	*4-IMP-6149*	*Prehistoric Site*
P-13-006150	*CA-IMP-006150*	*4-IMP-6150*	*Prehistoric Site*
P-13-006151	*CA-IMP-006151*	*4-IMP-6151*	*Prehistoric Site*
P-13-006152	*CA-IMP-006152*	*4-IMP-6152*	*Prehistoric Site*
P-13-006153	*CA-IMP-006153*	*4-IMP-6153*	*Prehistoric Site*
P-13-006154	CA-IMP-006154	4-IMP-6154-I	Prehistoric Isolate
P-13-006158	*CA-IMP-006158*	*4-IMP-6158-I*	*Prehistoric Isolate*
P-13-006159	*CA-IMP-006159*	*4-IMP-6159-I*	*Prehistoric Isolate*
P-13-006160	*CA-IMP-006160*	*4-IMP-6160-I*	*Prehistoric Isolate*
P-13-006161	*CA-IMP-006161*	*4-IMP-6161-I*	*Prehistoric Isolate*
P-13-006162	*CA-IMP-006162*	*4-IMP-6162*	*Prehistoric Site*
P-13-006163	CA-IMP-006163	4-IMP-6163-I	Prehistoric Isolate
P-13-006164	*CA-IMP-006164*	*4-IMP-6164-I*	*Prehistoric Isolate*

Primary Number	Trinomial	Resource Name	Site Description
P-13-006165	*CA-IMP-006165*	*4-IMP-6165-I*	*Prehistoric Isolate*
P-13-006166	*CA-IMP-006166*	*4-IMP-6166-I*	*Prehistoric Isolate*
P-13-006167	*CA-IMP-006167*	*4-IMP-6167-I*	*Prehistoric Isolate*
P-13-006168	*CA-IMP-006168*	*4-IMP-6168-I*	*Prehistoric Isolate*
P-13-006169	*CA-IMP-006169*	*4-IMP-6169-I*	*Prehistoric Isolate*
P-13-006170	*CA-IMP-006170*	*4-IMP-6170-I*	*Prehistoric Isolate*
P-13-006171	*CA-IMP-006171*	*4-IMP-6171-I*	*Prehistoric Isolate*
P-13-006262	*CA-IMP-006262*	*4-IMP-6262*	*Prehistoric Site*
P-13-006263	CA-IMP-006263	4-IMP-6263	Prehistoric Site
P-13-006264	*CA-IMP-006264*	*4-IMP-6264-I*	*Prehistoric Isolate*
P-13-006265	*CA-IMP-006265*	*4-IMP-6265*	*Prehistoric Site*
P-13-006266	*CA-IMP-006266*	*4-IMP-6266*	*Prehistoric Site*
P-13-006267	CA-IMP-006267	4-IMP-6267	Prehistoric Site
P-13-006268	*CA-IMP-006268*	*4-IMP-6268*	*Prehistoric Site*
P-13-006269	*CA-IMP-006269*	*4-IMP-6269*	*Prehistoric Site*
P-13-006270	CA-IMP-006270	4-IMP-6270	Prehistoric Site
P-13-006271	CA-IMP-006271	4-IMP-6271	Prehistoric Site
P-13-006272	CA-IMP-006272	4-IMP-6272	Prehistoric Site
P-13-006273	CA-IMP-006273	4-IMP-6273	Prehistoric Site
P-13-006274	*CA-IMP-006274*	*4-IMP-6274*	*Prehistoric Site*
P-13-006275	CA-IMP-006275	4-IMP-6275-I	Prehistoric Isolate
P-13-006276	*CA-IMP-006276*	*4-IMP-6276-I*	*Prehistoric Isolate*
P-13-006277	*CA-IMP-006277*	*4-IMP-6277-I*	*Prehistoric Isolate*
P-13-006278	*CA-IMP-006278*	*4-IMP-6278-I*	*Prehistoric Isolate*
P-13-006279	*CA-IMP-006279*	*4-IMP-6279-I*	*Prehistoric Isolate*
P-13-006280	*CA-IMP-006280*	*4-IMP-6280-I*	*Prehistoric Isolate*
P-13-006281	CA-IMP-006281	4-IMP-6281-I	Prehistoric Isolate
P-13-006282	CA-IMP-006282	4-IMP-6282-I	Prehistoric Isolate
P-13-006283	*CA-IMP-006283*	*4-IMP-6283-I*	*Prehistoric Isolate*
P-13-006284	CA-IMP-006284	4-IMP-6284-I	Prehistoric Isolate
P-13-006285	CA-IMP-006285	4-IMP-6285-I	Prehistoric Isolate
P-13-006286	*CA-IMP-006286*	*4-IMP-6285-I*	*Prehistoric Isolate*
P-13-006287	CA-IMP006287	4-IMP-6287-I	Prehistoric Isolate
P-13-006288	CA-IMP-006288	4-IMP-6288-I	Prehistoric Isolate
P-13-006289	CA-IMP-006289	4-IMP-6289-I	Prehistoric Isolate
P-13-006290	*CA-IMP-006290*	*4-IMP6290-I*	*Prehistoric Isolate*
P-13-006309	*CA-IMP-006309*	*4-IMP-6309-I*	*Prehistoric Isolate*
P-13-006310	*CA-IMP-006310*	*4-IMP6310*	*Prehistoric Site*
P-13-016812	N/A	CalEnergy ISO-1	Prehistoric Isolate
P-13-016813	N/A	CalEnergy ISO-2	Prehistoric Isolate
P-13-016814	N/A	CalEnergy ISO-3	Prehistoric Isolate
P-13-016815	N/A	CalEnergy ISO-4	Prehistoric Isolate

Primary Number	Trinomial	Resource Name	Site Description
P-13-016816	N/A	N/A	N/A
P-13-016817	*N/A*	*CalEnergy ISO-6*	*Prehistoric Isolate*
P-13-016818	*N/A*	*CalEnergy ISO-7*	*Prehistoric Isolate*
P-13-016819	*N/A*	*CalEnergy ISO-8*	*Prehistoric Isolate*
P-13-016820	N/A	CalEnergy ISO-9	Prehistoric Isolate
P-13-016821	N/A	CalEnergy ISO-10	Prehistoric Isolate

SECTION 5.0 – FIELD METHODS

Chambers Group survey teams are trained in established field methods for cultural resources deemed appropriate for each project. Cultural materials encountered may include prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historic-period artifacts (e.g., metal, glass, ceramics), sediment discoloration that might indicate the presence of a cultural midden, as well as depressions and other features indicative of the former presence of structures or buildings (e.g., post holes, foundations).

On May 9, 2019, Chambers Group archaeologists Lauren DeOliveira, Kyle Knabb, and Lucas Tutshulte completed an intensive archaeological pedestrian survey of the 359-acre project area. The project site was surveyed using transects spaced 30 meters apart and oriented in a north-south direction.

The archaeologist examined exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, milling tools, ceramics), ecofacts (e.g., marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows were visually inspected for both cultural resources and paleontological resources.

SECTION 6.0 – RESULTS OF ARCHAEOLOGICAL SURVEY

The project area is located within the City of Brawley, Imperial County, California. The 359-acre project area is located just south of Kane Spring Route CA-86/78. The project area encompasses the existing Desert Valley Monofill and extends past the facility to the west. No geographic obstructions or impediments were present, and the crew was able to survey the project area in its entirety. Overall ground visibility was high (95%). Sparse vegetation (primarily creosote) and various drainages were present throughout the project area and presented the only limitations to ground surface visibility and uniformity.

After completing the survey, ten newly discovered prehistoric isolated artifacts were identified and four previously recorded sites were relocated (CA-IMP-6144, CA-IMP-6145, CA-IMP-6262, CA-IMP-6269), as shown in Figure 2. Primary Record forms were completed for each of the new isolated finds and submitted to the SCIC for inclusion in the archaeological database (Appendix B). These ten isolates were assigned primary numbers by the SCIC (P-13-017463 through P-13-017472). Updated site record forms were not completed for CA-IMP-6144, CA-IMP-6262, CA-IMP-6269 as those were updated in 2017 by Brian F. Smith and Associates (BFSA) and the site conditions did not change. Chambers Group did complete a site update for CA-IMP-6145 because that site was not relocated in 2017 by BFSA. A description of the new isolated finds can be found in Table 3.

Table 3: Newly Recorded Artifacts

Artifact Name	Primary Number	Date Recorded	Age	Description	Recommended Evaluation
21163_ISO_001	P-13-017463	May 9, 2019	Prehistoric	Hammerstone	Not Significant
21163_ISO_002	P-13-017464	May 9, 2019	Prehistoric	Secondary flake	Not Significant
21163_ISO_003	P-13-017465	May 9, 2019	Prehistoric	Secondary flake	Not Significant
21163_ISO_004	P-13-017466	May 9, 2019	Prehistoric	Secondary flake	Not Significant
21163_ISO_005	P-13-017467	May 9, 2019	Prehistoric	Large cobble core	Not Significant
21163_ISO_006	P-13-017468	May 9, 2019	Prehistoric	Volcanic cobble core	Not Significant
21163_ISO_007	P-13-017469	May 9, 2019	Prehistoric	Two volcanic cores and one flake	Not Significant

Artifact Name	Primary Number	Date Recorded	Age	Description	Recommended Evaluation
21163_ISO_008	P-13-017470	May 9, 2019	Prehistoric	Pottery sherd and primary flake	Not Significant
21163_ISO_009	P-13-017471	May 9, 2019	Prehistoric	Secondary flake	Not Significant
21163_ISO_010	P-13-017472	May 9, 2019	Prehistoric	Core	Not Significant

6.1.1 Description of Relocated[1] Sites

CA-IMP-6144

CA-IMP-6144 was originally recorded in 1989 by Environmental and Energy Services Company. The 300 by 260-meter site was described as a temporary habitation site containing a hearth feature and a low-density artifact scatter. BFSA relocated the site in 2017 and observed two lithic reduction concentrations but no hearth features. Chambers Group archaeologists relocated the site in 2019 confirming BFSA's observations. The site appeared to be in a similar condition to what was reported previously, and no new disturbances were observed.

CA-IMP-6145

CA-IMP-6145 was originally recorded in 1989 by Environmental and Energy Services Company. The 487 by 160-meter site was described as a temporary encampment consisting of a series of fire hearths with associated artifacts scatters connected by general low density lithic and ceramic scatter. In 2019, Chambers Group archaeologists relocated this site and observed a low-density lithic scatter and some ceramic sherds. Ceramics were light brown in color and typical of ceramics from around the Lake Cahuilla Area. No hearths were observed. The site is now bisected by two well maintained dirt roads. The site appeared to be in a similar condition to what was reported previously, and no new disturbances were observed.

CA-IMP-6262

CA-IMP-6262 was originally recorded in 1989 by Environmental and Energy Services Company and was described as lithic and ceramic scatter. In 2017, BFSA relocated this 130 by 100-meter site and recorded the presence of debitage and ceramics. In 2019, Chambers Group archaeologists relocated the site and observed a sparse lithic scatter but no ceramics. The site appeared to be in a similar condition to what was reported previously, and no new disturbances were observed.

[1] "Relocated" in this context means that the previously recorded site was revisited during the current survey and was found to be located in the same location as originally described in the site record.

CA-IMP-6269

CA-IMP-6269 was originally recorded in 1989 by Environmental and Energy Services Company and was described as a small lithic scatter consisting of debitage and one volcanic core. In 2017, BFSA relocated this 170 by 60-meter site and recorded the presence of a very sparse lithic scatter consisting of a single volcanic flake, one green volcanic flake tool, and one volcanic core. In 2019, Chambers Group archaeologists relocated the site confirming BSFAs observations. The site appeared to be in a similar condition to what was reported previously, and no new disturbances were observed.

Figure 2 contains confidential cultural information and is not circulated for general public review. Figure 2 is available for review by qualified individuals by contacting the County of Imperial for an appointment:

Diana Robinson, Planner III, Imperial County Planning and Development Services Department, 801 Main Street, El Centro, California 92243 DianaRobinson@co.imperial.ca.us.

SECTION 7.0 – SUMMARY AND RECOMMENDATIONS

7.1.1 Summary

Chambers Group conducted archaeological investigations within the project area located just south of Kane Springs Route CA-86/78 in May 2019. The work was performed under Chambers Group's contract with Terraphase Engineering, Inc. The main goal of the archaeological investigations was to gather and analyze information needed to determine if the project would impact cultural resources.

An archival records search, background studies, and intensive pedestrian survey of the project area were conducted as part of a Phase I cultural resource study. The cultural record search identified 10 cultural resource studies and 46 archaeological resources within the project area.

The survey yielded 10 new isolated artifacts, P-13-017463 through P-13-017472, and the relocation of 4 previously recorded archaeological sites (CA-IMP-6144, CA-IMP-6145, CA-IMP-6262, CA-IMP-6269) within the project area. CA-IMP-6141, CA-IMP-6146, CA-IMP-6149, CA-IMP-6150, CA-IMP-6214, CA-IMP-6266, and CA-IMP-6274 were not relocated during this survey. More than likely, those sites have been obscured with sediment through aeolian processes or were displaced by erosion or modern disturbances.

7.1.2 Recommendations

The records search and archaeological survey resulted in the identification of 56 resources within the project area, including 34 isolates and 22 archaeological sites. Isolates are not significant under CEQA and no further archaeological investigations are recommended for isolates. The location of these isolates need not be considered during planning or construction activities associated with the current project.

The previous studies indicate the majority of the 22 sites represent temporary encampments and ephemeral artifact scatters consistent with the prehistoric subsistence and settlement patterns long documented around the Lake Cahuilla area. Limited sub-surface testing was completed previously on most of the archaeological sites within the project area except for IMP- 6142, IMP-6144, IMP-6145, IMP-6146, IMP-6149, IMP-6162, and IMP- 6274. Due to the lack of previous subsurface testing and/or evaluation of these resources, further archaeological testing and evaluation is recommended for any of the archaeological sites listed in Table 4 (see also Figure 3) if potentially significant impacts will occur within a 200-foot buffer.

Table 4: Recommendations

Primary Number	Trinomial	Resource Name	Site Description	Previously Evaluated	Recommendation
P-13-006141	CA-IMP-006141	4-IMP-6141	Prehistoric Site	Yes	Significant under CEQA; Avoidance is recommended
P-13-006142	CA-IMP-006142	4-IMP-6142	Prehistoric Site	No	Testing and Evaluation

Primary Number	Trinomial	Resource Name	Site Description	Previously Evaluated	Recommendation
P-13-006143	CA-IMP-006143	4-IMP-6143	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006144	CA-IMP-006144	4-IMP-6144	Prehistoric Site	No	Testing and Evaluation
P-13-006145	CA-IMP-006145	4-IMP-6145	Prehistoric Site	No	Testing and Evaluation
P-13-006146	CA-IMP-006146	4-IMP-6146	Prehistoric Site	No	Testing and Evaluation
P-13-006147	CA-IMP-006147	4-IMP-6147	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006148	CA-IMP-006148	4-IMP-6148	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006149	CA-IMP-006149	4-IMP-6149	Prehistoric Site	No	Testing and Evaluation
P-13-006150	CA-IMP-006150	4-IMP-6150	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006151	CA-IMP-006151	4-IMP-6151	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006152	CA-IMP-006152	4-IMP-6152	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006153	CA-IMP-006153	4-IMP-6153	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006158	CA-IMP-006158	4-IMP-6158-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006159	CA-IMP-006159	4-IMP-6159-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006160	CA-IMP-006160	4-IMP-6160-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006161	CA-IMP-006161	4-IMP-6161-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006162	CA-IMP-006162	4-IMP-6162	Prehistoric Site	No	Evaluation and Testing
P-13-006164	CA-IMP-006164	4-IMP-6164-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended

Primary Number	Trinomial	Resource Name	Site Description	Previously Evaluated	Recommendation
P-13-006165	CA-IMP-006165	4-IMP-6165-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006166	CA-IMP-006166	4-IMP-6166-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006167	CA-IMP-006167	4-IMP-6167-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006168	CA-IMP-006168	4-IMP-6168-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006169	CA-IMP-006169	4-IMP-6169-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006170	CA-IMP-006170	4-IMP-6170-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006171	CA-IMP-006171	4-IMP-6171-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006262	CA-IMP-006262	4-IMP-6262	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006264	CA-IMP-006264	4-IMP-6264-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006265	CA-IMP-006265	4-IMP-6265	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006266	CA-IMP-006266	4-IMP-6266	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006268	CA-IMP-006268	4-IMP-6268	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006269	CA-IMP-006269	4-IMP-6269	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-006274	CA-IMP-006274	4-IMP-6274	Prehistoric Site	No	Testing and Evaluation
P-13-006276	CA-IMP-006276	4-IMP-6276-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended

Primary Number	Trinomial	Resource Name	Site Description	Previously Evaluated	Recommendation
P-13-006277	CA-IMP-006277	4-IMP-6277-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006278	CA-IMP-006278	4-IMP-6278-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006279	CA-IMP-006279	4-IMP-6279-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006280	CA-IMP-006280	4-IMP-6280-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006283	CA-IMP-006283	4-IMP-6283-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006286	CA-IMP-006286	4-IMP-6285-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006290	CA-IMP-006290	4-IMP6290-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006309	CA-IMP-006309	4-IMP-6309-I	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-006310	CA-IMP-006310	4-IMP-6310	Prehistoric Site	Yes	Not Significant; no further testing recommended
P-13-016817	N/A	CalEnergy ISO-6	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-016818	N/A	CalEnergy ISO-7	Prehistoric Isolate	N/A	Not Significant; no further testing recommended
P-13-016819	N/A	CalEnergy ISO-8	Prehistoric Isolate	N/A	Not Significant; no further testing recommended

Figure 3 contains confidential cultural information and is not circulated for general public review. Figure 3 is available for review by qualified individuals by contacting the County of Imperial for an appointment:

Diana Robinson, Planner III, Imperial County Planning and Development Services Department, 801 Main Street, El Centro, California 92243 DianaRobinson@co.imperial.ca.us.

7.1.3 Recommended Archaeological Testing and Evaluation Methodology

The following archaeological testing methodology is recommended for any site impacted by the proposed project to determine its significance under CEQA criteria:

- All artifacts and features found on the sites surface will be recorded with a submeter accurate GPS and mapped to assist in establishing accurate site boundaries.
- Shovel Tests Pits (STPs) will be excavated to determine if the site has any subsurface deposits. Each STP should be a minimum of 35cm in diameter and excavated in 20-centimeter arbitrary levels. All excavated soil will be screened through a 1/4-inch screen and any artifacts will be collected. The number of STPs per site will depend on the size of the site, the density of artifacts, and the locations of any features. The STP locations will be mapped using a submeter accurate GPS.
- Any cultural material recovered during the excavations will undergo laboratory analysis and documentation.

The results of the archaeological testing will be used to determine a sites significance using the CEQA criteria outlined in Section 1.1.

7.1.4 Recommended Mitigations Measures:

CR MM-1: A qualified archaeologist, as approved by the County, will prepare an archaeological testing and evaluation plan prior to conducting any field work. The testing and evaluation plan should outline the testing methodology, laboratory analysis, curation and the criteria used to determine site significance. The qualified archaeologist selected to complete the archaeological testing and evaluation plan must be approved by the County.

CR MM-2: If an archaeological site is determined to be not significant under CEQA, no further archaeological investigations or monitoring is required since the research potential will have been exhausted during the archaeological testing phase.

CR MM-3: If an archaeological site is determined significant under CEQA, avoidance is recommended by establishing Environmentally Sensitive Areas (ESAs). ESAs will encompass the site boundary plus a 200-foot buffer around the site. ESAs should be staked and/or flagged in a conspicuous manner. Spot checking by a qualified archaeologist should be completed throughout construction to ensure ESAs are not entered. If it is necessary for the Project to encroach on any ESA, full time monitoring by a qualified archaeologist, who is approved by the County, will be required to ensure there are no impacts to the archaeological site. If avoidance is not an option, then a data recovery program should be undertaken.

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Figure 4: Overview of project area from west side. Looking south.

Figure 5: Overview of project area from the east side. Looking north.

Figure 6: Overview of project area from east side. Looking south.

Figure 7: Overview of project area from east side. Looking southeast.

Figure 8: Overview of project area on west side. Looking north.

Figure 9: Overview of project area on west side. Looking southwest.

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APPENDIX A – CONFIDENTIAL CULTURAL RECORDS SEARCH RESULTS

Appendix A – Confidential Cultural Records Search Results contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

APPENDIX B – CONFIDENTIAL DPR SERIED 523 FORMS

Appendix B – Confidential DPR Series 523 Forms

contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

H-2 Phase II Cultural Resource Report

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TRANSMITTAL LETTER

To:
Ms. Anetha Lue, PE
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

From:
Clare Steedman, PG,
Principal Geologist
Terraphase

Date:
July 21, 2020

Project Number:
S032.003.001

Subject: DVC Cell 4 Project: Transmittal of Phase II Cultural Resources Report

---

Dear Ms. Lue,

We are sending you the attached Phase II Cultural Resources Report for the Desert Valley Monofill Cell 4 Expansion Project. The report was prepared by Terraphase's subcontractor Chambers Group, Inc.

We are grateful for the opportunity to offer our services on this important project. If you have any questions or comments regarding this submittal, please contact Clare Steedman at 949-377-2227 x89.

Sincerely,
For Terraphase Engineering Inc.

Clare Steedman, PG
Principal Geologist

Attachment: Phase II Cultural Resources Report for the Desert Valley Monofill Cell 4 Expansion Project, Brawley, Imperial County, California, June 5, 2020

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PHASE II CULTURAL RESOURCES REPORT FOR THE DESERT VALLEY MONOFILL CELL 4 EXPANSION PROJECT, BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

Prepared for:

Terraphase Engineering, Inc

Clare Steedman
18401 Von Karman Ave, Suite 410
Irvine, CA 92612

Prepared by:

CHAMBERS GROUP, INC.
5 Hutton Centre Drive, Suite 750
Santa Ana, California 92707
(949) 261-5414

June 5, 2020

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors: Sandra Pentney, Richard Shultz

Firm: Chambers Group, Inc.

Client/Project Proponent: Terraphase Engineering, Inc

Report Date: June 3, 2020

Report Title: Phase II Cultural Resources Report for the Desert Valley Monofill Cell 4 Expansion Project, Brawley, Imperial County, California

Type of Study: Cultural Resources Phase 2 Evaluation

New Sites: N/A

Updated Sites: CA-IMP-6145

USGS Quad: Kane Spring 7.5-minute quadrangle

Acreage: 359

Permit Numbers: N/A

Key Words: County of Imperial, City of Brawley, Evaluation, CEQA, *Kane Spring* USGS Quadrangle

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) has been contracted by Terraphase Engineering, Inc., within the City of Brawley, Imperial County, California, to complete phase II cultural resources evaluation for the proposed Cal Energy Desert Valley Monofill Expansion Project (Project). The proposed Project includes the construction of a new geothermal waste landfill (Cell 4). The Project is proposed within 359 acres of vacant land surrounding, and to the west of, the existing Desert Valley Monofill facility, located near Brawley, Imperial County, California.

Chambers Group previously completed an archaeological literature review and records search and intensive pedestrian survey of the 359-acre project location (Roberts et al. 2019). This report outlines the archaeological findings and results of both efforts.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA). This report includes appropriate mitigation measures to ensure less than significant impacts to any cultural resources potentially affected during construction.

1.1 REGULATORY FRAMEWORK

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (Public Resources Code [PRC] §§ 21083.2 and 21084.1), the CEQA Guidelines (Title 14 California Code of Regulations [CCR], § 15064.5), and PRC § 5024.1 (Title 14 CCR § 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for eligibility for inclusion on the California Register of Historical Resources (CRHR) (PRC § 5024.1).

The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change (PRC § 5024.1). The term *historical resources* includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR § 15064.5[a]). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP). The California Office of Historic Preservation (OHP 1995:2) regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation.

1.1.1 CALIFORNIA REGISTER OF HISTORICAL RESOURCES

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the California Register must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archaeological site is not a historical resource but meets the definition of a "unique archaeological resource" as defined in PRC § 21083.2, then it should be treated in accordance with the provisions of that section. A *unique archaeological resource* is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type
    - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC § 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC § 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

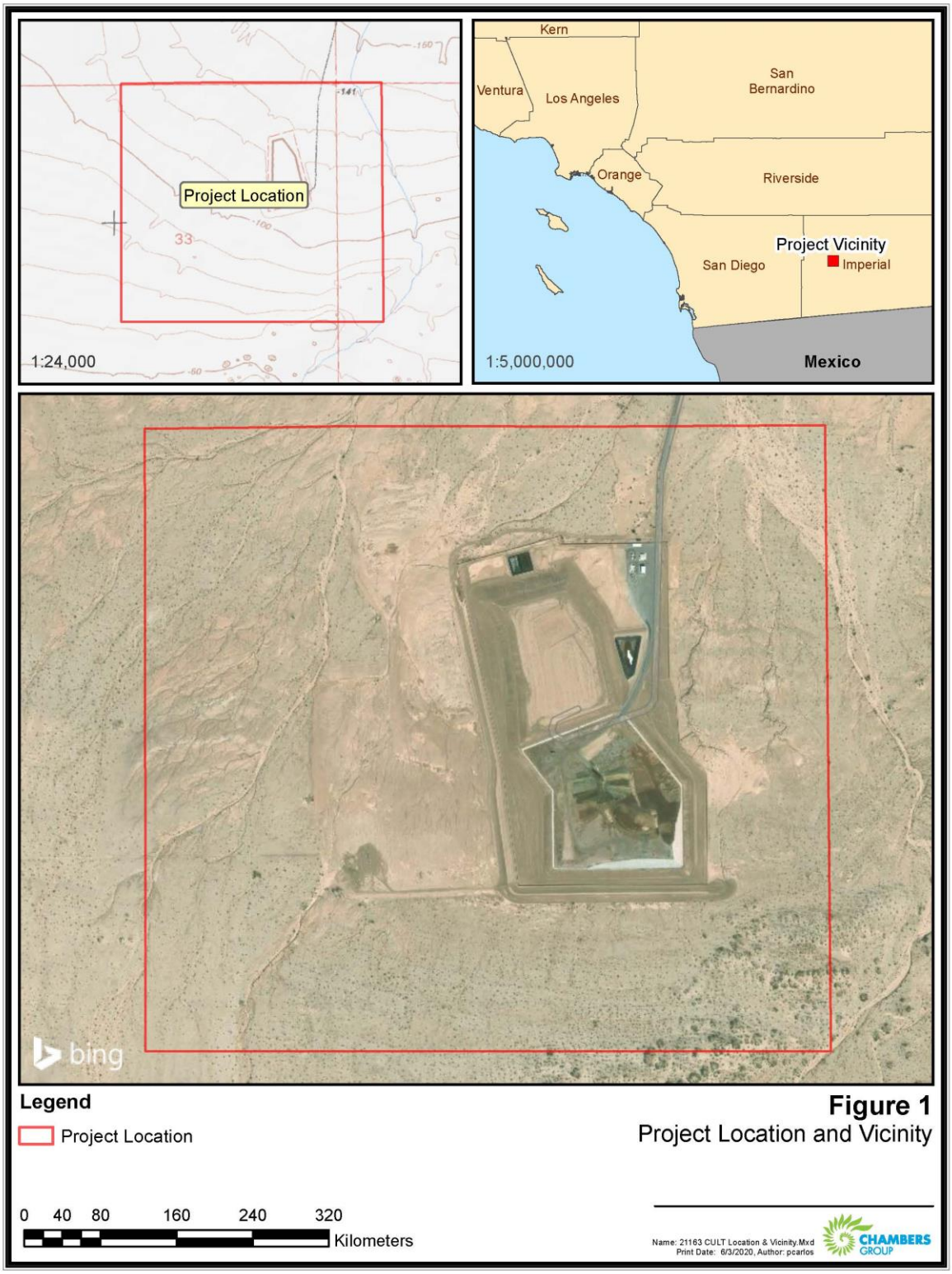
SECTION 2.0 – PROJECT DESCRIPTION AND LOCATION

2.1 PROJECT DESCRIPTION

Chambers Group has been contracted by Terraphase Engineering Inc., to complete an archaeological phase II evaluation program in support of the proposed expansion of the Desert Valley Cell 4 Monofill project (Project). The Project's area of potential effect (APE) (Figure 1)will involve the construction of a solid waste facility with a capacity of at least 1,300,000 cubic yards, including construction laydown, stockpile, and borrow areas, a leachate pond, diversion berm, and new maintenance and paved roads. All these activities are anticipated to have a significant impact on the six archaeological sites indicated in Figure 2 of Confidential Appendix A.

The project is located in Imperial County, California. Specifically, the proposed project is located on the Kane Springs 7.5-min quadrangle and includes most of Section 33, in Township 12 South, Range 11 East. Regional access to the project area is provided via CA Route 86/78 in Imperial County, California. The proposed project area is located immediately south of Kane Springs Route CA-86/78 and will be located adjacent to and west of Cell 3 of the existing monofill.

Figure 1: Project Location and Vicinity Map



SECTION 3.0 – SETTING

3.1 ENVIRONMENTAL SETTING

Imperial County is located within the Colorado Desert, which is part of the Sonoran Desert of western North America. The arid environment of this region is due to the rain shadow effect of the northern Transverse and Peninsular Mountain Ranges (Beauchamp 1986). The desert receives three to five inches (seven to 13 centimeters) of rain yearly. Temperatures vary considerably from over 120 degrees Fahrenheit in the summer to below freezing in the winter months (Beauchamp 1986). Currently, vegetation surrounding the project includes drought-tolerant species such as desert scrub, creosote bush, saltbush, and tamarisk. Prehistorically, the project area would have been dominated by a creosote bush scrub community such as that which covers wide areas of southern California from the lowest desert elevations up to 3,000 feet. Plant species would include creosote bush, burroweed, and occasionally desert monkey flower, desert dandelion, Gilia species, Phacelia species, evening primrose, and suncap (Beauchamp 1986).

3.2 PREHISTORY

The prehistory of Imperial County may be divided into four major temporal periods: Pre-projectile, Paleoamerican, Archaic, and Late Prehistoric. These time periods have regional expression through various regional archaeological complexes or archaeological cultures.

3.2.1 Pre-projectile Period

A Pre-projectile Period is posited by some researchers for the greater Southwestern United States. This time period is represented by the Malpais Complex. The term Malpais was first coined by Malcolm Rogers to refer to very heavily patinated and weathered artifacts that he reasoned were quite old. Rogers later dropped the term and reclassified these materials as San Dieguito I (Rogers 1939). The term Malpais was later resurrected by Julian Hayden to refer to assemblages of very heavily varnished choppers, scrapers, and other core-based tools typically found on old desert pavement areas. Malpais materials are posited to predate the San Dieguito materials, however, obtaining radiocarbon or other absolute dates for these materials has proven elusive (e.g., Begole 1981; Childers 1980; Davis et al. 1980; Hayden 1976). Malpais sites are characterized by “bare circles” (i.e., cleared circles or house remains) that have been cleared from volcanic landscapes. Malpais sites are located above drainages on flat, rolling terrain, and a short distance up the side of a slope. Trails are a common feature at these sites (California State Parks 2005). Other researchers are quite skeptical of this posited period (e.g., Schaefer 1994). The Yuha Burial Site and the Yuha Pinto Wash Site, both located in the Yuha Desert south of the project, are two controversially dated sites (Moratto 1984).

3.2.2 Paleoamerican Period

The earliest part of the Paleoamerican Period in the region is represented by the Fluted Point Tradition. Fluted points have been well documented and dated for the Rocky Mountain and Great Plains areas (Haury 1975; Hester 1972; Jennings 1978; McGuire and Schiffer 1982). In these regions, they are often associated with big game kill sites and are interpreted to reflect a Big Game Hunting Tradition. In the Great Basin and California, however, their dating is more problematic. They are typically found along the shorelines of Pleistocene playas, along fossil streams, and in passes connecting such places (Fredrickson

1973; Riddell and Olsen 1969). Some researchers suggest that this reflects a lacustrine or riparian adaptation ancestral to the Western Pluvial Lakes Tradition or San Dieguito–Lake Mojave Complex that developed after about 12,000 before present (BP) (Moratto 1984).

The San Dieguito–Lake Mojave Complex is thought to have existed approximately 10,000 to 7,000 years ago during a time of greater rainfall than the present in southeastern California (Warren and Crabtree 1986). The assemblage consists of heavy percussion, core, and flake-based tools: domed and keeled choppers, planes, and scrapers. One also finds light-percussion flaked spokeshaves, flaked-stone crescentics, and leaf-shaped projectile points. In the Mojave Desert, one also finds the distinctive Lake Mojave and Silver Lake stemmed projectile points. Fluted points are also occasionally found on San Dieguito–Lake Mojave surface sites (Moratto 1984). Milling equipment is apparently rare or absent (Warren and Crabtree 1986:184). Subsistence is generally thought to have been focused on highly ranked resources such as large mammals. This subsistence strategy may have encouraged a pattern of relatively high residential mobility. Some cleared circles, trails, and geoglyphs in the Colorado Desert have been tentatively included in the San Dieguito–Lake Mojave Complex. Temporal placement of these sites is based on degree of embeddedness in desert pavements and patination, a dating method that has not been proven reliable (Hayden 1976; McGuire and Schiffer 1982; Rogers 1939).

3.2.3 Archaic Period

The early Archaic Period is represented by the Pinto Complex (7,000 to 4,000 BP) in the Colorado Desert. There is an apparent shift to a more generalized economy and a gradually increased emphasis on the exploitation of plant resources. The ground stone artifacts associated with this complex are typically thin slabs with smooth, highly polished surfaces, not the basin metates and manos typical of later times. Rogers (1939:52-53) argued that the thin, polished “slab metates” were not milling stones, but rather were used to process fibrous leaves or skins (Susia 1964; Wallace 1962; Warren 1984). Projectile points consist of the distinctive Pinto Series atlatl points made by hard hammer percussion technique. The assemblage also includes scrapers, knives, scraper-planes, and choppers. The mixed core-based tool assemblage of the Pinto Complex may indicate a range of adaptations to a more diversified set of plant and animal resources brought about by a generalized desiccating trend in the West, punctuated by occasional, more mesic times. The early component at the Indian Hill Rockshelter in Anza–Borrego Desert State Park, approximately 22 miles west of the project area, has been dated to this period. In general, archaeological sites dating to this period are rare in the Colorado Desert (Cleland et al. 2003).

According to Schaefer (1994), Indian Hill Rockshelter (CA-SDI-2537), located in the eastern foothills of the Jacumba Mountains, is the only well-documented site in the Colorado Desert of this period. A radiocarbon date of 4070±100 years BP was obtained from a burial. This site contained rock-lined features, Elko points, core tools, hammerstones, manos reused as cooking stones and in hearths, brown ware and buff ware ceramics, ceramic pipes, and shell beads (McDonald 1992). The ceramics were found in the upper levels of the deposit and date to a later site component. MacDonald (1992) suggests that Indian Hill Rockshelter was a multi-component site used as a food storage facility with numerous rock-lined features, occupied during the winter and spring.

Following the Pinto Complex is the Gypsum Complex, or Amargosa Complex (4000 to 1500 BP). This complex is characterized by the presence of fine, pressure-flaked Elko and Humboldt series and Gypsum-type projectile points. The assemblage also contains leaf-shaped points; rectangular-based knives; flake scrapers; T-shaped drills; and occasional large scraperplanes, choppers, and hammerstones. Manos and basin metates become relatively common, and the mortar and pestle were introduced late in the complex

(Warren 1984:416). The fluorescence of tool types and the refinement of milling equipment suggest a more generalized and effective adaptation to desert conditions in the Greater Southwest (Warren and Crabtree 1986).

3.2.4 Late Prehistoric Period

The Late Prehistoric Period, also known as the Patayan Complex, begins by approximately 1500 BP. At this time, the archaeological record in the Colorado Desert shifts to the Patayan Complex (e.g., Schaefer 1994). The Patayan Complex, first termed by Colton (1945), is characterized by dramatic cultural change and an expanded population in the Salton Trough. Paddle and anvil pottery was introduced, probably from Mexico by way of the Hohokam Complex of the middle Gila River area (Schroeder 1975, 1979; Rogers 1945). Lower Colorado Buff Ware, as described in the Patayan Complex, appears by about 1250 BP in the Colorado Desert (Waters 1982; Hildebrand 2003). Tizon Brownware, found in San Diego County, northern Baja California, and the western Salton Basin, occurs slightly later (Griset 1996).

The Patayan Complex is divided into three phases: Patayan I, II, and III. The terms Yuman I, II, and III—as termed by M. Rogers (1945)—coincide with the three Patayan periods with slight differences in terms of ceramic types and are defined by changes in ceramic types and the filling and desiccation of Lake Cahuilla (Waters 1982; Weide 1976).

The settlement system of Patayan I (1250–950 BP) is characterized by small mobile groups living in dispersed seasonal settlements along the Colorado River. Hunting and gathering was the subsistence strategy used by these mobile groups. Yuman I people also have been described as having resided in the delta of the Colorado River from the ninth century until approximately 900 BP (Rogers 1945). A subsistence shift to floodplain horticulture occurred along the Colorado River and perhaps along the Alamo River and New River during the Patayan II Period (950–450 BP) (Baksh 1994; Forde 1931). Like elsewhere in the Southwest, principal crops were maize, beans, and squash, but mesquite was actually more important to the diet. Fish from the Colorado River was the main source of protein (Castetter and Bell 1951). The shift to Patayan II coincides with the various filling–recession episodes of Lake Cahuilla and the lacustrine environment created by the lake. Yuman II also spanned from 900 to 450 BP and is characterized with an expansion into large settlement areas because of filling of Lake Cahuilla (Rogers 1945). During Patayan III (450–20 BP), there was a population shift because of the final desiccation of Lake Cahuilla (Rogers 1945; Waters 1982). Rogers (1945) also mentioned this population shift during his discussion of the Yuman III Period.

Smaller projectile points signifying the advent of the bow and arrow appear about 1050 BP in the Colorado Desert. Cottonwood Series points predate the Desert Side-notched Series (Justice 2002:368). Also, during this period, burial practices shifted from inhumations to cremations. Other culture traits generally associated with this period include increasingly elaborate kinship systems, rock art including the famous geoglyphs or ground figures found along the Colorado River, and expanded trading networks as evidenced by the presence of shell from the Pacific Ocean and Gulf of California in Colorado Desert sites (Davis 1961; McGuire and Schiffer 1982; Warren 1984; Schaefer 1994). Numerous trails that appear to date to this period throughout the Colorado Desert suggest the growing importance of long and short-distance travel for trading expeditions, religious activities, visiting, and warfare. The greatly increased number of Late Period archaeological sites suggests an expansion of population. The settlement pattern is characterized by small mobile groups living in seasonal settlements along the Colorado River floodplain. These locations were influenced by the filling and desiccation of Lake Cahuilla at least four times during this period (Schaefer 1994).

3.2.5 Ethnohistory

The project area was utilized prehistorically by a variety of Native American groups, including the Kumeyaay (the Kamia are a subset of this group), the Cocopah, and the Quechan. These three groups speak the language of the Yuman family of the Hokan language stock (Kroeber 1920). Short descriptions of their individual ethnographic context are outlined below.

At the time of the Spanish contact, the Kumeyaay (also known as Kamia, Ipai, Tipai, and Diegueño) occupied the southern two-thirds of San Diego County. The term Kamia refers to the desert Kumeyaay while Ipai refers to the Kumeyaay north of Agua Hedionda to the San Luis Rey River and Tipai refers to the Kumeyaay south of Agua Hedionda to Todos Santos Bay, Mexico, and east to the Imperial Sand Dunes. The Kumeyaay lived in semi-sedentary, politically autonomous villages or rancherias. A settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places (Cline 1984). For example, the *Kwamai* (or *Kwaaymii)* clan spent their summers in the Laguna Mountains and their winters in the desert a few miles to the east of the project area (viz. Mason Valley, Vallecito Creek, Carrizo Creek) (Cline 1984:12-19; Spier 1923:306).

The Kumeyaay economic system consisted of hunting and gathering, with a focus on small game, acorns, grass seeds, and other plant resources. The most basic social and economic unit was the patrilocal extended family. A wide range of tools was made of both locally available and imported stone, including scrapers, choppers, flake-based cutting tools, and biface knives. Ground stone objects include mortars and pestles, and manos and metates typically made of locally available fine-grained granite. The Kumeyaay made fine baskets of either coiled or twined construction. The Kumeyaay also made pottery, using the paddle-and-anvil technique. Most were a plain brown utility ware called Tizon Brownware, but some were decorated (May 1978; Meighan 1954; Spier 1923).

Trade was an important feature of Kumeyaay subsistence. Coastal groups traded salt, dried seafood, dried greens, and abalone shells to inland and desert groups for products such as acorns, agave, mesquite beans, and gourds (Almstedt 1982:10; Cuero 1970:33; Luomala 1978:602). Travel and trade were accomplished by means of an extensive network of trails. Kumeyaay living in the mountains of eastern San Diego County frequently used these trails to travel down to the Kamia settlement of *Xatopet* on the east/west portion of the Alamo River to trade and socialize in winter (Castetter and Bell 1951; Gifford 1918:168; Spier 1923:300; Woods 1982).

The Kamia traditional territory included the southern Imperial Valley from the latitude of the southern half of the Salton Sea to well below what is the U.S.–Mexico international border (Forbes 1965; Luomala 1978:593). Their main settlements were along the New and Alamo rivers (Gifford 1931).

Subsistence among the Kamia consisted of hunting and gathering, and floodplain horticulture (Barker 1976; Gifford 1931). In normal years, the Colorado River would overflow its banks in the spring and early summer and fill rivers such as the New and Alamo. When the floodwater receded, the Kamia would plant in the mud. A dam was maintained at *Xatopet* on the east/west portion of the Alamo River to control water flow and allow farming in years when water flow was insufficient (Castetter and Bell 1951:43). Gifford (1931:22) and Castetter and Bell (1951:43) suggested these were recent adaptations and not traditional life ways. Bean and Lawton (1973); Lawton and Bean (1968), and Shipek (1988) argue that irrigation was indigenous.

The Kamia's major food staple was mesquite and screwbean, called by the Kamia *anxi* and *iyix*, respectively (Gifford 1931:23). Seeds of the ironwood (*Palo fierro*) and palo verde were also used. Neither palo verde nor ironwood was considered a particularly desirable food resource (Castetter and Bell 1951:195-196). Acorns were at times an important food. They were gathered in the mountains to the west of Kamia territory in October and acquired through trade from the southern Kumeyaay (Gifford 1931).

Hunting contributed to the diet in a minor way in terms of overall caloric intake, but provided valuable protein, and skin and bone for clothing, blankets, and tools. Small game, primarily rabbits, was most frequently taken, using bow and arrow or rabbit stick (*macana*). Sometimes fires were set along sloughs to drive rabbits out. Individuals with bow and arrow also hunted deer and mountain sheep. Fish were also taken in sloughs with bow and arrow, by hand, hooks, basketry scoops, and seine nets (Gifford 1931:24).

The Cocopah lived on the west side of the Colorado River delta from the tidewater area, north from a little above the latitude of Volcano Lake or Cerro Prieta to several miles south of the US–Mexico border (Castetter and Bell 1951:52; Gifford 1933:261; Kroeber 1920). Like other river Yumans, the Cocopah settlements were dispersed residential areas or rancherias, not close-knit villages (Castetter and Bell 1951:53).

Cocopah subsistence was similar to other river Yuman people, although their location in the Colorado River delta area had a somewhat different environment from that of the upstream tribes. The Colorado River frequently changed course within the general floodplain throughout the area below the Grand Canyon. The river formed very active meanders in the delta region, requiring settlement and field movement among the Cocopah and other delta peoples (Castetter and Bell 1951; Sykes 1937). Mesquite and screwbean grew in profusion and formed a dietary staple of the Cocopah. Other important wild food sources of the delta region were "wild rice or wild wheat," and *quelite* or amaranth (Castetter and Bell 1951:192). The Cocopah planted a variety of maize, pumpkins, tepary beans, cowpeas, muskmelons, watermelons, and *heshmicha* (grain resembling wheat), and sugar cane (Gifford 1933).

Hunting was relatively unimportant and was confined primarily to the hills and mountains. Fish was the most important animal food among the Lower Colorado River peoples. The Cocopah fished in the Colorado and Hardy rivers, and occasionally parties would fish along the Gulf of California. Fish were also taken with bow and arrow, as well as by spears, gill nets, and dip nets (Castetter and Bell 1951:216; Gifford 1933:268).

The Cocopah frequently visited the mountainous Paipai country west of the delta to trade and to gather pine nuts and acorns. Tobacco, mescal (roasted agave), and mountain sheep skins were obtained from the Paipai in exchange for delta foodstuffs. The Cocopah also obtained tobacco and eagle feathers from the Kumeyaay (Castetter and Bell 1951:54; Kelly 1977; Sample 1950:22). At times, the Cocopah traded seashells to the Kamia (Gifford 1931:37). They also visited frequently with their allies, the Maricopa, on the middle Gila River and with the Halchidhoma who lived in the Blythe area from about 1700 to 1830 (Gifford 1933; Kelly 1977).

The Quechan (*Kwatsan*) were formerly called the Yuma Indians. Their territory was centered at the confluence of the Gila and Colorado Rivers (present-day Yuma, Arizona), but extended north on the Colorado about 60 miles and 30 miles up the Gila. According to Quechan tradition, the northern boundary was in the vicinity of Blythe, California; the southern boundary reached into Baja California and Sonora, Mexico. Their neighbors on the northwest were the Cahuilla and Luiseño, and to the west the Kamia. Their eastern boundary was just west of Gila Bend, Arizona (Miguel n.d., cited in Bee 1982:37).

The Quechan had a relatively large population. The Quechan are not mentioned by Alarcon or Diaz at the time of first Spanish contact in 1540. The next visitor to the area, Juan Oñate, estimated a population of about 4,000 in 1604 (Bee 1983; Forbes 1965:343). He mentioned a stable horticultural and gathering economy. Throughout winter and spring, the Quechan lived in large seasonal settlements or rancherias located on terraces above the Colorado River floodplain. These winter settlements were moved from time to time, and establishing their precise locations is problematic (Bee 1982:40-44, 1983:87; Forde 1931:101). When the floodwaters of spring receded, the Quechan left their winter villages on the river terraces and dispersed into camps near their 2- to 3-acre horticultural plots distributed along the river floodplain. Extended families resided in these camps. Planting was done in the mud, as the river receded. Major crops included maize, squash, pumpkin, watermelon, and wheat (Castetter and Bell 1951). Wheat was introduced by Kino in 1700 (Castetter and Bell 1951:123). After the fall harvest season, the Quechan would reconvene in villages on terraces above the river to avoid seasonal flooding (Bee 1983:88; Forde 1931:101).

Quechan villages were a collection of houses, or rancherias, dispersed along the Colorado and Gila rivers. Households consisted of composite families that lived together and moved, more or less as a unit from place to place within a constantly changing floodplain environment. The annual flood of the Colorado constantly changed the gardening areas, eroding some, and burying others under tons of silt. This undoubtedly changed the desirability of potential village sites, campsites, and garden plots from time to time. The Quechan burned the houses and possessions of the dead (Bee 1982, 1983; Forde 1931; Trippel 1889:583), which also contributed to the movement of villages from time to time (Trippel 1889:583). Like other Lower Colorado Yuman peoples, the Quechan moved through their territory in a very dynamic cultural landscape (Bee 1982, 1983; Forde 1931).

3.3 HISTORY

The first significant European settlement of California began during the Spanish Period (1769 to 1821) when 21 missions and four presidios were established between San Diego and Sonoma. Although located primarily along the coast, the missions dominated economic and political life over the greater California region. The purpose of the missions was primarily for political control and forced assimilation of the Native American population into Spanish society and Catholicism, along with economic support to the presidios (Castillo 1978).

In the 1700s, due to pressures from other colonizers (Russians, French, British), New Spain decided that a party should be sent north with the idea of founding both military presidios and religious missions in Alta California to secure Spain's hold on its lands. The aim of the party was twofold. The first was the establishment of presidios, which would give Spain a military presence within its lands. The second was the establishment of a chain of missions along the coast slightly inland, with the aim of Christianizing the native population. By converting the native Californians, they could be counted as Spanish subjects, thereby bolstering the colonial population within a relatively short time (Lech 2012: 3-4).

The party was led by Gaspar de Portolá and consisted of two groups; one would take an overland route, and one would go by sea. All parties were to converge on San Diego, which would be the starting point for the chain of Spanish colonies. What became known as the Portolá Expedition set out on March 24, 1769. Portolá, who was very loyal to the crown and understood the gravity of his charge, arrived in what would become San Diego on July 1, 1769. Here, he immediately founded the presidio of San Diego. Leaving one group in the southern part of Alta California, Portolá took a smaller group and began heading north to his ultimate destination of Monterey Bay. Continuing up the coast, Portolá established Monterey Bay

as a Spanish possession on June 3, 1770, although it would take two expeditions to accomplish this task. Having established the presidios at San Diego and Monterey, Portolá returned to Mexico. During the first four years of Spanish presence in Alta California, Father Junípero Serra, a member of the Portolá expedition and the Catholic leader of the new province, began establishing what would become a chain of 21 coastal missions in California. The first, founded concurrently at San Diego with the presidio, was the launching point for this group. During this time, four additional missions (San Carlos Borromeo de Carmelo, San Antonio de Padua, San Gabriel Arcángel, and San Luis Obispo de Tolosa) were established (Lech 2012: 1-4).

The Mexican Period (1821-1848) began with the success of the Mexican Revolution in 1821, but changes to the mission system were slow to follow. When secularization of the missions occurred in the 1830s, their vast land holdings in California were divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to Spanish and Hispanic soldiers and settlers (Castillo 1978; Cleland 1941). Even after the decree of secularization was issued in 1833 by the Mexican Congress, missionaries continued to operate a small diocesan church. In 1834, the San Gabriel Mission, including over 16,000 head of cattle, was turned over to the civil administrator. At the end of the Mexican Period, General Stephen Kearney, guided by Kit Carson, and his troops crossed the Colorado Desert east of the survey area in 1846 following the Native American trails. The famous Mormon Battalion, under the command of Philip St. George Cook, followed a similar route in 1847.

In 1848, The Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the beginning of the American Period (1848 to present). The discovery of gold that same year sparked the 1849 California Gold Rush, bringing thousands of miners and other new immigrants to California from various parts of the United States, as well as across the globe. For those settlers who chose to come to southern California, much of their economic prosperity was fueled by cattle ranching rather than by gold. This prosperity, however, came to a halt in the 1860s because of severe floods and droughts, as well as legal disputes over land boundaries, which put many ranchos into bankruptcy.

The gold seekers and homesteaders traveled through the Colorado Desert using the same route as Kearny and the Mormon Battalion, then known as the Southern Emigrant Trail in the early 1900s. In 1853 the route was used by the Birch Overland Mail and later in 1858 by the Butterfield Southern Overland Mail Line. After 1861, when the mail route stopped service, the route was used mostly for cattle drives from Mason and Vallecitos valleys to Carrizo Valley and the Fish Creek area in the desert (Cook and Fulmer 1980). In 1890, prospectors in search of minerals in the Anza-Borrego Desert began using the route (Cook and Fulmer 1980). Today this former Indian and pioneer route is called County Route S2, or the Great Southern Overland Stage Route of 1849, which connects Ocotillo at Interstate 8 with Warner Springs to the north.

Around the turn of the twentieth century, the Imperial Valley experienced considerable population growth after the construction of irrigation projects, and agriculture became a prime focus of economic activity. In time, the areas served by the canal have become one of the richest and most important agricultural areas in the U.S. since the completion of the canal in 1938 (Queen 1999).

The California Development Company (CDC) under the direction of Charles Rockwood and George Chaffey constructed the first diversion canal and irrigation system. The diversion was made from the Colorado River on May 14, 1901, traversing through Mexican territory for some 40 miles within the Alamo River channel. The Central Main Canal (originally identified as Main Canal No. 1) was excavated and branched from the Alamo River channel, continuing westward to a point, known as Sharp's Heading, approximately

four miles east and south of Calexico. After crossing the international boundary, the Central Main continued on to the northern boundary of Mutual Water Company No. 1 at Heading 4, a few miles to the southwest of the present city of Brawley. Service along the line began in March 1902 (Dowd 1956).

Population growth in the area, following the investment in the water infrastructure, was rapid. Between 1902 and 1905 the population had risen from 2,000 to between 12,000 and 14,000. At the same time, the number of irrigated acres increased from 1,500 in 1901 to 80,000 acres in 1905 (Dowd 1956).

Significant and disruptive water shortages, caused primarily by silting of the intake canal, during winter of 1902-1903, and again in 1904, in concert with a general dissatisfaction with the CDC by valley farmers, led to growing support for federal control of the water project. In an effort to overcome the problems with silting, and to prevent water shortages during the coming winter, CDC excavated a new channel without a properly constructed head gate to control the flow of water. A larger than normal winter flood in 1905 caused the Colorado River to break through the gate and its supports, overflowing through the New River and Alamo channels, flooding the Imperial Valley and creating the Salton Sea. As a result of numerous lawsuits relating to the 1905 river breech, the CDC declared bankruptcy in 1909. In order to protect their interests, the people of the Imperial Valley voted in favor of establishing the Imperial Irrigation District (IID) in 1911 (Dowd 1956).

Imperial County was formed in 1907 from a portion of San Diego County known as Imperial Valley and is the newest of California's counties. It is known for being one of California's most prosperous agricultural communities because of its vast canal systems stemming from the Colorado River. The first diversion of the Colorado River was in 1901 and continued through 1940 (Dowd 1956; Stene 1995) when the All-American Canal was completed. The nearby City of Brawley was originally going to named Braly after J.H. Braly, a Los Angeles man who was assigned 4,000 acres of land at the center of where the current city sits now. Braly sold his 4,000 acres of the land in 1902, to George E. Carter, after Braly believed the land would be nothing but a hostile wasteland. Not long after the sale, the Imperial Land Company purchased the land from Carter, and was renamed Brawley. The city of Brawley was officially incorporated in 1908. Today, the city of Brawley encompasses 8.11 square miles of land and has a population of approximately 26,000 people (City of Brawley 2019).

SECTION 4.0 – RESEARCH DESIGN

4.1 PREVIOUS RESEARCH

The general project area has been subjected to 15 previous cultural resources studies. These studies have resulted in the recordation of six cultural resources sites within the current Project boundaries (Confidential Appendix A, Figure 2). These sites are discussed individually below.

Within the project area, ERC Energy and Environmental Services Company (ERCE) completed a number of surveys and tests associated with the construction of the existing monofill – Cell 3 (Gallegos and Pigniolo 1989). One site located near the existing monofill and the proposed Cell 4 expansion is CA-IMP-6141. This 7-acre site was tested by Gallegos and Pigniolo (1989), who recorded approximately 225 ceramic sherds, 75 pieces of lithic debitage, one large weathered biface, and ten sandstone mano and metate fragments from the surface. Nearly all mano and metate fragments are fire-affected and associated with concentrations of fire-affected rock that may represent hearths (Gallegos and Pigniolo 1989:3-11). A total of 17 shovel test pits (STPs) was excavated across the site in 20-meter increments. Four positive STPs were recorded, with artifacts reaching a maximum depth of 30 centimeters. The presence of Colorado Buff and Tizon Brownware suggests a late prehistoric occupation. Based on the presence of subsurface deposits, integrity over most of the site area, and the relatively large quantity and variety of material, the site was identified as eligible to the CRHR and NRHP (Gallegos and Pigniolo 1989:4-4).

More recently, Brian F. Smith and Associates (BFSA) completed a Phase I Survey and inventory of sites within the proposed project area for the new monofill – Cell 4 (Garrison and Smith 2018). Following up on this work, Chambers Group completed a Phase I survey and inventory of sites within the project area (Roberts et al. 2019). Based on this effort, six sites located within the Area of Potential Effect (APE) are likely to be negatively impacted by construction activities. These sites have been previously recorded but to date were unevaluated for eligibility on the CRHR.

Site CA-IMP-6142 was originally recorded as a low-density lithic and ceramic scatter. The 3.7-acre site was recorded during the 1989 survey of additional acreage in conjunction with the Monofill Project by ERCE (Gallegos and Pigniolo 1989). Artifacts included over 50 volcanic flakes, over 20 sherds of Salton Buff, and one green volcanic projectile point. To determine if the site had a subsurface component, ERCE excavated one STP to a depth of 30 centimeters within the site boundaries with negative results. The site was not evaluated by ERCE because it was outside of the area impacted by the project. During the BFSA survey (Garrison and Smith 2018), IMP-6142 was relocated on a flat, vegetated terrace at an elevation of approximately 90 feet below mean sea level (MSL). Various small washes were noted throughout the area and cut across the site. Two possible sandstone hearth features were located within the site boundary, but their exact location was not specified. No ceramic sherds were observed; however, more than 10 volcanic debitage were sparsely scattered throughout the recorded site boundaries. Chambers Group surveyed the site on 9 May 2019 and was not able to confirm these results, but this may be due to increased vegetation and/or sedimentation following recent rains at the project area (see e.g., Treganza 1942).

Site CA-IMP-6144 was originally recorded in 1989 by ERCE (Gallegos and Pigniolo 1989). The 11.4-acre site was described as a temporary habitation site containing hearth features and a low-density artifact scatter. Features included 11 hearths, two lithic reduction sites, and two “pot-drops.” ERCE excavated three shovel tests, all of which were negative. The site was not evaluated by ERCE because it was outside of the area impacted by the project. BFSA relocated the site and observed two lithic reduction sites but no hearth

Figure 2. Previously Recorded Sites

(In Confidential Appendix A)

features (Garrison and Smith 2018). Chambers Group archaeologists relocated the site in a 9 May 2019 survey, confirming BFSA's observations. The site appeared to be in a similar condition to what was reported previously, and no new disturbances were observed.

CA-IMP-6145 was originally recorded in 1989 by ERCE (Gallegos and Pigniolo 1989). The 14.5-acre site was described as a temporary encampment consisting of a series of fire hearths with associated artifacts scatters connected by low-density lithic and ceramic scatters. Features included ten hearths with fire-affected rock, five manos and mano fragments, and hundreds of ceramic sherds and lithic debitage, both local and imported. One shovel test was excavated with positive results from the upper 10-centimeter level. The site was not evaluated by ERCE because it was outside of the area impacted by the project. In a 9 May 2019 survey, Chambers Group archaeologists relocated this site and observed a low-density lithic scatter and some ceramic sherds. Ceramics were light brown in color and typical of ceramics from around the Lake Cahuilla area. No hearths were observed by the survey crew. The northern section of the site is transected by two well-travelled dirt roads, which have rutted in places, similarly with other natural rills and channels that have developed in the region. The site, as recorded in 1989, extended into the present southeast corner of the monofill property. Aerial photographs indicate that this expansion into the site boundary took place sometime between 2002 and 2005 (USDA 2002, 2005). Based on the existing expansion of the monofill property it appears that the western margin of the site has been truncated, and the boundary was adjusted accordingly during the 2019 survey.

CA-IMP-6146 was originally recorded in 1989 by ERCE (Gallegos and Pigniolo 1989). The 1-acre site includes a prehistoric temporary camp with hearths and an associated lithic and ceramic scatter. The results of a single shovel test were negative. The site was not evaluated by ERCE because it was outside of the area impacted by the project. Chambers Group surveyed the site on 9 May 2019 and was not able to confirm these results, but this may be due to increased vegetation and/or sedimentation following recent rains at the project area.

CA-IMP-6149 was originally recorded in 1989 by ERCE (Gallegos and Pigniolo 1989). The 0.5-acre site includes a prehistoric camp with a projectile point fragment and associated lithic and ceramic scatter. The site was not evaluated by ERCE because it was outside of the area impacted by the project. Chambers Group surveyed the site on 9 May 2019 and was not able to confirm these results, but this may be due to increased vegetation and/or sedimentation following recent rains at the project area.

CA-IMP-6162 was originally recorded in 1989 by ERCE as an isolate consisting of three volcanic flakes (Gallegos and Pigniolo 1989). After original recordation as an isolate, the South Coast Information Center determined that the approximately 15-square meter resource met minimum requirements to be considered a site rather than an isolate. The site was not evaluated by ERCE because it was outside of the area impacted by the project. Chambers Group surveyed the recorded site area on 9 May 2019 and was not able to confirm these results. This may be due to increased vegetation and/or sedimentation following recent rains at the project area. Additionally, the site appears to have been located within or near the original Monofill project footprint and may have been impacted by the Monofill construction and operations.

4.2 RESEARCH DESIGN

A research design was created to evaluate prehistoric sites CA-IMP-6142, CA-IMP-6144, CA-IMP-6145, CA-IMP-6146, CA-IMP-6149, and CA-IMP-6162. The sites are located within the area of potential effects (APE) designated for the development of the Desert Valley Company Monofill Cell 4 expansion. In the absence of mitigation through protection in place, Chambers Group recommended that these six sites undergo archaeological testing and significance evaluation.

Chambers Group excavated shovel test pits at six archaeological sites that are subject to direct and indirect impacts based on project design. The goal of excavating the STPs was to determine the presence or absence of subsurface cultural deposits, and if present, the horizontal and vertical extents of such deposits, to assess each site's integrity, and to evaluate the site's significance through a study of its features and artifacts.

If significant artifacts or features were discovered, it was proposed that at least one 1x1-meter unit was planned be excavated to collect enough data to interpret and evaluate the site. Artifacts were collected and returned to the laboratory for analysis. The goal of this type of investigation is to identify site function (e.g. lithic reduction, temporary habitation) and how the site fits into the regional chronology. These analyses were then used in determining whether to recommend a site for eligibility to the CRHR or NRHP.

SECTION 5.0 – METHODS

Chambers Group proposed to evaluate six archaeological sites that may be subject to direct and indirect environmental impacts per the current project design for the Project. The six sites included CA-IMP-6142, CA-IMP-6144, CA-IMP-6145, CA-IMP-6146, CA-IMP-6149, and CA-IMP-6146. The goal of archaeological evaluation was to determine whether the cultural resources are significant according to CEQA §15064.5 (see below). Chambers Group conducted test excavations to ascertain the presence or absence of subsurface cultural deposits, and if present, the horizontal and vertical extents of such deposits. These efforts were necessary to assess each site's integrity, and to evaluate the site's significance through a study of its features and artifacts.

5.1 FIELD METHODS

Between February 17 and February 20 Chambers Group archaeologists Martin Jorgensen, Shane Wetherbee, and Kathleen Ambrosino were on site to complete the following field investigations. The field team was accompanied by Alan Benegas, a Kumeyaay Native American monitor representing the Viejas Band of Kumeyaay Indians. All work for the project was overseen by Sandra Pentney, M.A., R.P.A. Mobilization support was provided by Lauren DeOliviera, M.A. A site-specific survey was conducted to identify and map the distribution of surface artifacts. Chambers Group archaeologists placed STPs in approximately 25-meter intervals across each of the larger sites, as appropriate, to determine whether the site has subsurface deposits. Additional STPs were placed intuitively where the survey revealed high concentrations of artifacts. STPs also were placed strategically at the borders of the site to determine the horizontal extent of subsurface deposits where necessitated. STPs measured 35 centimeters (cm) in diameter and were excavated in 20-cm levels until two levels of sterile soil were excavated (minimum depth of 40 cm) or bedrock reached. Previously, Chambers Group anticipated excavating up to 59 STPs, with the intent of moving or cancelling STPs as deemed appropriate in the field depending on the condition of the site (Table 1 and Confidential Appendix A, Figure 3).

Table 1: Recommended sites for testing and STP distribution

Site Number	Size (acres)	Anticipated STPs	Excavated STPs
CA-IMP-6142	2.7	6	6
CA-IMP-6144	11.4	20	10
CA-IMP-6145	14.5	28	23
CA-IMP-6146	1.0	2	7
CA-IMP-6149	0.5	2	2
CA-IMP-6162	15 sq. m.	1	1

Chambers Group processed all soils from the STP excavations through 1/4-inch hardware mesh using shaker screens. The excavations were digitally documented using a combination of field-equipped iPads, high resolution digital cameras, and GPS units. Analysis of non-significant finds included the description and tabulation of basic artifact categories and were documented on standard Chambers Group STP forms.

Chambers Group excavated two 1x1-meter test units; one each at two sites. Chambers Group excavated

the 1 × 1m units in arbitrary 10-centimeter levels until two levels of sterile soil were excavated (minimum depth of 40 cm) or bedrock was reached.

Artifacts recovered from the surface collection and excavation programs were collected from the field and cataloged in the lab at the Chambers Group San Diego Office. Recovered artifacts were bagged by STP number and associated level. A table summarizing all cultural resource finds is provided below and discussed in the results sections. Department of Parks and Recreation (DPR) 523 forms will be created and attached to the report for all significant cultural resources found during testing.

5.2 LABORATORY ANALYSIS AND TREATMENT

Through a combination of surface collection and excavation programs (STPs and 1 x 1 m excavation units (EU)) a total of 70 catalog entries were made, encompassing approximately 105 items. These items were collected in the field into zip-top bags with provenience information affixed. These materials were brought to Chambers Group's San Diego office for temporary storage and analysis.

Each item was analyzed according to broad category – e.g., lithic, bone, shell, etc. – and items within each category analyzed according to standard archaeological analytical protocols. Items were sorted to collection strategy – e.g., surface collection, STP or unit excavation – and to stratigraphic level. Items were then assigned a unique catalog number based on their specific characteristics and data was entered into MS Access. Individual examples were given their own catalog number. If multiple items of the same type were identified within a single provenience, then a count of the items was made, and a single catalog number was assigned to all the items. These data were subsequently manipulated with MS Excel to create tables and identify relational patterns.

After analysis, items were placed in archival quality zip-top bags with their unique catalog labels, per storage recommendations by the nearest archaeological storage facility meeting federal standard – the San Diego Archaeological Center.

SECTION 6.0 – RESULTS

A total of 49 items were surface collected from 35 point provenienced locations (an additional eight ceramics were collected without point provenience location data). These data are summarized in Table 2 below. These items comprise 15 ceramic sherds, 25 pieces of debitage, and nine flaked lithic artifact tools. These data are discussed in greater detail below.

A total of 49 STPs were excavated across the six sites within the APE. In addition, two 1 x 1-meter units were excavated at two locations within CA-IMP-6145. Only two STPs identified subsurface materials (both within CA-IMP-6145). A total of 69 artifacts were recovered through both surface collection and excavation programs (Table 3; Confidential Appendix A, Figure 3). The artifacts were analyzed at cataloged at Chambers Group's San Diego office, with data entered into MS Access and data analyzed with MS Excel.

Collectively, the testing and surface collection programs resulted in the recovery of two assayed cobbles, six cores (assayed cobbles and cores are classified as non-tool flaked lithic artifacts), one retouched flake tool, 30 pieces of debitage, 30 ceramic sherds, one fish bone, and a quantity of bulk (non-cultural) shell, two samples of charcoal, and 28 pieces of fire-affected (FAR) Brawley Formation sandstone..

Table 2: Surface Collection Results

Collection No.	Ceramic	Debitage	Tool	Total
1		1		1
2	1			1
3		1		1
4		3		3
5			1	1
6	1			1
7			1	1
8		1		1
9		2		2
10			1	1
11			1	1
12			1	1
13		1		1
14		1		1
15		1		1
16		2		1
17			1	1
18		1		1
19		1		1
20		1		1
21		1		1
22			1	1
23		1		1
24		1		1
25		1		1
26			1	1
27		1		1
28		1		1
29		1		1
30		1		1
31		1		1
32			1	1
33	1			1
34	1			1
35	1			1
36	1			1
37	1			1
38	1			1
39	1			1
40	1			1
41	1			1
46	1			1
47	2			2
48	1			1
49			1*	0
Grand Total	15	25	9	49

*Unmodified cobble – not counted

Table 3: Shovel Test Pit Results

STP No.	Cultural Materials	Site No.
1	Negative	CA-IMP-6146
2	Negative	CA-IMP-6146
3	Negative	CA-IMP-6146
4	Negative	CA-IMP-6146
5	Negative	CA-IMP-6146
6	Negative	CA-IMP-6146
7	Negative	CA-IMP-6146
8	Negative	CA-IMP-6145
9	Negative	CA-IMP-6145
10	Negative	CA-IMP-6145
11	Negative	CA-IMP-6145
12	Negative	CA-IMP-6145
15	Negative	CA-IMP-6145
16	Negative	CA-IMP-6145
17	Negative	CA-IMP-6145
18	Negative	CA-IMP-6145
19	Negative	CA-IMP-6145
20	Negative	CA-IMP-6145
21	Positive: Ceramics	CA-IMP-6145
29	Negative	CA-IMP-6145
30	Negative	CA-IMP-6145
31	Negative	CA-IMP-6145
38	Negative	CA-IMP-6145
39	Negative	CA-IMP-6145
40	Positive: Lithics and Ceramics	CA-IMP-6145

STP No.	Cultural Materials	Site No.
41	Negative	CA-IMP-6145
42	Negative	CA-IMP-6145
43	Negative	CA-IMP-6145
44	Negative	CA-IMP-6145
45	Negative	CA-IMP-6145
50	Negative	CA-IMP-6149
51	Negative	CA-IMP-6149
52	Negative	CA-IMP-6142
53	Negative	CA-IMP-6142
54	Negative	CA-IMP-6142
55	Negative	CA-IMP-6142
56E	Negative	CA-IMP-6142
56W	Negative	CA-IMP-6142
57	Negative	CA-IMP-6142
58	Negative	CA-IMP-6144
59	Negative	CA-IMP-6144
60	Negative	CA-IMP-6144
61	Negative	CA-IMP-6144
62	Negative	CA-IMP-6144
63	Negative	CA-IMP-6144
64	Negative	CA-IMP-6144
65	Negative	CA-IMP-6144
66	Negative	CA-IMP-6144
67	Positive" Lithics	CA-IMP-6144

Two EUs were excavated. EU 1 was placed near a dense surface artifact concentration while EU 2 was placed to bisect a hearth feature. Subsurface artifact recoveries were limited EU 1 showed artifact concentrations skewed towards the surface. Only two artifacts, a piece of debitage and a pot sherd were recorded in Level 2. Levels 3 and 4 were both sterile of artifacts and this the unit excavation was stopped, as is standard practice.

Table 4. Artifact Recoveries from EU #1

CLASS	TYPE	MATERIAL	COUNT	LEVEL	Site
Ceramic	Body sherd	Salton Buff	3	0-10	IMP-6145
Ceramic	Body sherd	Salton Buff	1	10-20	IMP-6145
Debitage	Platform creation, cortex removal	FGM (fine grained metavolcanic)	1	10-20	IMP-6145

EU 2 was placed across a hearth feature found in the southern portion of the site.

Table 5. Artifact Recoveries from EU #2

CLASS	TYPE	MATERIAL	COUNT	LEVEL	SITE.
Shell	Undifferentiated	Shell		0-10	IMP-6145
Debitage	Core reduction, basic shaping	FGPM (fine grained, porphyritic metavolcanic)	1	0-10	IMP-6145
Sample	Charcoal	Charcoal		10-20	IMP-6145
Sample	Charcoal	Charcoal		20-30	IMP-6145
Non-Human Bone	Undifferentiated fish	Bone	1	20-30	IMP-6145

6.1 ARCHAEOLOGICAL SITES

6.1.1 CA-IMP-6142

CA-IMP-6142 was previously described as a low-density lithic and ceramic scatter; it was not relocated by Chambers field crew in 2019, who were unable to confirm prior observations by ERCE, and BFSA. Treganza (1942), similarly, was unable to relocate sites he had previously recorded due to the dynamic conditions that are found in southern California desert settings.

The area in which the site is mapped has remained relatively undisturbed; however, the area immediately east of the site appears to have been extensively disturbed in the past, with aerial photographs indicating disturbance in the northeast corner of the mapped site location as early as 1992 (USDA 1992). Between 2006 and 2008 additional disturbance occurs in the southeast corner of the mapped site location (USDA 2006, 2008).

A total of seven STPs (52-57) was excavated at this site. Each STP was excavated to 40 cm below surface. In general sediments are described as soft, sandy, loosely compact, and light brown in upper levels, with a trend to more compact, reddish clayey sands at lower levels. Small (<1 cm) rock/gravels and occasional shell were noted. No subsurface artifacts or features were identified.

6.1.2 CA-IMP-6144

CA-IMP-6144 was previously described as a temporary habitation site containing a hearth feature and a low-density artifact scatter; it was relocated by Chambers field crew in 2019, confirming prior observations of the site made by BFSA in 2017, which observed two lithic reduction concentrations but no hearth features.

The area in which the site is mapped has remained relatively undisturbed; however, land clearing activities that have encroached on IMP-6142 can be observed in close proximity on aerial photographs (USDA 1992, 2008).A total of ten STPs (58-67) was excavated at this site. Each STP was excavated to 40 cm below surface. In general sediments are described as ranging between loosely compact to densely compact sands and clays, ranging in color from tan to dark brown. No subsurface artifacts or features were identified. Prior to excavation of STP 67 a single fine-grained porphyritic metavolcanic flake was surface

collected. The presence of the flake was the basis for placing the STP at this location; the existence of the flake at the surface did not qualify the STP as positive result.

6.1.3 CA-IMP-6145

The site was previously described as consisting of a series of fire hearths with associated artifacts scatters connected by general low density lithic and ceramic scatter. Features included ten hearths with fire-affected rock, five manos and mano fragments, and hundreds of ceramic sherds and lithic debitage; it was relocated by Chambers field crew in 2019, who found the site generally as described, but were unable to relocate the previously described hearth features.

Much of the western margin of the site appears to have been impacted by the initial construction and subsequent expansion Monofill projects and updated site boundaries will be submitted to the SCCIC. The subsequent expansion project particularly encroached upon the southwestern extent of the site after 2002 (USDA 1992, 2002, 2005); the site is bisected by two well-maintained north-south dirt roads. During the 2020 Phase II fieldwork erosion channels not previously documented were noted around the site area and within the northern portions of the site, while the southern extent of the site was noted to be as described in the 2019 survey. Site boundaries were revised as a result of the 2019 survey results, largely due to the loss of the western margin to facility expansion, and a lack of identified materials in the northern extent of the site.

A total of 23 STPs (8-12, 15-21, 29-31, 38-45) was excavated at this site. Each STP was excavated to 40 cm below surface. In general sediments are described as loosely compact, fine-grained silty sand ranging in color from tan to brown, with reddish compact clays at lower depths. STPs 16-19, 29, 42, and 45 noted a grey sediment color in the lower levels of the test pits. These sediments were noted to be clayey and compact. None of these specific STPs identified subsurface artifacts or features.

Several STPs were excavated within the site boundary as originally mapped (STP 7-11, 15-17) at the north end of the site. None of these STPs identified surface level or below surface artifacts or features. STP 12, and 19-21 continued the exploration of the northern area of the site. These STPs, however, were within the smaller, revised northern site boundary. Only STP 21 identified archaeological materials, which included freshwater shell and a ceramic sherd within the upper 10 cm of the test pit. No additional materials or features were identified below this level.

A concentration of archaeological materials and features was noted at the south end of the site, near the southeast corner of the existing Monofill fence line. This area was described as Locus 1. Several STPs were clustered in Locus 1 to identify potential buried deposits (STP 29-31, 38-45).

The majority of the STPs were negative in their findings; however, STP 40 identified two ceramic sherds, and a lens of freshwater shell at approximately 20 cm below surface. A 1 x 1-meter excavation unit was later placed at this location to further identify the deposit. Excavation Unit #1 recovered artifacts from the ground surface down through to 20 cm below surface. The excavation continued to 40 cm below surface to ensure no deeper artifact deposits were present. These last two levels were sterile of both artifacts and culturally modified sediments. Prior to excavation of STP 41 two ceramic fragments were surface collected. The presence of the sherds was the basis for placing the STP at this location; the existence of the sherds at the surface did not qualify the STP as positive result.

A hearth feature identified in the southeastern corner of the site was selected for testing to identify subsurface deposits and feature construction. Excavation Unit #2 was placed in a manner so as to bisect the dispersed hearth feature (Figure 3). The unit was excavated to 50 centimeters below surface and recovered two lithic artifacts, one piece of non-human bone (fish), and two pieces of charcoal.

Figure 3 : Hearth feature on the surface of Excavation Unit #2

As excavations continued in Excavation Unit #2 a hardened layer was exposed. The layer is formed from caliche, a durable calcium carbonite precipitate that can form in the desert over time (Figure 4)

Figure 4: Excavation Unit #2 with hard caliche lens

A small sample of hard lens was collected from Unit 2 and analyzed under 20x-40x binocular microscope. The sample is composed of a caliche matrix. The sample exhibits several layers, with a thin coating of brownish fine sands that interbeds the layers. Root filaments are observed within the sandy layer, spreading between the layers of the caliche matrix. The sand grains are subangular to rounded, and appear to include quartz, biotite, hornblende, and feldspar. The caliche groundmass appears homogeneous and white in color, and is interspersed with flakes of biotite mica, a small amount of freshwater shell (probably *Anodonta*), and other mineral grains such as quartz and possibly pink feldspar. The sample does not appear to possess any matter representative of ash or associated carbonaceous material derived from hearth feature. A reaction was reached with a 5% acidic solution of distilled vinegar when placed on the sample.

6.1.4 CA-IMP-6146

The site was previously described as a temporary camp with hearths and an associated lithic and ceramic scatter; it was relocated by Chambers field crew in 2019 but were unable to confirm the observations made by ERCE in 1989.

The area in which the site is mapped appears to have been subject to intensive erosion. The 1992 aerial photograph indicates a single two-track road bisecting the mapped location and by 2002 it appears that two two-track roads have bisected the site (USDA 1992, 1996, 2002). In addition, the 1992 and subsequent aerials indicate a series of East-West parallel lines(windrows) that cut across northern margin of the site area (USDA 1992, 1996, 2002, 2005). This possible gravel or sediment mining activity may have resulted in the removal of site materials following its recording by ERCE in 1989. These windrow features were not noted in the 1989 site form.

A total of seven STPs (1-7) was excavated at this site. Each STP was excavated to 40 cm below surface. In general sediments are described as soft, sandy, loosely compact, and light brown in color, with small rocks and gravel. No subsurface artifacts or features were identified.

6.1.5 CA-IMP-6149

The site was previously described as a prehistoric camp with a projectile point fragment and associated lithic and ceramic scatter; it was not relocated by Chambers field crew in 2019.

The area in which the site is mapped has remained relatively undisturbed; however, the southwestern margin of the site appears to have been extensively disturbed in the past, with aerial photographs indicating the disturbance some point between 1996 and 2002 (USDA 1996, 2002).

A total of two STPs (50 and 51) was excavated at this site. Each STP was excavated to 40 cm below surface. In general sediments are described as soft, sandy, loosely compact, and light brown in color, with small rocks and gravel. No subsurface artifacts or features were identified.

6.1.6 CA-IMP-6162

The site was previously described as consisting of three volcanic flakes; it was not relocated by Chambers field crew in 2019.

The area in which the site is mapped has been extensively disturbed in the past, with aerial photographs indicating such disturbance as early as 1992 (USDA 1992). Existing conditions documentation in the original site form does not provide any detail as to the setting of the finds in 1989, and no additional qualifications are noted as to whether the flakes were identified *in situ* or in a secondary deposition.

A single STP (52) was excavated at the reported location of this site. The STP was excavated to 40 cm below surface, with a sediment description of medium-grained loosely compacted sandy soil with clay. No subsurface artifacts or features were identified. Given the extreme amount of disturbance around the mapped site location it is highly likely that the deposit has been lost.

6.2 ARTIFACTS

6.2.1 Flaked Lithic Artifacts

A total of nine flaked lithic artifact tools were recovered (Table 6), all of which were collected during the surface survey of the APE, and all were located within CA-IMP-6145. The collection consists of two assayed (tested) cobbles – one each from fine-grained metavolcanic (FGM), and fine-grained, porphyritic metavolcanic materials (FGPM); six cores, all of which were unifacial – three of which are from fine-grained metavolcanic material, two from fine-grained, porphyritic metavolcanic material, and one from a block of petrified wood; and a sidescraper, with a straight-concave form, and unifacial, bimarginal retouch, made from fine-grained metavolcanic material.

Table 6: Summary of Flake Lithic Artifact Recoveries

ARTIFACT TYPE	MATERIAL	Total
Assayed cobble	FGM (fine grained metavolcanic)	1
	FGPM (fine grained, porphyritic metavolcanic)	1
Core	FGM (fine grained metavolcanic)	3
	FGPM (fine grained, porphyritic metavolcanic)	2
	Petrified wood	1
Straight-Concave Sidescraper	FGM (fine grained metavolcanic)	1
Grand Total		9

No tools were identified by any STP or 1 x 1 m unit. In agreement with other conditions of CA-IMP-6145, and surrounding sites, it appears that most artifacts are surficial or near surface in their vertical distribution. The lack of formal tool types (e.g., dart or arrow projectile points; knives; domed, horse hoof, or thumbnail scrapers) is suggestive of temporary and an extractive orientation of the area's resources. The two tested cobbles (defined as less than three flake removals in total) and the six cores account for 89% of the tools identified. The cores were not complexly flaked, often utilizing one or two margins and all unifacially worked. None were highly reduced, and most were based on small cobbles common to the area. The sidescraper constitutes 11% of the total tools identified. Like the cores, this tool indicates expedient production and limited use. Simple, unifacial, bimarginal retouch or use wear is noted on the two margins, with no polish or striations noted under 40x binocular magnification.

6.2.2 Debitage

At CA-IMP-6145 a total of 29 pieces of debitage was collected from all testing programs (Table 7). Only five pieces of debitage were identified during subsurface investigations: two were recovered through excavations of 1 x 1 meter units – one from each of the two units excavated; and three were identified in STP 40 in the 0-20 cm level (Table 8). The remaining 24 items were collected through the surface survey of the APE.

Table 7: Summary of Lithic Debitage Recovered by Material Type.

FLAKE TYPE	MATERIAL					
	FGM	FGPM	MCQ (chert)	Quartz	Quartzite	Total
Platform creation, cortex removal	1		1			2
Cortex removal		1	2	1	1	5
Core reduction, basic shaping	4	5	1	2		12
Finishing, resharpening		1	1			2
Trimming		1				1
Shatter during primary reduction	1	2	2			5
Shatter during secondary or subsequent reduction		1	1			2
Grand Total	6	11	8	3	1	29

(FGM – Fine-grained metavolcanic; FGPM – Fine-grained porphyritic, metavolcanic; MCQ – microcrystalline quartz [after Luedtke 1992])

Table 8: Summary of Lithic Debitage Recovered by Location.

FLAKE TYPE	UNIT 1	UNIT 2	STP	Total
	1	2	40	
Core reduction, basic shaping		1	1	2
Platform creation, cortex removal	1			1
Shatter during secondary or subsequent reduction			1	1
Trimming			1	1
Grand Total	1	1	3	5

All debitage was analyzed through a matrix adapted from Norwood et al. 1981, and further analyzed according to Sullivan and Rozen 1985 (Table 9). These models allow for efficient analysis of material and, with sufficient data, possible explanation of resource reduction strategy at any particular locus/site.

Table 9: Results of Debitage Analysis

MATERIAL	FLAKE TYPE	CONDITION		Total
		Broken	Whole	
FGM	Platform creation, cortex removal		1	1
	Core reduction, basic shaping	2	2	4
FGPM	Cortex removal		1	1
	Core reduction, basic shaping	2	3	5
	Finishing, resharpening	1		1
	Trimming		1	1
MCQ (chert)	Platform creation, cortex removal	1		1
	Cortex removal	1	1	2
	Core reduction, basic shaping		1	1
	Finishing, resharpening		1	1
Quartz	Cortex removal	1		1
	Core reduction, basic shaping	1	1	2
Quartzite	Cortex removal	1		1
Grand Total		10	12	22

(FGM – Fine-grained metavolcanic; FGPM – Fine-grained porphyritic, metavolcanic; MCQ – microcrystalline quartz [after Luedtke 1992])

According to Sullivan and Rozen's analysis they hypothesized that lithic reduction sites could be qualified as places for tool production or simple core reduction loci. The authors based their hypothesis on the basis of broken to whole flake ratios and the relative quantity of cores at the sites they studied. They suggest that loci with a small number of cores, and a greater proportion of broken to complete flakes should be classified as reduction areas. Conversely, areas with a large number of cores, and a greater proportion of complete to broken flakes should be classified as tool production loci. Sites with high percentages of shatter (≈50% or more) are postulated as being areas of intensive core reduction activities, whereby exhaustion of the working surfaces of the cores increases the likelihood of flake failure due to the higher forces need to drive flakes from the remaining core structure.

Seven pieces of shatter were identified in the surface collection and excavations (Table 5), constituting 24.13% of the collection. These are not counted in the broken to whole flake ratio that follow. Overall, there is nearly equal quantities of broken and whole flakes (Table 7), with a slight advantage to whole flakes over broken (54.55% to 45.45%). Sullivan and Rozen also suggest that there may be loci where neither broken or whole flakes dominates the collection, and in association with few exhausted cores, these sites can be described as places where both tool production and core reduction took place. Given the lack of exhausted cores, the less than 50% quantity of shatter, the near equivalent quantity of whole and broken flakes, it is believed that the sites within the project APE are extractive in nature, with some possibility of tool manufacture taking place – which may be indicated by the presence of the retouched flake identified in the surface collection. However, this is not a formal tool, but rather a tool whose retouch frequently derives through use of the tool rather than strategic shaping by a user of the tool. This is further supported with the lack of small flakes within the collection. Both Trimming and Finishing flakes within the analytical program are flakes that are less than 2 cm in length from platform to termination. Only three flakes (10.3%) were recorded under this metric. Sullivan and Rozen suggest that small, thin, noncortical flakes are more frequently byproducts of tool production rather than core reduction. None of

the three flakes measuring less than 2 cm were thin in cross-section relative to their widths and lengths, and in the case of trimming flake, a cortical surface was present.

At CA-IMP-6144 only a single artifact was collected – where STP 67 was to be located (Table 10). The secondary flake was reduced from a fine-grained, porphyritic metavolcanic cobble core. No use-wear is evident, and the dorsal surface is moderately weathered by aeolian sands. A lack of quantity of material renders further analysis unproductive.

Table 10: Artifact Recoveries from CA-IMP-6144.

FLAKE TYPE	MATERIAL	Total
	FGPM	
Core reduction, basic shaping	1	1
Grand Total	1	1

6.2.3 Ceramics

A total of 30 ceramic fragments were identified through surface collection and excavation programs (Table 11). Seven of the ceramic sherds were recovered in excavation, with a single Salton Buff Ware collected from STP 21, in the 0-10 cm level, two Salton Buff Ware sherds from STP 40 in the 0-20 cm level, and four Salton Buff Ware sherds from Unit 1 – three in the 0-10 cm level, and one in the 10-20 level. A total of 15 ceramic sherds were point provenienced during surface collection (one Salton Brown, one Topock Buff, two Tumco Buff, three Colorado Buff, and eight Salton Buff), and an additional eight (one Palomas Buff, one Salton Buff, and six Tumco Buff) were collected without point provenience.

Table 11: Summary of Ceramic Artifacts

MATERIAL	Body	Rim	Grand Total
Colorado Buff	3		3
Palomas Buff	1		1
Salton Brown	1		1
Salton Buff	16		16
Topoc Buff	1		1
Tumco Buff	5	3	8
Grand Total	27	3	30

Quantitated according to type Salton Buff Ware accounts for approximately 53.4% of the collection (n=16). Tumco Buff follows at 26.7% of the collection (n=8); the type also accounts for 100% of the collection for rim sherds. Two types of rim are present; both are pinched with an outside flair. One rim approximates a 7 cm radius with approximately 7% of the rim present. The rim is suggestive of a large-mouth olla given the recurve of the accompanying neck. The other rim is considerably flatter in appearance with a radius of approximately 26 cm with approximately 2.5% of the rim present. The rim form appears to represent a shallow bowl. Colorado Buff, Palomas Buff, Topoc Buff, and Salton Brown make up the remainder of sherds identified.

No ceramic sherds were associated with any bone or human remains or is otherwise directly suggestive of a cremation or funerary object.

While researchers such as Rogers (1945), Schaefer (1994, 2002), Laylander (1997), Hildebrand (2003) and Waters (1982), among many others, have attempted to contain certain ceramic types to date ranges as a means to identifying and dating archaeological deposits that contain these ceramic types, Schaefer et al. concede that "[t]he time ranges of these types are either so broad or so uncertain that they do not firmly date the features, other than assigning them to the late prehistoric period, probably after ca. A.D. 1000" (2014:76). As the Wares and types are typical for the area, it can be assumed that the ceramic sherds date to within the last thousand years and were manufactured by peoples who frequented the southwestern shoreline of Lake Cahuilla.

6.2.4 Bone

A single fish bone was identified in Unit 2 at the 20-30 cm level. No other artifacts were associated with this item. A carbon sample was also collected at this level, and both appear to be associated with the hearth feature identified in the unit. The bone appears to be a portion of the neurocranium; it is not burned and is highly fragmented and difficult to define as to genus. It is, however, given the context of the find, likely to be from a razorback sucker (*Xyrauchen texanus*; also called the humpback sucker) or a bonytail chub (*Gila elegans*), two of the most common species identified in archaeological deposits within the region (White and Roth 2009).

6.2.5 Shell

Samples of shellfish were collected from the surface levels of a number of excavation locations. The shell was typical of the types found in the area - *Anodonta dejecta and Physa humerosa*. *Anodonta* sp. is a freshwater clam and grows large enough to provide a viable food source. *P. humerosa*, on the other hand is a small snail, and would not likely provide a viable food source. *Anodonta* sp. has been documented in lakeshore midden deposits (Wilke 1978) and has been classed as a possible food source.

Only in STP 40 was any appreciable amount of shell noted below the surface level. Some shell was noted with a darker stratum located at 20 cm below surface. This location was later investigated with a 1 x 1 meter unit, but further observations on the character of the shell previously noted was not made. It is presumed that the shell identified below 20 cm in STP was *Anodonta* sp.

6.2.6 Samples

Carbon samples were collected at 10-20 and 20-30 levels of Unit 2 and appear to be associated with a hearth feature identified in the unit. No further analysis of this material has been made at this time. If appropriate these carbon samples may be analyzed by other specialists who may be able to identify material sources (macrobotanical analysis) and radiocarbon dating (^{14}C analysis).

6.2.7 Fire-Affected Rock

A number of fire-affected rock (FAR) features have been previously identified within the APE. Extensive areas of fire-affected rock features have been recorded along and near the maximum shoreline of ancient Lake Cahuilla (Schaefer et al. 2014; Shultz et al. 2007).

During a 2006 survey of approximately 2000 acres of Department of Navy lands, some 10.5 miles south-southeast of the Project, Recon Environmental documented 1303 such features. Shultz et al. identified two features types, each with four sub-types. No function of the individual types was assigned as the typology simply relied on superficial characteristics such as degree of burning, relative compactness of the feature, degree of exposure to depositional sands (e.g., embeddedness), and the presence or absence of fish bone and or artifacts.

Schaefer et al. set about answering some of the questions raised by Shultz et al. as to temperature needed for oxidation of the sandstone matrix of the rock features, and function of the features themselves. ASM Affiliates sampled 59 features, exposing substantial subsurface components at 14 (24%) of the excavations, and exposing ephemeral subsurface components at 13 (22%) of the sample features.

Schaefer et al. also collected FAR samples from several features. Many of the samples indicated a reddening of the sandstone matrix (Brawley Formation). Per Schaefer et al., the yellow colored variety of this sandstone type begins to redden at 100° centigrade and continues to around 300° centigrade. A darker, brown to gray variety of the Brawley Formation does not express reddening – oxidation – under any temperature due to the paucity of ferrous oxides within the matrix.

Schaefer et al. hypothesized based on the results of their thermal tests, and field data that the hearth features were seasonally constructed, and likely used for processing desert lily, saltbush seeds, and cattail. Curiously, Shultz et al. documented numerous features with considerable amounts of fish bone associated. Similarly, Schaefer et al. note the presence of fish bone in their samples, but do not include fish processing as a major reason for the construction of these FAR features.

Chambers collected approximately 4,500 g of fire-affected rock associated with a feature that was analyzed with the excavation of Unit 2. The collected FAR is typical of the Brawley Formation sandstone, and exhibits characteristic reddening associated with intentional heating, such as outlined in Schaefer et al. 2014. The collection sampled from the feature at Unit 2 ranges in color from unreddened dusky yellowish gray, to pink, to deep grayish red. This color gradient appears to represent a feature that sustained temperatures from ambient to at least 300° centigrade as described by Schaefer et al.

SECTION 7.0 – EVALUATION AND RECOMMENDATIONS

7.1.1 Evaluations

A summary of site evaluations is provided in Table 12. Based on the surface collection and excavation programs at the sites within the project APE CA-IMP-6142, -6144, -6146, -6149, and -6162 are not recommended eligible for inclusion on the California Register of Historical Resources. These resources appear to represent temporary encampments and ephemeral artifact scatters consistent with the prehistoric subsistence and settlement patterns long documented around the Lake Cahuilla area. None of these resources appear to contain unique data, or data of such quality that they may be likely to yield information important in prehistory or history or are needed to answer important scientific research questions. Additionally, it is not likely that these sites were associated with persons or with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. Similarly, these archaeological sites do not appear to embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or have a special and particular quality, such as being the oldest of its type or the best available example of its type. Data gathered from these sites have likely exhausted their future research potential.

In contrast, it is recommended that CA-IMP-6145 is eligible for inclusion on the California Register of Historical Resources, primarily on the basis of the presence of data that may answer important scientific questions related to the historic use of the region during a period of time in the history of the Salton Trough where many questions remain unanswered or only partially understood, as well as being a site that represents an expression of an event that has made a significant impact to the broad patterns of California's history and cultural heritage, namely the formation and use of Ancient Lake Cahuilla.

Table 12: Recommendations for Eligibility

Primary Number	Trinomial	Site Description	Previously Evaluated	Recommendation
P-13-006142	CA-IMP-006142	Prehistoric Site	No	Recommended Not Eligible
P-13-006144	CA-IMP-006144	Prehistoric Site	No	Recommended Not Eligible
P-13-006145	CA-IMP-006145	Prehistoric Site	No	Recommended Eligible
P-13-006146	CA-IMP-006146	Prehistoric Site	No	Recommended Not Eligible
P-13-006149	CA-IMP-006149	Prehistoric Site	No	Recommended Not Eligible
P-13-006162	CA-IMP-006162	Prehistoric Site	No	Recommended Not Eligible

7.1.2 Recommendations

While CA-IMP-6142, -6144, -6146, -6149, and -6162 are not recommended eligible the possibility of identifying previously unidentified buried features, and previously documented, but unrelocated, sites is moderately high in this desert setting (see, e.g., Treganza 1942). It is therefore recommended that an archaeological monitor be retained for all ground disturbing activities associated with the preparation and construction of the proposed project. Special attention should be paid at previously identified, but unrelocated sites, as these archaeological deposits may exist below a thin covering of sediments that obscured their recent identification.

Unless a data recovery plan is adopted prior to construction it is recommended that CA-IMP-6145 be avoided. Direct and indirect effects may be mitigated prior to proposed construction with the adoption and execution of a data recovery plan designed to capture all remaining data that qualifies this site for recommendation for inclusion on the CRHR. If the site is to be avoided, it is recommended that a 10 m buffer be extended from the current site boundaries, and that an archaeological monitor be present during all preparation and construction activities that may take place near or within that buffer.

7.1.2.1 Recommended Mitigations Measures:

CR MM-1: A qualified archaeologist meeting the Secretary of the Interior standards as a Principal Investigator, as approved by the County, shall be retained to provide cultural resources monitoring of all ground disturbing activities associated with the Project. The Principal Investigator shall have the authority to recommend a reduction in the monitoring effort if conditions on site indicate a reduction in likelihood of encountering further cultural resources. Cultural resources monitors will be onsite during project development and shall have the authority to temporarily halt or redirect work in areas where cultural resources have been identified. Equipment will be allowed to continue in other areas of the project so long as a monitor is present.

CR MM-2: If cultural resources are discovered the onsite monitor will surround the find with an appropriate protective buffer and will document the find. If the find is an isolate the artifact will be collected once documentation is complete and the protective buffer will be removed. Should the find be an archaeological site or other cultural resource the onsite monitor will inform the Principal Investigator, who will alert CalEnergy of the find. CalEnergy and the Principal Investigator will assess whether avoidance and protection in place is possible for the site. If it is possible the Principal Investigator will prepare a preservation plan which details acceptable methods for protection of the find.

CR MM-3: If protection in place is not possible the find will require evaluation to determine if it meets significance criteria for listing on the California Register of Historical Resources. An evaluation plan will be prepared by the Principal Investigator for CalEnergy's approval and the evaluation will be completed along with a Phase II Cultural Resources Evaluation Report. If the site is found to be a significant resource as defined by CEQA data recovery will be necessary (see CR MM-4). If the site is not found to be significant the protective barrier will be removed, and work can resume in the area.

CR MM-4: If an archaeological site is determined significant under CEQA, avoidance is recommended by establishing Environmentally Sensitive Areas (ESAs). ESAs will encompass the site boundary plus a 200-ft (60 meter) buffer around the site. ESAs should be staked and/or flagged in a conspicuous manner. Spot checking by a qualified archaeologist should be completed throughout construction to ensure ESAs are not entered. If it is necessary for the Project to encroach on any ESA, full time monitoring by a qualified archaeologist, who is approved by the County, will be required to ensure there are no impacts to the archaeological site.

CR MM-5: At the conclusion of the construction effort a monitoring report shall be prepared for submittal to and approval of the County. The report shall include discussions of the construction schedule and methods of development, information on any isolated artifacts or cultural resources, and efforts for Phase II evaluations and Phase III data recovery efforts.

CR MM-6: All artifacts collected during the course of the project shall be prepared for and sent to a suitable curation facility. CalEnergy shall be responsible for all costs associated with the preparation of the collection to facility curation guidelines as well as any curation fees.

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APPENDIX A – CONFIDENTIAL CULTURAL RESOURCES MAPS

Confidential Data, Submitted Under Separate Cover

H-3

AB-52 Consultation Letters

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Imperial County Planning & Development Services
Planning / Building

Jim Minnick
DIRECTOR

November 19, 2018

Certified Mail No. 7015 1520 0000 8965 0940

President Keeny Escalanti, Sr.
Quechan Indian Tribe
Fort Yuma- Quechan Tribe
P.O. Box 1899
Yuma, AZ 85366

RE: Notice of Opportunity to Consult for the Desert Valley Company Monofill (DVC) Project in Imperial County; GPA18-0004, ZC18-0007, CUP17-0031 thru 17-0035. APN 019-100-004-000 & 019-110-012-000

Dear Mr. Escalanti:

The County of Imperial (County) has initiated environmental review under the California Environmental Quality Act (CEQA) for the Desert Valley Company Monofill (DVC) Project. Desert Valley Company is proposing a modification of the existing Conditional Use Permit (CUP) #05-0020 to add a waste storage unit – Cell 4 which would accept byproducts of the handling of filter cake or waste streams from the development of geothermal wells. The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000.

The existing monofill facility would reaching its maximum capacity in 2025, and the applicants plan to begin with this application and initiate the CEQA review process with Imperial County. The project consists of an expansion of the existing facility to include an additional waste storage unit. A project location map is enclosed for your information.

In accordance with Assembly Bill 52 (AB 52) and Section 21080.3.1(d) of the California Public Resources Code (PRC), we are responding to your request to be notified of projects in our jurisdiction that will be reviewed under CEQA. Your name was provided to us as the point of contact for your tribe. We are hereby notifying you of an opportunity to consult with the County regarding the potential for this project to impact Tribal Cultural Resources, as defined in Section 21074 of the PRC. The purposes of tribal consultation under AB 52 are to determine, as part of the CEQA review process, whether or not Tribal Cultural Resources are present within the project area, and if so, whether or not those resources will be significantly impacted by the project. If Tribal Cultural Resources may be significantly impacted, then consultation will also help to determine the most appropriate way to avoid or mitigate those impacts.

In accordance with Section 21080.3.1(d) of the PRC, you have 30 days from the receipt of this letter to either request or decline consultation in writing for this project. Please send your written response before December 19, 2018 to Diana Robinson, Planner III or by email to CommentLetters@co.imperial.ca.us. If the County does not receive a response within 30 days, the County will proceed with the project. Thank you and we look forward to your response.

Sincerely,

JIM MINNICK, DIRECTOR
Imperial County Planning & Development Services

BY:
Diana Robinson
Planner III

Attachment: Location Map

cc: Jim Minnick, Director, ICPDS
Michael Abraham, AICP, Asst. Director of ICPDS
Patricia Valenzuela, Planner IV, ICPDS
File: GPA18-0004, ZC18-0005, IS18-0020, CUP18-0025; 10.104

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Imperial County Planning & Development Services
Planning / Building

Jim Minnick
DIRECTOR

November 19, 2018

Certified Mail No. 7015 1520 0000 8965 0933

Michael Mirelez
Culture Resource Coordinator
Torres Martinez Desert Cahuila Indian
P.O. Box 1160
Thermal, CA 92274

RE: Notice of Opportunity to Consult for the Desert Valley Company Monofill (DVC) Project in Imperial County; GPA18-0004, ZC18-0007, CUP17-0031 thru 17-0035. APN 019-100-004-000 & 019-110-012-000

Dear Michael Mirelez,

The County of Imperial (County) has initiated environmental review under the California Environmental Quality Act (CEQA) for the Desert Valley Company Monofill (DVC) Project. Desert Valley Company is proposing a modification of the existing Conditional Use Permit (CUP) #05-0020 to add a waste storage unit – Cell 4 which would accept byproducts of the handling of filter cake or waste streams from the development of geothermal wells. The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000.

The existing monofill facility would reaching its maximum capacity in 2025, and the applicants plan to begin with this application and initiate the CEQA review process with Imperial County. The project consists of an expansion of the existing facility to include an additional waste storage unit. A project location map is enclosed for your information.

In accordance with Assembly Bill 52 (AB 52) and Section 21080.3.1(d) of the California Public Resources Code (PRC), we are responding to your request to be notified of projects in our jurisdiction that will be reviewed under CEQA. Your name was provided to us as the point of contact for your tribe. We are hereby notifying you of an opportunity to consult with the County regarding the potential for this project to impact Tribal Cultural Resources, as defined in Section 21074 of the PRC. The purposes of tribal consultation under AB 52 are to determine, as part of the CEQA review process, whether or not Tribal Cultural Resources are present within the project area, and if so, whether or not those resources will be significantly impacted by the project. If Tribal Cultural Resources may be significantly impacted, then consultation will also help to determine the most appropriate way to avoid or mitigate those impacts.

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Sincerely,

JIM MINNICK, DIRECTOR
Imperial County Planning & Development Services

BY:
Diana Robinson
Planner III

Attachment: Location Map

cc: Jim Minnick, Director, ICPDS
Michael Abraham, AICP, Asst. Director of ICPDS
Patricia Valenzuela, Planner IV, ICPDS
File: GPA18-0004, ZC18-0005, IS18-0020, CUP18-0025; 10.104

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SB-18 Consultation Letters

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 6783

Augustine Band Of Cahuilla Mission Indians
Amanda Vance
P.O. Box 846
Coachella, CA 92236

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Amanda Vance,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1122

Augustine Band Of Cahuilla Mission Indians
Karen Kupucha
P.O. Box 849
Coachella, CA 92236

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Karen Kupucha,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1139

Campo Band Of Mission Indians
Ralph Goff
36190 Church Road, Suite 1
Campo, CA 92236

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Ralph Goff,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1146

Chemehuevi Reservation
Charles Wood
P.O. Box 1976 1990 Paloverde Drive
Chemehuevi Valley, CA 92363

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Charles Wood,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1153

Cocopah Indian Tribe
Sherry Cordova
14515 S. Veterans Drive
Somerton, AZ 85350

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Sherry Cordova,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1160

Colorado River Indian Tribe
Dennis Patch
Ginger Scott Museum 26600 Mojave Road
Parker, AZ 85344

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Dennis Patch,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1177

Ewiiaapaayp Tribal Office
Will Micklin
4054 Willows Road
Alpine, CA 91901

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Will Micklin,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1184

Fort Yuma-Quechan Indian Tribe
Keeny Escalanti, Senior.
P.O. Box 1899
Yuma, AZ 85366

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Keeny Escalanti,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8964 1191

Internal-Tribal Cultural Resource Protection Council
Frank Brown
240 Brown Road
Alpine, CA 91901

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Frank Brown

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

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If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2818

Kumeyaay Cultural Repatriation Committee
Bernice Paipa
1095 Barona Road
Lakeside, CA 92040

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Bernice Paipa,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

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If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By: _____
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

DR\MH\S:\APN\019\100\04\GPA18-0004; ZC18-0005; CUP18-0005\AB52 SB18\DVC SB 18 Letter.docx

Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2825

La Posta Band Of Mission Indians
Gwendolyn Parada
8 Crestwood Road
Boulevard, CA 91905

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Gwendolyn Parada,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

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If your tribe would like to consult with the County of Imperial regarding this project, please respond within ninety days of the date of this letter. Under SB 18, any sensitive information shared with the County regarding cultural places and/or sacred sites will be kept strictly confidential and will not be divulged to the public.

Sincerely,

JIM MINNICK, Director
Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2832

Manzanita Band Of Kumeyaay Nation
Leroy J. Elliott
P.O. Box 1302
Boulevard, CA 91905

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Leroy J. Elliot,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

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Sincerely,

JIM MINNICK, Director
Planning & Development Services
By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2849

Torres-Martinez Desert Cahuilla Indians
Mary Resvaloso
P.O. Box 1160 66725 Martinez Road
Thermal, CA 92274

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Mary Resvaloso,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

The County of Imperial is committed to fulfilling the goals of SB 18 and believes that tribal participation in the planning process is crucial for the success of the proposed project. The Imperial County Planning and Development Services Department has contacted the Native American Heritage Commission (NAHC) in order to obtain a list of tribes who should be included in the planning consultation process regarding the proposed project and your name was included in the NAHC's response.

The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

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Sincerely,

JIM MINNICK, Director
Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2856

Torres-Martinez Indian Tribe
Desiree Frinco
P.O. Box 1160 66725 Martinez Road
Thermal, CA 92274

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Desiree Frinco,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

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The applicants are considering two sites for this project and will decide a single site (to be determined) after boring explorations. These two sites under consideration are located approximately 1.15 miles southwest of State Route 78, and approximately 11.5 miles northwest of City of Westmorland; further identified as 019-100-004-000 and 019-110-012-000, in the unincorporated area of Imperial County.

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Sincerely,

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Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2863

Native American Heritage Commission
Katy Sanchez
1556 Harbor Blvd.
West Sacramento, CA 95691

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Katy Sanchez,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

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JIM MINNICK, Director
Planning & Development Services

By: Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2887

Native American Heritage Commission
Frank Lienert
1556 Harbor Blvd.
West Sacramento, CA 95691

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Frank Lienert,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

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JIM MINNICK, Director
Planning & Development Services

By:
Diana Robinson, Planner III

Attachments: Location Map, Tentative Map & Proposed Layout
cc: Jim Minnick, Director of Planning & Development Services
Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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Imperial County Planning & Development Services
Planning / Building

November 21, 2018

Jim Minnick
DIRECTOR

CERTIFIED MAIL NO. 7015 1520 0000 8961 2894

Kwaaymii Laguna Band Of Mission Indians
Carmen Lucas
P.O. Box 775
Pine Valley, CA 91962

RE: Invitation to Consult Under Senate Bill 18 – Desert Valley Company Monofill (DVC) Project

Dear Carmen Lucas,

This letter formally invites you to request consultation pursuant to Senate Bill 18 (SB 18; Government Code Section 65352.3) regarding the proposed Desert Valley Company Monofill (DVC) project. As you may know, SB 18 became effective on March 1, 2005 and requires local governments to consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural places and sacred sites. The intent of SB 18 is to provide an opportunity for interested tribes and local governments to work together toward the protection of tribal cultural places that might not appear on cultural resource registries. To this end, the County is contacting you to consult on this project.

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Planning & Development Services

By:
Diana Robinson, Planner III

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Michael Abraham, AICP, Asst. Director of Planning & Dev. Serv. Dept.
File: 10.104, GPA18-0004

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H-5 Summary of Tribal Outreach for Phase II Test Excavations

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9909 Huennekens St. Ste. 206
San Diego, California 92121
858.541.2800 (phone)
858.565.8950 (fax)

January 24, 2020

Patricia Valenzuela
Imperial County Planning & Development Services
801 Main Street
El Centro CA 92243

Subject: **Summary of Tribal Outreach and Monitoring Requests for the DVC Cell 4 Archaeology Phase II Test Excavations**

Dear Ms. Valenzuela:

Chambers Group is contracted to provide cultural resources phase II evaluations on archaeological sites located within the DVC Cell 4 project site. During the CEQA process and previous cultural resources investigations four Native American Tribes expressed interest in or responded to requests for information about the project area. Chambers Group reviewed the communications and reached out to tribes requesting participation in the phase II evaluations to determine their availability to be present on the project. The results of all outreach attempts are provided in Table 1.

An email from Christina Willis sent on December 13, 2019 provided the names and contact information for Michael Mirelez and Gary Resveloso Jr. of the Torrez-Martinez DCI. Mr. Mirelez is the Cultural Resources Coordinator for the tribe and Mr. Resveloso, Jr. is the Most Likely Descendent for the tribe. Since the project does not have any recorded human remains on site Mr. Resveloso was not contacted. Mr. Mirelez was contacted three separate times without success.

A contact for the Quechan Indian Tribe was also provided in the email. The contact information provided was for the general phone number from the tribe's website. No email address was provided. Phone calls were made on three occasions to the provided number without success.

An earlier email provided on December 9, 2019 from Ms. Willis provided an excerpt from the Phase I Cultural Resources Report prepared by Brian F. Smith and Associates. This page summarized the companies attempts at tribal outreach for the pedestrian survey. The Viejas Band of Kumeyaay Indians and the San Pasqual Band of Mission Indians both responded to their inquiries. The San Pasqual Band of Mission Indians stated that the project does not fall within their recognized reservation boundaries or traditional use area. They requested that a tribal monitor from their reservation be present for ground disturbing activities. Several attempts have been made to reach the correct person at the San Pasqual tribal office.

Table 1. Tribal Outreach Efforts

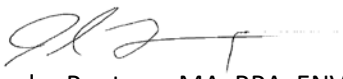
Torrez-Martinez	Quechan	Viejas	San Pasqual
December 16, 2019 – phone call was made but not answered	Dec 16, 2019 – phone call to main administration number. Spoke with receptionist who took my name and number and	Dec 16, 2019 – phone call was made but not answered	Dec 16, 2019 – phone call was made but number is out of service.

9909 Huennekens St. Ste. 206
San Diego, California 92121
858.541.2800 (phone)
858.565.8950 (fax)

	said they would pass my message on		
Dec 20, 2019 Phone call made but was not answered	Dec 20, 2019 Phone call was made again. No answer	Jan 14, 2020 Phone call to Ernest Pingleton. Left Voicemail and sent email	Dec 20, 2019 Phone call to tribal Environmental Department but not answered.
Dec 31, 2019 Email sent to Mr. Mirelez. No response	Jan 7, 2020 Phone call was made again. No answer	Jan 15, 2020 email and response from Pingleton. Viejas will provide a monitor, contracting is underway.	Jan 21, 2020 phone call to tribal environmental department. Left a voicemail.

If you have any questions, please do not hesitate to contact me at 858.541.2800 ext. 7105.

Sincerely,



Sandra Pentney, MA, RPA, ENV SP
Director of Cultural Resources
CHAMBERS GROUP, INC.

I-1 Soils and Geology Report

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SOILS AND GEOLOGY REPORT FOR THE DESERT VALLEY COMPANY MONOFILL CELL 4 EXPANSION PROJECT, BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

Prepared for

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

Prepared by

Terraphase Engineering Inc.
18401 Von Karman Avenue, Suite 410
Irvine, California

July 29, 2019

Project Number S032.003.001

terraphase engineering

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2 Applicable Portions of Modified Mercalli Intensity Scale

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1 Geological Map
2 Regional Fault Map
3 Historical Earthquakes

ACRONYMS AND ABBREVIATIONS

Act	Alquist-Priolo Earthquake Zoning Act
bgs	below ground surface
CalEnergy	CalEnergy Operating Corporation
CGS	California Geological Survey
CDMG	California Division of Mines and Geology
CEQA	California Environmental Quality Act
cm/s	centimeters per second
EIR	environmental impact report
g	accelerations as a fraction of the force of gravity at the earth's surface
msl	mean sea level
RWQCB	Regional Water Quality Control Board
SAF	San Andreas fault
SJF	San Jacinto fault
SHMA	Seismic Hazards Mapping Act
SMARA	Surface Mining and Reclamation Act
Terraphase	Terraphase Engineering Inc.

1.0 INTRODUCTION

Terraphase Engineering, Inc. (Terraphase) has been contracted by CalEnergy Operating Corporation (CalEnergy) to complete a Soils and Geology technical study for the proposed CalEnergy Desert Valley Monofill Expansion Project. The proposed project includes the construction of a new geothermal waste landfill cell (Cell 4). The project is proposed within 320 acres of vacant land surrounding and to the west of the existing Desert Valley Monofill located in Brawley, Imperial County, California.

The following study has been conducted in accordance with the California Environmental Quality Act (CEQA). This report includes recommendations for appropriate mitigation measures to ensure less than significant impacts related to soils and geology.

1.1 Regulatory Framework

Work for this project was conducted in compliance with CEQA. The regulatory framework as it pertains to soil and geology under CEQA is detailed below.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Zoning Act (Chapter 7.5, Division 2, Public Resources Code, State of California, effective May 4, 1975) (Act) governs construction in the vicinity of ground-crossing faults. The Act prohibits placing inhabited facilities across traces of faults that have been active within the past 11,000 years. The State Geologist delineates Special Study Zones that encompass potentially and recently active traces of ground crossing faults (Special Studies Zones applicable to this project are shown on CDMG 1990).

California Code of Regulations, Title 27

Title 27 of the California Code of Regulations prohibits the construction of a Class II Waste Management Unit within 200 feet of the trace of an active ground-crossing fault. Section 21750 of Title 27 requires that:

The stability analysis shall address all portions of the Unit and its immediate surroundings that are located in areas subject to liquefaction or unstable areas with poor foundation conditions, as identified either in the ROWD or in the Seismic Safety Element of the County General Plan, and shall address all portions of the Unit that incorporate geomembranes as part of the Unit foundation or containment system (including the final cover).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA), set forth at Public Resources Code section 2690 et seq., was enacted to mitigate the effects of earthquakes, specifically: strong ground shaking, liquefaction, and earthquake-induced landslides. Pursuant to the SHMA, the California Department of Conservation, California Geological Survey (CGS) has delineated seismic hazard zones, however CGS has not yet mapped seismic hazards in Imperial County.

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) governs surface mining in California. There are many aggregate and metal mines in Imperial County – please see the Imperial County Existing Mineral Resources map (Imperial County 2016). However, the project site is not shown to be an area of aggregate production by the State of California (California Geological Survey 2018).

Paleontological Criteria

Paleontological resources are the fossilized remains of animals and plants. The CEQA guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3) include a question regarding the impact of the project on unique paleontological resources.

1.2 Site Development History

Cell 1 of the Desert Valley Monofill was originally constructed in 1990 and began operations in 1991. Cell 2 was constructed in 1999. Prior to the construction of the Monofill, the area was undeveloped. Before development, an environmental impact report (EIR) was prepared for 160 acres, including the two cells and surrounding area. In 2004 and 2005, Cell 3 was constructed mostly within the 160 acres included in the original EIR. Cells 1 and 2 were closed in May 2008, and Cell 3 is the only cell currently accepting waste.

The development of Cell 3 relied upon the EIR prepared for Cells 1 and 2, and a mitigated negative declaration was certified for its development. As the proposed location for the planned Cell 4 is outside of the previous EIR area, a new EIR is being prepared for the development of Cell 4.

2.0 GEOLOGICAL BACKGROUND

Preliminary geotechnical investigations of the project area were conducted by Balderman (1988, 1989) and by Fugro (2018, 2019). Specific methodology involved literature search, field reconnaissance and mapping, subsurface exploration and sampling, laboratory analysis, and data interpretation. The results of their investigations are summarized below. Additional data sources for the following analysis include: Crowell and Sylvester 1979; Elders 1979; Gilmire and Castle 1983; Greensfelder 1974; Jennings, 1967; Jefferson and Lindsay 2008; Kahle et al. 1988; and Morton 1977.

2.1 Geologic Setting

The project site is located within the Salton Trough, a structural basin comprising the northern extension of the Gulf of California Rift Zone (Elders 1979). The Salton Trough consists of a depressed crustal block within a complex plate boundary zone. The primary structural features of this zone are a series of parallel transform faults including the San Andreas, San Jacinto, and Elsinore fault zones.

Geomorphically the Salton Trough consists of a low-lying alluvial basin characterized by internal drainage and relatively low relief. Typical stratigraphy incorporates up to 21,000 feet of Late Cenozoic sediments and metasediments deposited primarily by the Colorado River (Gilmore and Castle 1983). Additional sources of sedimentation include wind and lake (lacustrine) deposition and the erosion of adjacent highlands. The geology of the Site vicinity is presented on Figure 1. A detailed geological map of the actual project site is presented in Figure 9 of Fugro (2018b).

The project site is characterized by generally low-lying level topography. Surface elevations range from approximately 40 to 140 feet below mean sea level (MSL), with a slight southwest to northeast gradient across the site.

2.2 Stratigraphy

Surface exposures within the project site consist of recent alluvial and eolian (wind derived) deposits, as well as ancient shoreline and lacustrine materials associated with Cahuilla Lake (an ancient lake that was considerably larger than the Salton Sea, Jefferson and Lindsay 2008). These units overlie a generally unconformable sequence of Quaternary through Paleozoic strata, and may extend locally to depths of up to several hundred feet.

Detailed geologic mapping and cross sections of the area are included in the geotechnical report as Figures 6 through 11 (Balderman 1988). Brief descriptions of surficial units and anticipated underlying strata are provided below in order of increasing age, with additional description located in the geotechnical report.

> Quaternary alluvium (Qal) is defined here to include unconsolidated recent silt, sand, and gravel deposits associated with the larger ephemeral stream courses. These

deposits are generally limited to several meandering washes which traverse the site from southwest to northeast.

Quaternary Eolian Deposits (Qd) consist of significant accumulations of recent wind blown sand and silt, typically in the form of dunes. Active dune structures incorporating unconsolidated and mobile sand and silt deposits are limited to the extreme southeast corner of the site.

Quaternary Mixed Alluvium (Qa) includes unconsolidated recent silt, sand, and gravel deposits associated with minor washes and sheet flow areas, minor eolian deposits, and less extensive shoreline and lacustrine materials. These materials are widely exposed throughout the project site.

Quaternary Shoreline Deposits (Qs) consist of unconsolidated sand and gravel ridges associated with Pleistocene/Holocene Cahuilla Lake. Fine material is generally absent and mollusk and gastropod shell fragments are common. Shoreline deposits are present in the southern and east-central portions of the site in the form of low east-west trending ridges.

Quaternary Brawley Formation (Qb) consists locally of interbedded massive silty clay, clayey silt, and sand units of lacustrine origin. Relatively small exposures of the Brawley Formation occur throughout much of the project site, with these strata likely underlying the entire area. Regionally, the Brawley Formation attains a maximum thickness of approximately 2000 feet and has been interpreted as Pliocene to mid-Pleistocene in age. Mollusks and diatoms are common and sparse remains of freshwater vertebrates and brackish water foraminifers have been observed.

The project site is underlain by a thick, generally unconformable sequence of primarily nonmarine tertiary sedimentary strata including the Borrego, Palm Spring, and Imperial formations. Unconformably underlying these units are Tertiary volcanic units and Mesozoic granitic basement rocks associated with the southern California batholith. Descriptions of stratigraphic units in the project site vicinity and the Imperial Valley region in general can be found in Morton (1977).

2.3 Soil Unit Directly Below the Cell 4 Liner

Fugro (2019c) has laid out the zone to the west of the existing fill cells that can be used for Cell 4. Fugro installed one boring in this area, B-402 (Fugro 2019b). The purpose of the boring was to calibrate the geophysical interpretation of the subsurface (Fugro 2019a). Fugro encountered interbedded silts, sands and clays to 25 feet below the ground surface (bgs). Balderman (2002a) in an investigation for fill sources in the area proposed for Cell 4 encountered thin beds of clay in their exploratory trenches. Balderman's trench logs indicate the upper clay bids dip down to the north at an angle of about 26 degrees to the horizontal. Hydraulic conductivity tests performed

on these clays were between 1.0 x 10^{-7} centimeters per second (cm/s) and 6.3 x 10^{-10} cm/s (Balderman 2002a).

Fugro encountered thick clay beds below approximately 35 feet bgs. The dip of these deeper beds is unknown. Fugro analyzed four soil samples of clayey material from boring B-402 at depths ranging from 26 to 85 feet bgs (Fugro 2019b). Laboratory results include:

- 26 feet bgs: Silty clay (CL-ML), 97% of soil passed through a #200 sieve, liquid limit of 27, and plasticity index of 6.
- 36 feet bgs: Fat clay (CH), 99% of soil passed through a #200 sieve, liquid limit of 71, and plasticity index of 46.
- 58 feet bgs: Fat clay (CH), 100% of soil passed through a #200 sieve, liquid limit of 51, and plasticity index of 29.
- 85 feet bgs: Fat clay (CH), liquid limit of 80, plasticity index of 54.

2.4 Groundwater

Depths to groundwater levels on the west side of the existing waste cells (Cells I, II and III) shown little variation over the past five years (Desert Valley Company 2019a). Groundwater depths have ranged between 58 and 66 feet below the ground surface. Groundwater flows to the east northeast with a velocity of approximately 4 feet per year (Desert Valley Company 2019b).

2.5 Structure/Seismicity Setting

2.5.1 Regional Tectonic Framework

The project site is located within the Quaternary Salton Trough, a structural basin located within a complex plate boundary zone. Prominent structural features of the Salton Trough include a series of generally parallel northwest-southeast trending transform faults, and a number of inferred extension zones located between certain transform faults.

The tectonic environment of the site is developed by Fugro (2018a):

> Relative plate motion between the North American and Pacific plates is accommodated primarily by the San Andreas fault (SAF) system. In the vicinity of the Site, the active plate boundary structures include the SAF on the east, the San Jacinto fault (SJF) on the west, and lesser faults such as the Superstition Hills and Elmore Ranch faults to the south. The NW trending Salton Trough is at the transition between the ocean-floor spreading regime of the Gulf of California and the San Andreas transform fault system (Elders, 1979). The Salton Sea occupies the structurally weak gap between the relatively strong edges of the North American and Pacific Plates (i.e. the crystalline rocks of the Peninsular Ranges to the west of the SJF and the crystalline rocks of the Mojave Desert to the east of the SAF (Fuis et al., 1984).

South of the Salton Sea, the SJF and SAF systems converge towards the Imperial fault, which extends south into Mexico. The SAF system forms the eastern side of the trough, while the SJF system, Superstition Hills fault, and Imperial fault define the western margin. The zone of convergence of these major fault systems at the southern end of the Salton Trough includes a complex system of shorter perpendicular cross faults connecting the two major systems. Several of these cross-faults occur at the north end of the Superstition Hills fault near the Site.

The cross-faults have predominantly left-lateral strike-slip motion, and are oriented in a southwest-northeast direction, perpendicular to the dominant trend of the right-lateral SAF and SJF systems (Hudnut et al., 1989a). The primary cross-faults near the site are the Elmore Ranch fault, Lone Tree fault, and Kane Springs fault. Additionally, an alignment of seismicity south of the town of Brawley known as the Brawley Seismic Zone likely results from faulting in a tensional or releasing step between the Imperial and SAF faults.

2.5.2 Local Tectonic Framework

Transform faulting in the Salton Trough region is characterized by strike-slip (horizontal) displacement and a lack of surficial expression (i.e., surface breaks, pressure ridges, offset stream courses, etc.). Some of the more active faults do exhibit surface expression, however, with a number of horizontal and vertical displacements clearly visible. Several active and potentially active faults are located within the project site vicinity. Active faults are defined as those exhibiting historic activity or displacement of Holocene deposits (i.e., 11,000 years or less in age), while potentially active faults displace Pleistocene (2 million years or less in age) but not Holocene strata (CDMG 1985). Additional descriptions of major active and potentially active faults in the project site vicinity are provided in Table 1. Fault locations are shown on Figure 2.

A number of inferred crustal extension or spreading zones are located between portions of the Imperial, Brawley, Calipatria, and San Andreas faults. These areas mark complex structural boundaries where extensional forces produce spreading or rifting. This same general phenomenon is responsible for the separation of the Baja California peninsula from mainland Mexico. Crustal extension within the Salton Trough is compounded by additional tectonic movement such as uplift, subsidence, tilting, and folding of local strata (Crowell and Sylvester 1979).

Several local Holocene fault traces are also located within the project site and immediate vicinity. These faults are more limited in extent than the regional structures described above, and are generally assigned a lower potential for seismic activity and magnitude. An exception to this is the Elmore Desert Ranch Fault, which apparently comprises a branch of the Superstition Hills Fault (Balderman 1989). This structure trends generally southwest from the western terminus of the Superstition Hills Fault, and passes within approximately one mile east of the

project site. The Elmore Desert Ranch Fault has been assigned a maximum credible earthquake magnitude of 7.0 (Table 1).

Portions of the Elmore Desert Ranch Fault (3 miles northeast of the project site) and the Superstition Hills Fault (5 miles southwest of the project site) are located within earthquake special studies zones. These zones delineate areas of active faults traces, and are established by the California Geological Survey (pursuant to Public Resources Code Section 2621 et seq.) to prohibit the location of developments and structures for human occupancy across such faults (CDMG 1985). No earthquake special studies zones are located within the project site itself.

2.5.3 Seismicity

The Salton Trough is one of the most seismically active regions in the world. Perceptible earthquakes (Richter magnitude of approximately 3.0 and above) are a regular occurrence and numerous microearthquakes (Richter magnitude of 2.9 or less) are recorded daily. The Southern California Earthquake Data Center (2019) indicates that there have been 1,992 earthquakes with Richter magnitudes of 3.0 or greater within 20 miles of the project site since 1933, the last one, as of June 2, 2019, on May 8, 2019 (magnitude 3.48). Figure 3 presents the epicentral locations of the largest earthquakes, Richter magnitude greater than 6.0, to affect the Site vicinity since 1892.

Seismicity in the Salton Trough is generally characterized by two types of activity: mainshock-aftershock sequences (i.e., large-scale seismic events) and earthquake swarms. Earthquake swarms typically consist of a few tens to a few hundred low magnitude events occurring very close together in time and space. Swarms are not associated with large seismic events, but rather may be attributable to shear stress related to the emplacement of magnetic dikes in areas of crustal extension (Hill 1977). Current evidence suggests that both large-scale and earthquake swarm activity can occur along the same structure (as demonstrated by events along the Imperial Fault), although larger earthquakes are normally located on major faults and swarms tend to occur along parallel offset faults associated with inferred areas of crustal extension (Elders 1979).

Large-scale events (i.e., other than swarm-type earthquakes) often occur in mainshock-aftershock sequences, with the second earthquake (aftershock event) averaging approximately one magnitude less than the first (mainshock event). From 1933 to 2019, at least 27 earthquakes with Richter magnitudes of 5.0 or greater have occurred within the Salton Trough (Southern California Earthquake Data Center 2019).

The most recent major earthquakes (6.0 or greater in magnitude) in the Salton Trough region occurred in November 1987 along the Elmore Desert Ranch and Superstition Hills faults. These events generated magnitudes of 6.2 (11/24/87, Elmore Desert Ranch Fault) and 6.6 (11/24/87, Superstition Hills Fault), located approximately 2 and 5 miles south of the project site, respectively. It is estimated that these events produced nearby peak ground accelerations of over 0.5 g (Balderman 1988, see discussion on ground acceleration below under Geologic

Hazards), with associated Modified Mercalli intensities of VIII or IX. It is anticipated that similar earthquakes would be capable of producing significant effects on the project site (Table 1). Because of the proximity and earthquake potential of the Elmore Desert Ranch and Superstition Hills faults, they are considered the most likely source of maximum potential seismic impacts on the project site. A number of other major fault structures are located in the project site vicinity and could generate significant seismic effects. The location and earthquake potential of selected major faults within the project site region are summarized in Table 1.

3.0 EXISTING GEOLOGIC HAZARDS

Existing geologic hazards associated with the project site include seismicity and geologic and soil stability as described below.

3.1 Seismic Hazards

The area is within an active seismic region subject to regular earthquake events, resulting in potential seismic hazards as described below.

Ground Rupture: Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to earthquake-generated seismic waves. Recent ground rupture was not observed on the project site during geotechnical investigation (Balderman 1988). The potential for seismic activity (and ground rupture) originating on faults within the site is considered low due to their small extent. Ground rupture may occur along project area faults, however, in response to activity along larger regional structures. The November 1987 earthquakes along the Superstition Hills and Elmore Ranch Faults produced surficial ground rupture along a number of nearby geologic structures, including the Elmore Desert Ranch Fault and several small unnamed faults west and south of the project site (Balderman 1988, Kahle et al. 1988).

Ground Acceleration: Ground acceleration is an estimation of the peak ground motion associated with a specific earthquake event. It is expressed in terms of accelerations as a fraction of the force of gravity at the earth's surface (g). Acceleration can be measured directly from seismic events or calculated from magnitude and fault distance data. Calculated ground acceleration parameters for the project site from maximum credible and probable earthquakes along selected faults are given in Table 1. Estimated Modified Mercalli intensities (derived from ground acceleration values) associated with these earthquake events are also listed in Table 1. Severe or extended ground accelerations can produce a variety of adverse structural effects, as described in Table 2. Potentially significant adverse effects from ground acceleration would be associated primarily with major earthquakes along regional faults (Table 1). Large earthquakes along more extensive faults (e.g., the San Andreas Fault Zone) can produce ground accelerations with longer wavelengths and durations than smaller faults, even though the latter structures may be closer and thus generate greater peak acceleration values. Both the wavelength and duration of seismic waves can contribute to the destructive potential of individual earthquake events

Based on the SEAOC/OSHPD Seismic Design Maps Tool (https://seismicmaps.org/), the Site modified peak ground acceleration on the project site based on ASCE 7-16 (ASCE 2016) is projected as 0.905 g. Such an event would likely generate Modified Mercalli intensities of X or more, potentially resulting in a variety of adverse effects (Table 2).

Liquefaction and Dynamic Settlement: Liquefaction and dynamic settlement of unconsolidated materials can be caused by a strong vibratory motion resulting from seismic activity. Loose,

granular soils are most susceptible to those effects, while the stability of silty clay and clay materials is generally not as affected by vibratory motion. Among granular materials, finer textured varieties are more susceptible to liquefaction and settlement than coarse-grained types, and sediments of uniform grain size are more likely to liquefy than well-graded materials. Additionally, liquefaction is generally restricted to saturated or near-saturated materials at depths of less than 50 feet (Seed et al. 2003).

Groundwater is too deep across the Site to produce significant liquefaction settlements. The high seismicity of the area will have exposed any loose sand deposits to very many significant shaking events over the past few thousand years. Hence, seismic shakedown, settlements due to compaction of dry sands, is also unlikely.

Landsliding: Seismically-induced landsliding is not considered a significant hazard on the project site due to the predominantly level topography.

3.2 Nonseismic Hazards

Nonseismic geologic hazards include a number of potential physical and chemical effects such as compaction, expansion, erosion, and reactive soils.

Compaction: Loose, well-graded soils (especially those containing oversize materials) can be subject to compaction and settlement hazards, including differential compaction (i.e., varying degrees of settlement over short distances). The proposed landfill cell, however, is not susceptible to damage due to differential settlements.

Expansive Soils: Sediments encountered during preliminary geotechnical investigation contain significant quantities of clay (Balderman 1988). These materials may exhibit expansive (shrink-swell) characteristics due to the water-holding capacity of clay minerals. Significant shrink-swell behavior can adversely affect the integrity of foundations, fill slopes, and associated structures.

Erosion: Erosional processes in the project site and vicinity are related primarily to storm runoff and eolian activity. Runoff on the site is largely confined to a number of small ephemeral drainages trending generally northeast-southwest. Channel walls and banks in these washes are subject to erosional impacts during larger storm events due to their often intensive nature. Some erosional effects may also occur outside of drainage channels as a result of sheet flow runoff. Such impacts would be expected to be minor, however, due to the presence of generally level topography and cohesive surface deposits.

Eolian-generated erosion is associated with the occurrence of seasonally high wind speeds in the project vicinity. Finer grained silt, sand, and clay materials are susceptible to transport and redeposition by high winds, especially if disturbed by grading, vehicular travel, etc.

Reactive Soils: Surficial deposits on the project site are alkaline in nature and may contain soluble sulfates and chlorides and/or exhibit low resistivity. Soils with these characteristics can

produce corrosive effects to subsurface facilities such as steel or concrete foundations and pipelines. No such effects are currently known in the project site vicinity.

Paleontological Resources: Paleontological resources are discussed in the "Paleontological Report for the Desert Valley Company Monofill Cell 4 Expansion Project, Brawley, Imperial County, California" prepared by Chambers Group, Inc. and dated July 2019. Fossils have been observed in both the Lake Cahuilla Beds (Qs) and the Brawley Formation (Qb).

4.0 GEOLOGIC IMPACTS

The proposed storage/disposal facility will be designed in conformance with the requirements for Class II waste management units listed in California Code of Regulations, Title 27, Sections 20240 et seq and will exceed Class II requirements. These statutes require the following design parameters related to geology/seismicity:

- Underlying natural geologic units must exhibit hydraulic conductivity of not more than 1 x 10-6 cm/s or an artificial liner with a hydraulic conductivity of less than 1 x 10-6 cm/s shall be placed below the facility.
- Be designed to resist all effects of the maximum credible earthquake[1] for the Site.
- Storage/disposal facilities must be set back a minimum of 200 feet from all active fault traces.
- Units must be designed, constructed, and maintained to preclude failure from "rapid geologic change." This phrase is defined in the regulations as "alteration of the ground surface through such actions as landslides, subsidence, and faulting."
- Units must be designed, constructed, and maintained to preclude failure from tsunamis and seiches.
- All wastes must be located a minimum of 5 feet above the highest anticipated elevation of underlying groundwater

There are three existing Class II cells in the immediate vicinity of the project Site, and Fugro (2019c) has determined there are no ground crossing faults within 200 feet of the proposed cell location. It is unlikely that the location proposed for Cell 4 will not be suitable for a Class II waste management unit. The following evaluation of these potential effects incorporates the described regulatory design requirements for Class II waste management units.

The discussion of potential for geologic impacts is based on Imperial County's Initial Study Checklist questions.

4.1 Seismic Hazard Impacts

Ground Rupture: Geotechnical analysis of the project site involved a number of subsurface excavations designed to identify and date potential fault structures on the project site. These investigations documented the presence of multiple active (Holocene) fault traces within Section 33, including several faults that was previously unmapped (Figure 2 and Balderman 1988, Fugro 2019d). Fugro grouped the faults mapped within the project site into two main fault systems, a western fault system trending northwest and an eastern fault system trending north. The fault systems are adjacent to the proposed location of the storage/disposal cells. Pursuant

[1] Current practice is to design vital structures (hospitals, schools, fire stations, et cetera) to resist the Maximum Considered Earthquake. Maximum Credible Earthquake is an obsolete term no longer in common usage by seismologists and structural engineers. Cell 4 will be designed to accommodate the Maximum Considered Earthquake.

to California Code of Regulations requirements, proposed siting of these facilities has been set back 200 feet from the traces of observed faults. Additional subsurface exploration did not identify any evidence of faulting for a distance of over 1000 feet to the east of the eastern fault system (Balderman 1988). Accordingly, it is concluded that no active fault traces are located within 200 feet of the proposed project facilities, and no significant effects associated with ground rupture are anticipated.

Ground Shaking: Anticipated peak ground accelerations for maximum credible earthquakes along major faults in the project site vicinity are listed in Table 1. The maximum peak ground acceleration anticipated for the site is 0.905 g. Such an event would be expected to result in Modified Mercalli intensities of approximately X, which could result in significant damage to reservoirs, embankments, and underground facilities (Table 2). The proposed structures incorporate the use of sloped embankments and subsurface drainage and liner facilities which may be subject to such potential impacts. The project design will incorporate peak ground acceleration loading values as recommended by the geotechnical consultant to reduce potentially significant impacts to less than significant impact (see Mitigation Measures).

Liquefaction and Dynamic Settlement: No significant effects related to liquefaction and dynamic settlement are anticipated for the proposed project facilities due to the depth to groundwater and the seismicity of the Salton Trough. In the event that localized loose granular cohesionless materials (e.g., in alluvial washes) are encountered during project implementation, a number of standard measures are available (e.g., overexcavation and replacement with structural fill) to mitigate potential liquefaction and dynamic settlement impacts below levels of significance. These measures would be identified during grading or construction by the geotechnical consultant (see Mitigation Measures).

Landsliding: No significant effects related to seismically-induced landsliding are expected from implementation of the proposed project due to the generally level nature of onsite topography. The proposed facilities do, however, incorporate a number of sloped embankments which are potentially subject to seismically-induced failure. Proposed design parameters include measures to mitigate these potential effects such as the use of approved and properly compacted fill (per direction by the geotechnical engineer) to meet seismic design specifications (see Mitigation Measures). Assuming these methods are properly implemented, no significant effects to proposed embankments are expected in response to seismic loading.

Tsunamis and Seiches: The proposed facilities would not be subject to impacts from tsunamis due to their inland location.

Earthquake-induced seiches are the result of seismic waves producing massive wave-like or oscillatory movement in restricted bodies of water such as bays or lakes. The only body of water in the project vicinity is the Salton Sea, located approximately 4 miles northeast of the site. Because of this distance and the associated difference in elevation (the project site is

approximately 100 feet higher in elevation than the Salton Sea) no impacts from seiches in the Sea are expected.

The storage/disposal facilities themselves will not contain free liquid and thus are not subject to seiche effects.

4.2 Nonseismic Hazard Impacts

Compaction: No significant impacts related to compaction are anticipated from project implementation due to the generally firm, equigranular nature of most onsite sediments. If localized areas susceptible to compaction are encountered during grading or construction activities, it is anticipated that these potential effects can be mitigated through standard construction techniques (e.g., overexcavation and replacement with compacted structural fill) per direction by the geotechnical engineer (see Mitigation Measures).

Expansive Soils: Project facilities may be subject to the effects of expansive soils due to the clayey nature of most surficial materials. However, the proposed project, a landfill cell, would not be susceptible to differential movement caused by expansive clays. This issue should, however, be investigated and the result incorporated into final project design (see Mitigation Measures).

Erosion: The proposed project facilities may be subject to both fluid and wind erosion impacts. Specifically, the site of both the proposed storage/disposal facilities and the associated access roads are crossed by minor drainage channels. Storm runoff in these channels could result in erosion of disturbed areas, road foundations, fill slopes, etc. The proposed project design will incorporate measures to mitigate these potential effects, which may include the use of a protective berm to divert runoff around storage/disposal facilities, excavation of a borrow ditch on the up-slope side of the access road, and/or construction of the road at channel bottom elevation (to avoid the use of culverts or bridges) within crossings. Further protection at road/drainage crossings will be provided by the use of concrete aprons at the crossing banks and channel bottoms. These measures will be incorporated into final project design (see Mitigation Measures).

Disturbed areas of the project site may be susceptible to wind erosion impacts as described under existing conditions.

Reactivity: If reactive soils are present, they may pose significant adverse effects to certain proposed facilities, such as subsurface pipelines, foundations, or leachate collection systems. The potential for corrosive soils should be investigated by a qualified geotechnical consultant and the results incorporated into final project design. If reactive soils are encountered, it is anticipated that any potential impacts could be mitigated below levels of significance by utilizing standard construction techniques (such as the use of corrosion resistant materials; see Mitigation Measures).

Waste Water Disposal Systems: No significant effects on soils from the use of septic tanks or alternative waste water disposal systems are expected because these systems are not planned to be included in the new construction, as existing facilities at DVC Cells 1-3 will be utilized.

Groundwater: California Code of Regulations requirements for Class II waste management units stipulate that all wastes must be located at least 5 feet above the highest anticipated elevation of underlying groundwater. Long term monitoring of Cells I through III indicate that groundwater is located more than 50 feet below the surface (Desert Valley Company 2019). This depth of groundwater would satisfy California Code of Regulations requirements within the proposed design scenario.

Paleontological Resources: Impacts to unique paleontological resources are discussed in Chambers 2019. The potential for paleontological sensitivity is high for the Lake Cahuilla Beds (Qs) and Brawley Formation (Qb).

5.0 MITIGATION MEASURES

The following mitigation measures are recommended to reduce potential impacts to less than significant. Paleontological mitigation measures are discussed in Chamber 2019.

- Final project design will comply with all California Code of Regulations, Title 27, and the Regional Water Quality Control Board (RWQCB) and County of Imperial standards regarding the nature, location, and construction of proposed facilities.
- Project design will incorporate peak ground acceleration loading values of 0.905 g unless a site-specific seismic hazard analysis provides a different value of PGA or modified recommendations are provided by the geotechnical consultant.
- Final project design will incorporate all measures deemed appropriate by the geotechnical engineer on the basis of existing and future site-specific investigations. Additional analysis of the project site will be conducted to evaluate potential impacts associated with repeatable high ground acceleration, localized liquefaction potential, expansive and reactive soils, and wind generated erosion. Mitigation measures derived from these analyses may include the following types of requirements:

    - ❖ Overexcavation of unsuitable base materials and replacement with approved and properly compacted structural fill
    - ❖ Use of moisture, chemical, engineering, and/or drainage methods to control expansive behavior of underlying clay soil, if appropriate
    - ❖ Use of non-steel or coated (usually polyethylene encasement) conduits, sulfate resistant cement, or other protective materials in areas of corrosive soils
    - ❖ Appropriate design of fill slopes associated with berms, storage/disposal facilities, building pads, etc., to minimize the potential for seismically-induced landsliding. This may include measures such as establishing maximum slope grades and the use of stabilizing materials or buttressing
    - ❖ Proper design of surface and subsurface drainage devices. Initiation of settlement monitoring if appropriate
    - ❖ Appropriate design, location, and construction of erosion control methods and devices
    - ❖ Scarification and recompaction of the native soils in all fill areas to reduce erosion potential
    - ❖ Identification of appropriate wind erosion mitigation measures (if necessary) such as the use of chemical or physical stabilizers, appropriate operating schedules, etc.

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Tables

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Table 1: Significant Faults within 25 Miles of the Site
DVC Cell 4, Brawley, California

Fault Name or Seismic Zone	Distance (ml) & Direction from Site (1,2)	Maximum Magnitude Mmax (Mw) (2)	Mercalli Intensity (2)	Avg Return Period (Yrs) (4)	Date of Last Rupture (3)	Est. Site PGA (g) (2)
Elmore Ranch	1.2 NW	6.6	XI	263	1987	0.80
Superstition Hills (San Jacinto).	5 SW	6.6	X	268	1987	0.52
Superstition Mountain (San Jacinto)	8.2 W	6.6	IX	330	Last 11,000 years	0.37
San Jacinto Borrego Mtn.	9.9 W	6.6	IX	560	1987	0.32
Brawley Seismic Zone	13.7 E	6.4	IX	74	1981	0.24
Imperial	19.1 SE	7.0	VIII	45	1979	0.20
San Andreas-Coachella Valley	19.6 NE	7.1	IX	-	1857	0.21
San Jacinto - Anza	21 NW	7.2	VIII	312	1968	0.20
San Jacinto - Coyote Creek	22.6 NW	6.8	VIII	729	1968	0.17
Elsinore - Coyote Mountain	23.4 NW	6.8	VIII	543	1910	0.16
Laguna Salada	25 S	7.0	VIII	Unknown	1892	0.16

Sources:
(1) https://earthquake.usgs.gov/cfusion/qfault/
(2) Blake 1987 – pga from Abrahamson & Silva (1997) at the median plus one standard deviation – probabilistic pga from ASCE 7 (2016) is 0.905g
(3) http://scedc.caltech.edu/significant/
(4) Working Group on California Earthquake Probabilities (2015) – return period event with Moment Magnitude (Mw) >5.0

Table 2: Applicable Portions of Modified Mercalli Intensity Scale
DVC Cell 4, Brawley, California

Intensity	Shaking	Summary	Description
VIII	Very Strong	Moderate Damage	Steering of motor cars is affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Falling stucco and some masonry walls. Twisting and/or falling chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling is broken off. Branches are broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX.	Violent	Heavy Damage	General panic. Even reinforced masonry buildings seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.
X.	Very Violent	Extreme Damage	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI.			Rails bent greatly. Underground pipelines completely out of service.

Notes: **Masonry A:** Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.

Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Figures

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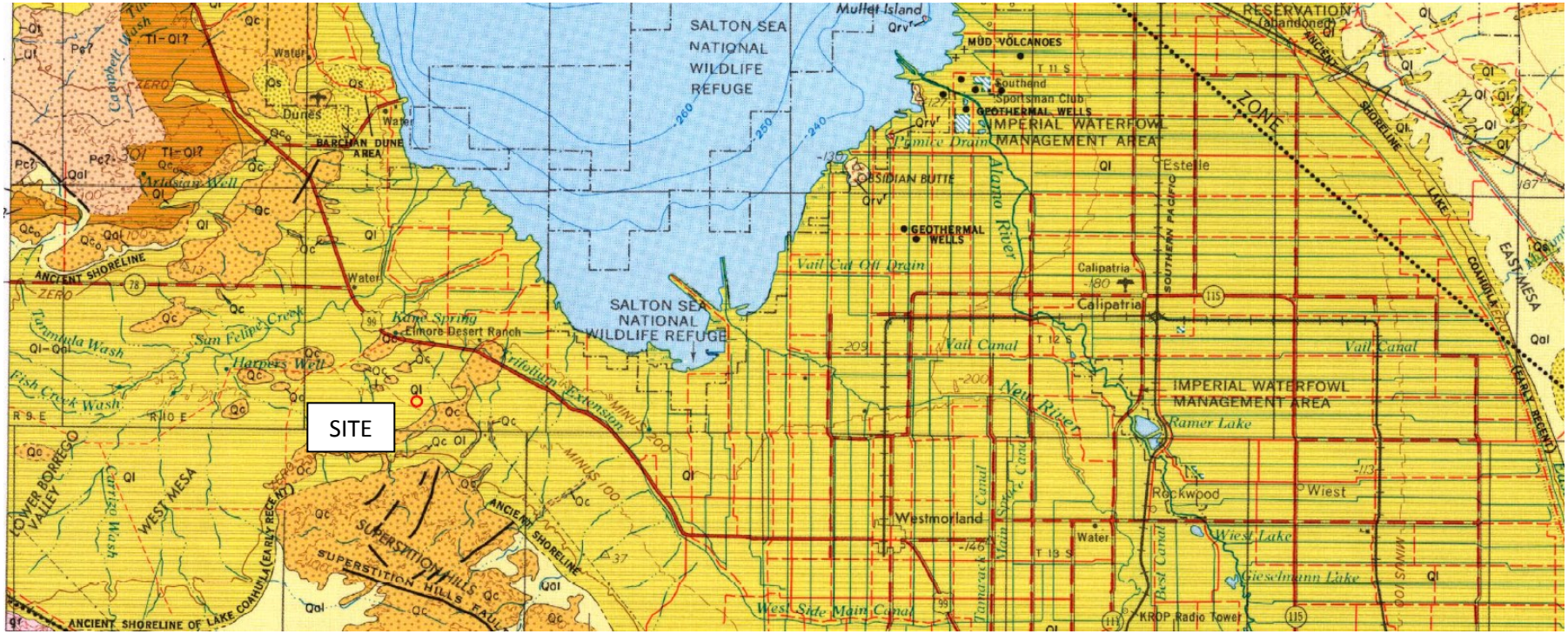

Reference: Jennings 1967

Ql Quaternary lake deposits

Qc Pleistocene nonmarine

Qal Alluvium

Tl Tertiary lake deposits

0 2 4

Scale in Miles

N

SAFETY FIRST	CLIENT: Cal Energy	Geological Map
terraphase engineering	PROJECT: Cell 4 CEQA	
	PROJECT NUMBER: S0032.001.000	FIGURE 1

File Name: figure 1 geological map.docx drawn by: jrr checked by: ptz

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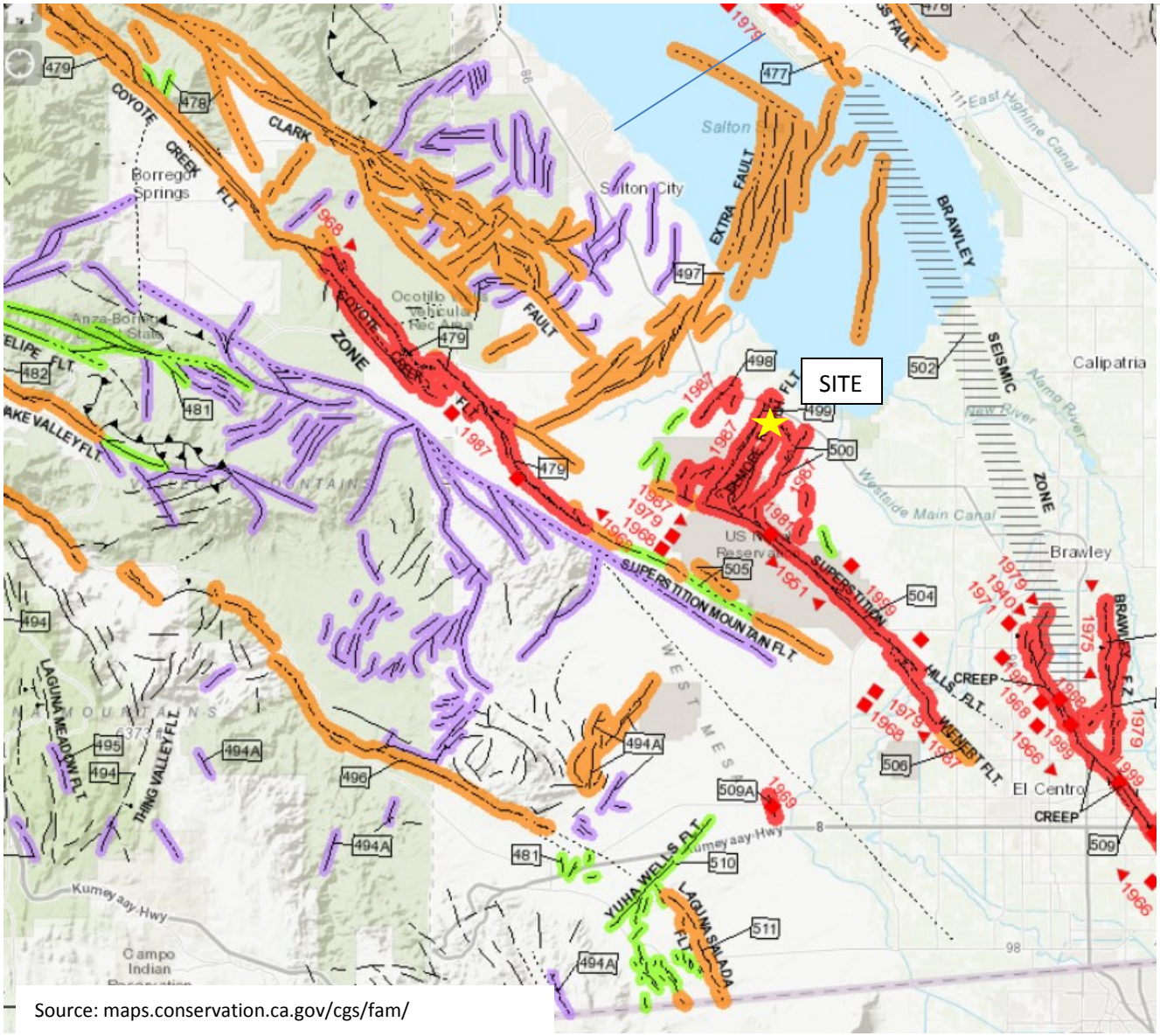

Source: maps.conservation.ca.gov/cgs/fam/

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred.

A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

Date bracketed by triangles indicates local fault break.

No triangle by date indicates an intermediate point along faultbreak.

Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.

Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

N

0 9 18

Scale in Miles

SAFETY FIRST	CLIENT: Cal Energy	REGIONAL FAULT MAP
terraphase engineering	PROJECT: DVC Cell 4 Siting	
	PROJECT NUMBER: S032.003.0001	FIGURE 2

File Name: figure 2 building 1200 location drawn by: jrr checked by: ptz

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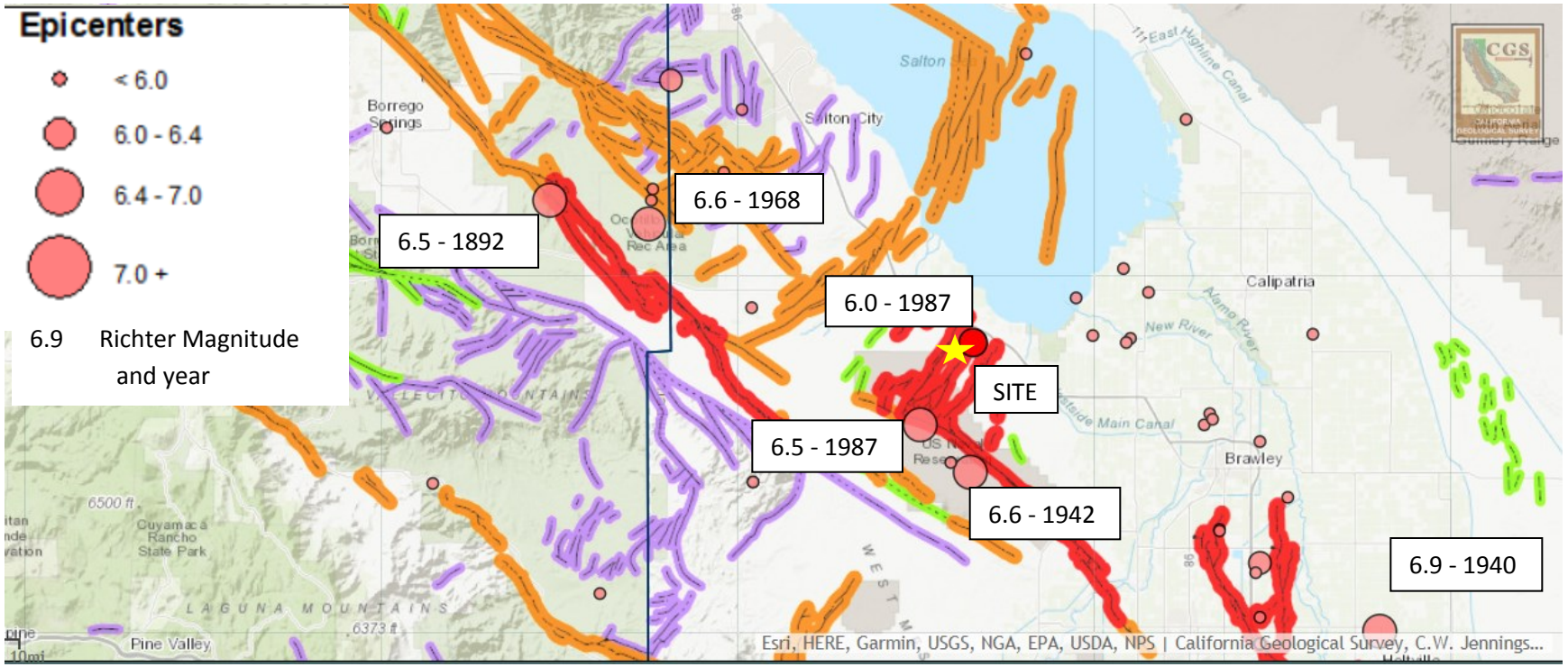
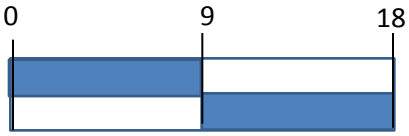


http://maps.conservation.ca.gov/cgs/historicearthquakes/



Scale in Miles

N

SAFETY FIRST	CLIENT: Cal Energy	HISTORIC EARTHQUAKES
terraphase engineering	PROJECT: DVC Cell 4 Siting	
	PROJECT NUMBER: S032.003.0001	FIGURE 3

File Name: 8.5x11long earthquakes.docx drawn by: jrr checked by: ptz

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I-2 Calibration Boreholes Report

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-005(Rev.A)
January 17, 2019

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Calibration Boreholes Data Report, DVC Cell 4 Siting
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present the data obtained through the drilling of two calibration boreholes, B-401 and B-402, in Sections 27 and 33, as part of the siting study area for planned DVC Cell 4. This letter report documents the purpose and scope of the work, field drilling methods, borehole logs, and laboratory results.

All report figures are numbered and provided in the attached Figures section.

PURPOSE AND SCOPE

The purpose of the two boreholes was to better characterize the stratigraphic and structural framework underlying site study areas for proposed DVC Cell 4, and to obtain p-wave velocity data required to calibrate the recently collected seismic reflection survey data, presented in Fugro report No. 04.72170065-PR-004. The siting study area is located within DVC property described as Sections 27 and 33, R11E, T12S.

The scope of work presented in this report was performed in general accordance with the General Services Contract, purchase order #245885, dated October 18, 2017, and the scope detailed in change order 4, dated September 18, 2018 and approved October 12, 2018. This report is the deliverable for Phase 2, Task 9, Calibration Boreholes.

FIELD ACTIVITIES

Two 150-ft-deep, continuous soil-core borings, B-401 and B-402, located in Sections 27 and 33 respectively (Figure 1) were drilled to collect subsurface stratigraphic data and to conduct geophysical measurements used to calibrate previously obtained seismic reflection data.

Prior to commencement of field activities, a drilling permit was obtained from Imperial County Planning and Development Services, and a health and safety plan was prepared. On November 1, 2018 Imperial County issued Construction Permits No. 58796 (B-401) and No. 58795 (B-402). Fugro's health and safety plan included an organization chart, contact list, emergency response procedures, checklists for daily safety briefings, and task risk assessments. The plan was reviewed by a Fugro safety specialist and a printed copy was carried in the field truck. In addition, all field personnel completed CalEnergy's safety training class.

The field work commenced on November 6, 2018 and terminated on November 14, 2018. During the execution of field activities, a daily field report was prepared by Fugro geologist John Niles and transmitted to CalEnergy by Fugro project manager Janet Sowers. John Niles managed the field operations and logged the core, and geophysicist Moritz Fliedner conducted the downhole geophysical tests. Tri-Valley Drilling of San Diego, California conducted the drilling for this project. Brian F. Smith & Associates, Inc. of San Diego, California performed archeological and biological monitoring and clearance.

Drilling and Core Logging

In the field, the two drilling sites and access routes were first inspected and cleared by an archaeologist and a biologist to ensure minimal impact to resources. The drilling activities were then monitored by the biologist.

Soil coring was accomplished by a CME-75 truck-mounted drill rig (Figure 2) using HQ-3 punch core and rotary coring methods. A 2.5-inch-diameter core was extracted in 5-foot sections, or *runs*, using a wireline coring system, and examined and logged by the geologist.

Detailed core logging was conducted to classify stratigraphic units and to provide descriptions of sedimentary and structural features. Classification of soils was based on visual estimations of grain-size distribution and other material properties in accordance with the Unified Soil Classification System (ASTM D2487 and D2488). Logs of these borings with a key for soil classification are included in Appendix A.

After logging, soil cores were wrapped with plastic wrap to retain soil moisture, and then placed in plastic core boxes for storage (Figure 3). Core boxes were marked with boring number, depth interval, run number, and information about core recovery.

During coring operations, drill cuttings and drilling fluid were thin-spread at the site per the direction of the Imperial County Public Health Department (Figure 4).

Borehole Check Shot Survey

Following coring, boreholes were reamed to an outer-diameter of 6-inches, then cased with 3-inch-diameter, flush-thread PVC pipe, which was grouted in place with Portland cement to depth and then capped 18-inches above grade (Figure 5).

To calibrate the previously acquired seismic reflection data, a check shot survey was performed in each borehole. This task was facilitated by the insertion of a borehole seismometer to measure the propagation velocity of seismic waves produced by a weighted hammer at the surface (Figure 5). Measurements were recorded at 1-meter intervals over the full length of the borehole. The resulting wave velocities were later plotted against depth to correlate with changes in stratigraphy. Further description of the check shot along with the resulting plots are found in Fugro report 04.72170065-PR-004 Geophysical Screening Campaign.

At the close of field activities, an inspector from Imperial County Planning and Development Services visited the site and inspected the two borehole locations and the above-ground capped PVC casings. The work was approved as compliant and the permits closed.

LABORATORY TESTING

Following field activities, boring logs were reviewed to select samples for laboratory soil analysis. Samples were chosen to help correlation soil properties with seismic data, as well as to determine potential use of clay strata as natural liner material for Cell 4. Five samples were collected from each borehole, and were chosen to target representative samples of the thick clay layers, with some intervening sands and silts. Further, lab-based soil classification was used to refine field-based classifications.

Our geotechnical laboratory testing program was directed toward a quantitative and qualitative evaluation of the physical properties of the soils underlying the project site. This program included hydrometer and sieve tests, and measurement of Atterberg limits and specific gravity. All tests were performed in general accordance with ASTM testing methods by Fugro's soil mechanics laboratory in Ventura, California.

DATA REVIEW AND PRESENTATION

Field boring logs were digitized using subsurface data management software (gINT) for reporting purposes. Graphic summary logs showing subsurface stratigraphy were created for each borehole (Figure 6). These were then used to correlate stratigraphic intervals between borings, and help inform the site stratigraphic and structural framework. Where applicable, field-based soil classifications have been modified to be consistent with soil classifications determined from laboratory analysis.

Final borehole and laboratory data and supporting documents are provided in the appendices of this report. Borehole logs in gINT format are provided in Appendix A. Appendix B consists of photographs of core boxes from B-402. Photographs were not taken of the B-401 core boxes due to time constraints; however, all core boxes are currently stored at the DVC site in a secure building, and are available for inspection or photography as needed. The laboratory testing results are provided in Appendix C and are also presented on the boring logs at the

appropriate depths in Appendix A. See Appendix D for biological monitoring report and Appendix E for the archeological monitoring report.

CLOSURE

We have enjoyed conducting this borehole study for CalEnergy and look forward to further assisting with the siting of DVC Cell 4. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

John Niles
Senior Staff Geologist

Janet Sowers
Principal Geologist

Attachments: Figures and Appendices

Distribution: One electronic copy to Ms. Yanqiu Wu

Rev.	Status	Prepared	Reviewed	Approved	Date
00					
A	Draft	JN	JG	JMS	January 17, 2019

FIGURES

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Figure 1. Location of Calibration Boreholes 6
Figure 2. Photograph of Drilling Operations 7
Figure 3. Photograph of Core Box 7
Figure 4. Post-Drilling Surface Conditions 8
Figure 5. Shot Check Operations 8
Figure 6. Graphic Logs of B-401 and B-402 9

APPENDICES

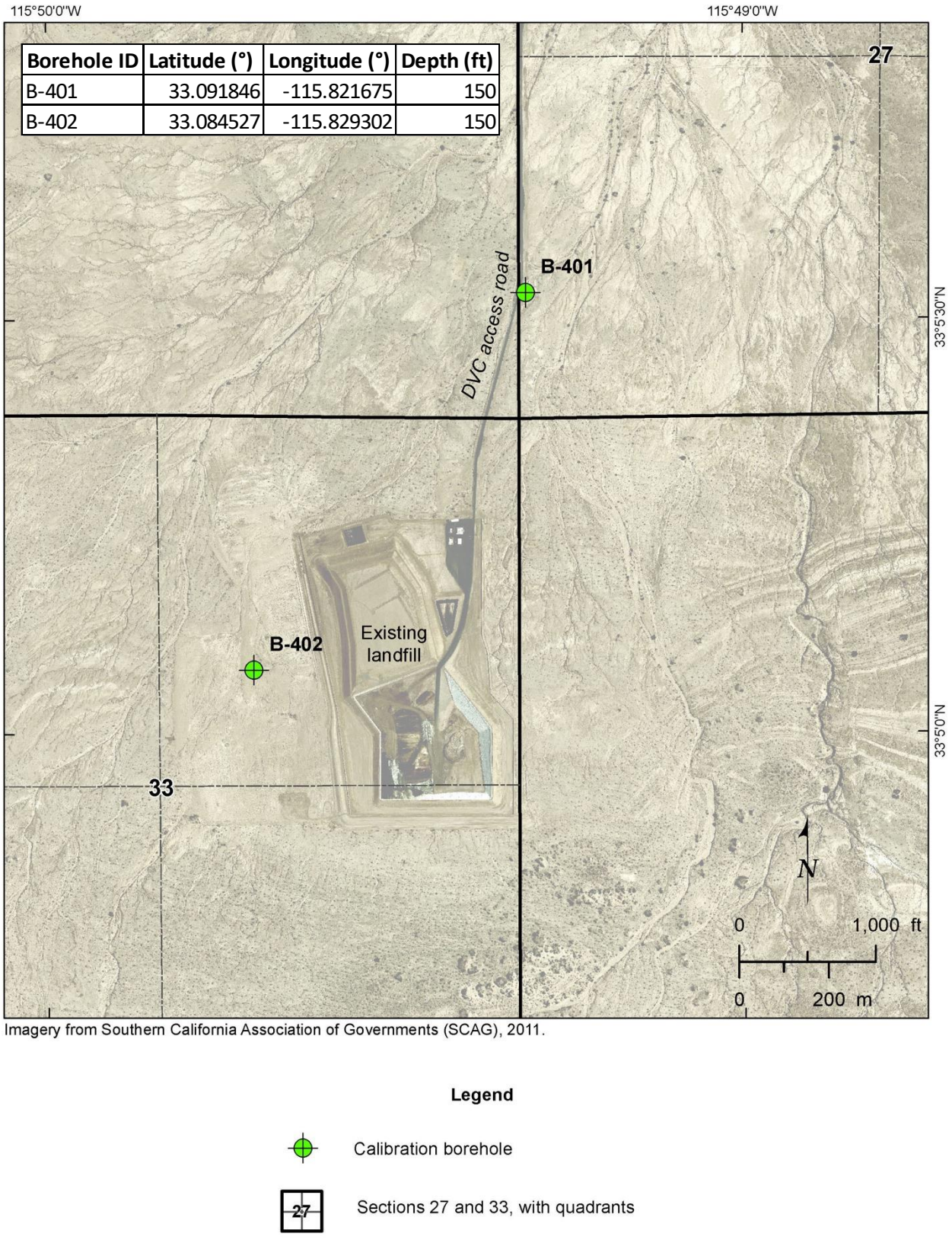
APPENDIX A - BORING LOGS

APPENDIX B - CORE BOX PHOTOGRAPHS, B-402

APPENDIX C - LABORATORY RESULTS

APPENDIX D - BIOLOGICAL MONITORING REPORT

APPENDIX E - ARCHEOLOGICAL MONITORING REPORT



Borehole ID	Latitude (°)	Longitude (°)	Depth (ft)
B-401	33.091846	-115.821675	150
B-402	33.084527	-115.829302	150

Legend

Calibration borehole

27 Sections 27 and 33, with quadrants

Figure 1. Location of Calibration Boreholes

Photographs

Figure 2. Photograph of Drilling Operations at B-402 with a Truck-Mounted CME-75 Drill Rig at Left

Figure 3. Photograph of Core Box Showing Sections of Core Wrapped in Plastic Wrap

Figure 4. Post-Drilling Surface Conditions Proximal to B-402 (Orange Safety Cone), Thin-Spread Drill Cuttings Can Be Seen as a Dark Patch at the Center-Right of Photo

Figure 5. Shot Check Operation at B-401 (Vertical PVC at Lower Middle Left)

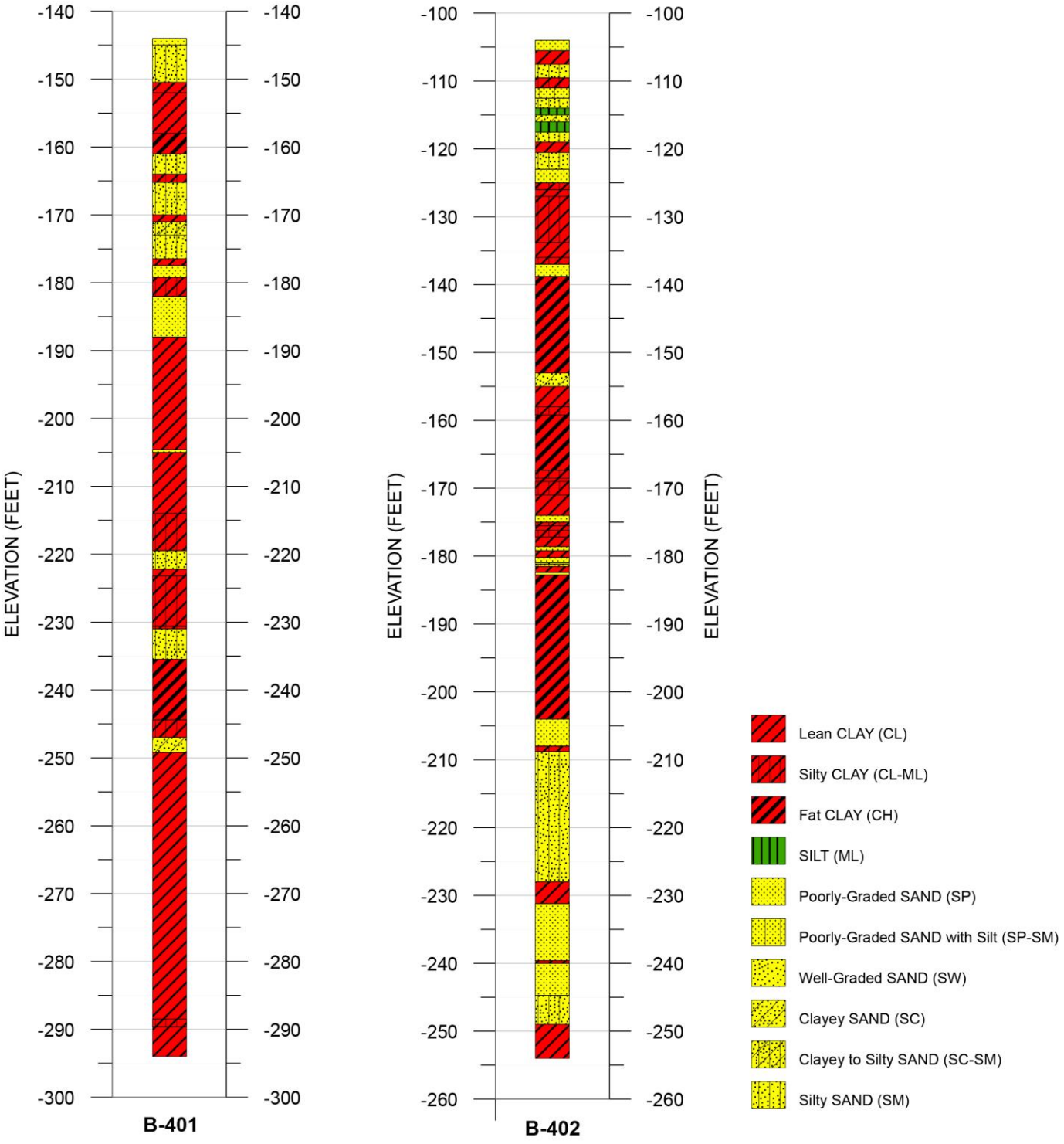


Figure 6. Graphic Logs of B-401 and B-402

APPENDIX A
BORING LOGS

CLASSIFICATION AND MATERIAL SYMBOLS

MAJOR DIVISIONS PER ASTM D2488-06			MAJOR GROUP NAMES AND MATERIAL SYMBOLS	
COARSE-GRAINED SOILS (More than 50% retained on the No. 200 sieve)	GRAVELS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE)	Clean gravels less than 5% fines	GW	Well-Graded GRAVEL
			GP	Poorly Graded GRAVEL
		Gravels with more than 12% fines	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SANDS (MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE)	Clean sand less than 5% fines	SW	Well-Graded SAND
			SP	Poorly Graded SAND
		Sands with more than 12% fines	SM	SILTY SAND
			SC	CLAYEY SAND
FINE-GRAINED SOILS (50% or more passes the No. 200 sieve)	SILTS AND CLAYS (Liquid Limit Less than 50%)		ML	SILT
			CL	Lean CLAY
			OL	ORGANIC SILT
	SILTS AND CLAYS (Liquid Limit Greater than 50%)		MH	Elastic SILT
			CH	Fat CLAY
			OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS			PT	Peat or Highly Organic Soils

Notes:
Classification of soils on the boring logs is in general accordance with ASTM D2488, or D2487 if appropriate laboratory data are available.
The geologic formation is noted in bold font at the top of interpreted interval on the boring logs.

OTHER MATERIAL SYMBOLS

- Debris or Mixed Fill
- Pavement with Aggregate Base

SAMPLER TYPE

- SPT (Driven) 1-3/8" ID 2" OD
- Modified California (Driven) 2-3/8" ID 3" OD
- Modified California (Driven) 1-7/8" ID 2-1/2" OD
- Shelby Tube (Pushed) 2-7/8" ID 3" OD
- Pitcher Barrel (Rotary-cut) 2-7/8" ID
- Osterberg (Piston) 2-7/8" ID
- 101 Geobarrel (Rotary-cut) 2-7/8" ID
- Rock Core (Rotary-cut) See log for size
- Vibracore (Vibrated) See log for size
- Push-core (Pushed) See log for size
- Collected from Auger
- Other See log for details

Note: Refer to text of report for additional details or other sampler types.

BLOW COUNT

Number of blows required to drive sampler each of three 6-in. intervals, as measured in the field (uncorrected). An SPT hammer (140 lb., falling 30-in.) was used unless otherwise noted on the boring log. For example:

Blow Count	Description
5 7 8	5, 7, and 8 blows for first, second, and third interval, respectively.
35 50/3"	35 blows for the first interval. 50 blows for the first 3 inches of the second interval. Lack of third value implies that driving was stopped 3 inches into the second interval.
WOH WOH 5	"WOH" indicates that the weight of the hammer was sufficient to advance the sampler over the first two intervals. 5 blows were required to advance the sampler over the third interval.

N-VALUE

The N-Value represents the blowcount for the last 12 inches of the sample drive if three 6-inch intervals were driven. N-value presented is independant of impact energy. If 50 hammer blows were insufficient to drive through either the second or the third interval, the total number of blows and total length driven are reported (excluding the first interval). "ref" (refusal) indicates that 50 blows were insufficient to drive through the first 6-inch interval.

Parenthesis indicate that an approximate correction has been applied for non-SPT drive samplers. For example, a factor of 0.63 is commonly used to adjust blow counts obtained using a 3-inch outside diameter modified California sampler to correspond to Standard Peneteration Test.

UNDRAINED SHEAR STRENGTH

A value of undrained shear strength is reported. The value is followed by a letter code indicating the type of test that was performed, as follows:

U - Unconfined Compression
Q - Unconsolidated Undrained Triaxial
T - Torvane
P - Pocket Penetrometer
M - Miniature Vane
F - Field Vane
R - R-value

OTHER TESTS

Field or laboratory tests without a dedicated column on the boring log are reported in the Other Tests column. A letter code is used to indicate the type of test. For certain tests, a value representing the test result is also provided. Typical letter codes are as follows. Additional codes may be used. Refer to the report text and the laboratory testing results for additional information.

k - Permeability (cm/s)
Consol - Consolidation
Gs - Specific Gravity
MA - Particle Size Analysis
EI - Expansion Index
OVM - Organic Vapor Meter

WATER LEVEL SYMBOLS

- Initial water level
- Final water level
- Seepage encountered

INCREASING MOISTURE CONTENT

Dry
Moist
Wet

CONSISTENCY OF COHESIVE SOIL

CONSISTENCY	UNDRAINED SHEAR STRENGTH (KIPS PER SQUARE FOOT)
Very Soft	< 0.25
Soft	0.25 to 0.50
Medium Stiff	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	> 4.0
Note: In absence of test data, consistency has been estimated based on manual observation.	

APPARENT DENSITY OF COHESIONLESS SOIL

APPARENT DENSITY	N-VALUE
Very Loose	0 to 4
Loose	5 to 9
Medium Dense	10 to 29
Dense	30 to 49
Very Dense	> 49

TERMS AND SYMBOLS USED ON BORING LOGS PLATE A-1

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	LOCATION: N 33.0922 W 115.82187666 SURFACE EL: -144.0 ft +/- (rel. MSL datum) MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
						Poorly-graded SAND (SP): looose, brown, dry, fine-grained				
-145			Box 01 Run 01	100		**BRAWLEY FORMATION (Qb)** SILTY SAND (SM): loose, very pale brown, dry, very-fine- to fine-grained				
			Box 01 Run 02	100						
	5					- thin-bedded to laminated dipping 30° at 5 ft No recovery from 5 ft to 9 ft.				
-150			Box 01 Run 03	0		CLAY (CL): hard, dark grayish brown, moist, thin, black banding dipping approximately 30°				
						Lean CLAY (CL): light yellowish brown, dry				
	10							98	43	26
-155			Box 02 Run 04	94						
						No recovery from 13.7 ft to 14 ft.				
	15					Fat CLAY (CH): hard, dark grayish brown, moist - 6 inch-thick laminated interval		100	55	33
-160			Box 02 Run 05	90						
						SILTY SAND (SM): brown, moist, poorly-graded, fine-grained; thin-bedded to laminated, abundant crossbedding				
						No recovery from 18.5 ft to 19 ft. - abundant crossbedding at 19 ft				
	20					SILTY CLAY (CL-ML): light yellowish brown to dark yellowish brown, moist, thin-bedded to laminated; planar to convolute bedding dipping approximately 10°				
-165			Box 03 Run 06	100		SILTY SAND (SM): brown, moist, poorly-graded, fine-grained; thin-bedded to laminated dipping 10°; crossbedding present				
	25									
-170			Box 03 Run 07	92		CLAY (CL): hard, brown, moist, massive with thin, subhorizontal black banding - 0.5 inch-thick calcareous cemented CLAY at 26 ft				
						SANDY SILTY CLAY (CL-ML): brown, moist, planar to convolute, thin-beddded to laminated, subhorizontal bedding				
						No recovery from 28.6 ft to 29 ft.				
			Box 04 Run 08	80		SILTY SAND (SM): variagated yellowish brown to brown, moist, poorly-graded, fine-grained; trough				

Continued

BORING DEPTH: 150.0 ft
BACKFILL: Shot Check Installed
DEPTH TO WATER:
FIELDWORK DATES: November 10, 2018 to November 14, 2018
DRILLING METHOD: 6-in. dia. HQ-3 Punch Core / Rotary Coring

HAMMER TYPE: N/A
RIG TYPE: CME-75
DRILLED BY: Tri-County Drilling, Bill Ortin
LOGGED BY: J Niles
CHECKED BY:

LOG OF BORING NO. B-401
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-2

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAUL

LOCATION:

N 33.0922 W 115.82187666
SURFACE EL: -144.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
-175			Box 04 Run 08	80		crossbeds present				
						CLAY (CL): stiff, dark yellowish brown, moist				
						No recovery from 33 ft to 34 ft.				
						Poorly-graded SAND (SP): yellowish brown, moist, fine-grained				
	35									
-180			Box 04 Run 09	90		SILTY CLAY (CL-ML): hard, dark yellowish brown, moist, with subhorizontal, planar interbedded, fine-grained SAND, SILT, and CLAY; oxidized along contacts				
						Poorly-graded SAND (SP): dark yellowish brown, moist, faint crossbedding; trace calcareous nodules				
						No recovery from 38.5 ft to 39 ft.				
	40									
-185			Box 05 Run 10	100		- faint, sparce subhorizontal gray banding at 41 ft				
						Lean CLAY (CL): hard, dark yellowish brown, moist, massive; orange oxidation along upper bounding contact				
	45					- gray interval from 45 ft to 45.2 ft		95	46	27
-190			Box 05 Run 11	90						
						No recovery from 48.5 ft to 49 ft.				
	50									
-195			Box 06 Run 12	70		No recovery from 52.5 ft to 54 ft.				
	55									
-200			Box 06 Run 13	84		No recovery from 58.2 ft to 59 ft.				
	60					- color transitions to gray at 59.9 ft				
-205			Box 07 Run 14	64		Poorly-graded SAND (SP): brown, moist, fine- to medium-grained				
						CLAY (CL): hard, dark grayish brown, moist, with trace fine-grained SAND; massive				
						No recovery from 62.2 ft to 64 ft.				
				100						

Continued

LOG OF BORING NO. B-401
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-3

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

LOCATION:

N 33.0922 W 115.82187666
SURFACE EL: -144.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
	65									
-210			Box 07 Run 15	100						
	70					SILTY CLAY (CL-ML): hard, dark yellowish brown, moist				
-215			Box 08 Run 16	84		No recovery from 73.2 ft to 74 ft.				
	75					SILTY SAND (SM): brown, moist, crossbedded to planar bedding subhorizontal to 10° dip; with thin interbedded CLAYS				
-220			Box 08 Run 17	100		CLAY (CL): hard, dark grayish brown, moist				
	80					SILTY CLAY (CL-ML):				
-225			Box 09 Run 18	100		- 1 inch-thick CLAY seam at 80.5 ft - 1 inch-thick CLAY seam at 82 ft		99	28	5
	85									
-230			Box 09 Run 19	86		CLAYEY SILT (CL-ML): grayish brown, moist, massive SILT with SAND (ML): moist to wet, massive No recovery from 88.3 ft to 89 ft. - convolute, oxidized CLAY stringers throughout at 89 ft to 90.8 ft				
	90									
-235			Box 10 Run 20	86		- 3 inch-thick CLAY seam at 90.8 ft				
			Box 10 Run 21	33		Fat CLAY (CH): hard, dark grayish brown, moist, massive No recovery from 92 ft to 92.5 ft. No recovery from 93 ft to 94 ft.				
	95					- gray, convolute CLAY with brecciated appearance from 94 ft to 95.3 ft				
-240			Box 10 Run 22	100		- gray brecciated CLAY from 96 ft to 96.5 ft		99	66	43
			Box 10 Run 23	100						

Continued

LOG OF BORING NO. B-401
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-4

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

LOCATION:

N 33.0922 W 115.82187666
SURFACE EL: -144.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL) / DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
			100		- 1 inch-thick CLAYEY fine-grained SAND seam dipping 10°				
100 -245		Box 11 Run 24	40		CLAYEY SILT (CL-ML): dark grayish brown, moist to wet, subhorizontal to 10° dip No recovery from 101 ft to 104 ft.				
					SANDY CLAY (CL): hard, dark yellowish brown to gray, chaotically mixed bedding				
105 -250		Box 11 Run 25	100		CLAY (CL): hard, dark yellowish brown, moist, massive - CLAY films present in exposed core at 107.5 ft				
110 -255		Box 12 Run 26	100		- variagated dark yellowish brown and brown at 109 ft				
115 -260		Box 12 Run 27	100						
120 -265		Box 13 Run 28	100		- 1 inch-thick, gray, calcareous cemented CLAY dipping 10° at 120.8 ft				
125 -270		Box 13 Run 29	100		- trace gray veining ; trace gray calcareous nodules; subhorizontal, yellowish brown banding from 124 ft to 126.5 ft - 4 inch-thick SILTY CLAY at 126.5 ft - 5 inch-thick SILTY CLAY at 127 ft				
130 -275		Box 14 Run 30	100		- 1 inch-thick SILTY CLAY at 131.5 ft				

Continued

LOG OF BORING NO. B-401
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-5

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

LOCATION:

N 33.0922 W 115.82187666
SURFACE EL: -144.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
			Box 14 Run 30	100						
	135					- chaotically organized, varicolored CLAYS at 134.7 ft to 135 ft - planar, subhorizontal, dark yellowish brown to gray, thin-bedded to laminated banding at 135 ft to 139 ft				
	-280		Box 14 Run 31	100						
	140					- transitions to brown with millimeter-scale-thick, discontinuous, black to dark gray streaks from 140 ft to 144.5 ft				
	-285		Box 15 Run 32	100						
	145					SANDY, SILTY CLAY (CL-ML): hard, dark grayish brown, moist, SAND is fine-grained; millimeter-scale gastropod shells present				
	-290		Box 15 Run 33	40		CLAY (CL): hard, very dark grayish brown, moist No recovery from 146 ft to 149 ft.				
			Box 15 Run 34	0		No recovery from 149 ft to 150 ft.				
	150					NOTES: 1. Terms and symbols defined on Plate A-1.				

LOG OF BORING NO. B-401
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-6

LOCATION:

N 33.08461 W 115.8284
SURFACE EL: -104.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
-105			Box 01 Run 1	100		Poorly-graded SAND (SP): light yellowish brown, dry				
						BRAWLEY FORMATION (Qb)				
			Box 01 Run 2	100		CLAY (CL): brownish yellow, dry				
						SILTY SAND (SM): loose, light yellowish brown, dry, poorly-graded, fine-grained				
-110	5		Box 01 Run 3	100		SILTY CLAY (CL-ML): brown, dry				
						SAND with SILT (SP-SM): loose, yellowish brown, moist, SAND is poorly-graded, fine-grained; thin-bedded to laminated				
						SILTY SAND (SM): brownish yellow, dry, fine-grained; massive to thinly-bedded				
-115	10		Box 02 Run 4	100		SANDY SILT with CLAY (ML): yellowish brown, dry				
						SANDY CLAY (SC): hard, dry, SAND is fine-grained				
						SILT (ML): yellowish brown to brownish yellow, dry, laminated, cross bedded,				
						SILTY SAND (SM): dry, poorly-graded, fine-grained				
-120	15		Box 02 Run 5	90		SANDY CLAY with SILT (CL): varicolored brown to yellow, moist, laminated				
						SILTY SAND (SM): very pale brown to brown, poorly-graded, fine-grained, laminated				
						No recovery from 18.5 ft to 19 ft.				
	20					Poorly-graded SAND (SP): yellowish brown, wet, poorly-graded, fine-grained, massive to thinly-bedded				
-125			Box 03 Run 6	70		SILTY CLAY (CL-ML): yellowish brown, moist				
						CLAY (CL): hard, yellowish brown, moist				
						No recovery from 22.5 ft to 24 ft.				
	25					SILTY CLAY (CL-ML): yellowish brown, dry, laminated; with very-fine- to fine-grained SAND (?)				
-130			Box 03 Run 7	100				97	27	6
			Box 04 Run 8	100						

Continued

BORING DEPTH: 150.0 ft
BACKFILL: Shot Check Installed
DEPTH TO WATER:
FIELDWORK DATES: November 6, 2018 to November 10, 2018
DRILLING METHOD: 6-in. dia. HQ-3 Punch Core / Rotary Coring

HAMMER TYPE: N/A
RIG TYPE: CME-75
DRILLED BY: Tri-County Drilling, Bill Ortin
LOGGED BY: J Niles
CHECKED BY:

LOG OF BORING NO. B-402
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-7

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAUL

LOCATION:

N 33.08461 W 115.8284
SURFACE EL: -104.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
-135			Box 04 Run 8	100		CLAY (CL): hard, brown, moist, thin-bedded to laminated - approximately 2 inch-thick interbedded fine-grained SAND - approximately 2 inch-thick interbedded fine-grained SAND				
						SILTY CLAY (CL-ML): hard, light brown to gray, moist				
						Poorly-graded SAND (SP): loose, pale brown, poorly-graded, medium-grained				
	35		Box 04 Run 9	100		Fat CLAY (CH): hard, brown to dark grayish brown, moist, thin-bedded to massive				
-140								99	71	46
						- subvertical, discontinuous viens of fine- to medium-grained SAND from 35.5 ft to 38 ft				
	40		Box 05 Run 10	96		- 1 to 2 inch-thick interbeds of fine- to medium-grained SAND at 39.7 ft and 41.6 ft				
-145										
						No recovery from 43.8 ft to 44 ft.				
	45		Box 05 Run 11	100						
-150										
						CLAYEY SAND (SC): yellowish brown, wet, poorly-graded, medium-grained				
	50		Box 06 Run 12	100		CLAY (CL): hard, grayish brown to brown, moist				
-155										
						- some SAND at 53.5 ft				
						SILTY CLAY (CL-ML): yellowish brown				
	55		Box 06 Run 13	100		Fat CLAY (CH): hard, yellowish brown, moist, trace indistinct light gray veining,				
-160								100	51	29
	60		Box 07 Run 14	100		- faint banding dipping ~30°				
-165						- 5 inch-thick soft SILTY CLAY interval at 60.8 ft				
						- 4 inch-thick SILTY CLAY interval at 61.9 ft				
						SILTY CLAY (CL-ML):				
				40						

Continued

LOG OF BORING NO. B-402
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-8

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

LOCATION:

N 33.08461 W 115.8284
SURFACE EL: -104.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
	65		Box 07 Run 15	40		CLAY (CL):				
						SILTY CLAY (CL-ML):				
-170						No recovery from 66 ft to 69 ft.				
						CLAY (CL): hard, brown, moist				
	70		Box 08 Run 16	100		Poorly-graded SAND (SP):				
-175						SILTY CLAY (CL-ML):				
						SANDY CLAY with SILT (CL): brown, moist				
						SILTY CLAY (CL-ML): variagated brown and dark brown				
						CLAY (CL): hard, dark grayish brown, moist				
	75		Box 08 Run 17	100		SAND (SP): gray, brown oxidation along ~30° dipping bedding planes				
-180						CLAY (CL): hard, grayish brown, moist, trace black specks				
						Poorly-graded SAND (SP): with ~1 inch-thick CLAY interbeds				
						Well-graded SAND (SW): subangular to subrounded, fine- to coarse-grained				
						SILTY SAND (SM):				
						CLAY (CL): hard, grayish brown, variagated with gray, moist				
						Poorly-graded SAND (SP): fine-grained with trace coarse-grained				
	80		Box 09 Run 18	100		Fat CLAY (CH): hard, dark yellowish brown, moist, massive with thin-bedded to laminated interbeds; dark brown along bedding planes				
-185						- 1 inch-thick cemented fine-grained SAND				
						- light gray calcarous nodules at 80.2 ft and 82.5 ft				
	85		Box 09 Run 19	100					80	54
-190						- CLAY films observed in exposed core				
						- laminated, varicolored CLAY at 88.5 ft				
	90		Box 10 Run 20	76		- 2 inch-thick SILTY CLAY at 90 ft				
-195						- 2 inch-thick SILTY CLAY at 91.5 ft				
						- 2 inch-thick SILTY CLAY at 92.2 ft				
						No recovery from 92.8 ft to 94 ft.				
	95		Box 10 Run 21	68		- yellowish brown, oxidized appearance from 95.6 ft to 96.5 ft				
-200						No recovery from 97.4 ft to 99 ft.				

Continued

LOG OF BORING NO. B-402
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-9

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	LOCATION: N 33.08461 W 115.8284 SURFACE EL: -104.0 ft +/- (rel. MSL datum) MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
				68						
	100					Poorly-graded SAND (SP): brown to grayish brown, moist				
	-205		Box 11 Run 22	26		No recovery from 100.3 ft to 104 ft.				
						SILTY CLAY (CL-ML): brown, moist				
	105					SILTY SAND (SM): grayish brown, wet, poorly-graded; intermittent reddish brown oxidation banding near top dipping ~10°				
	-210		Box 11 Run 23	100						
	110					- coarsends down to fine- to medium-grained at approximately 110 ft		23	NP	NP
	-215		Box 12 Run 24	100		- alternating, faint black and orange subhorizontal banding at approximately 111 ft				
	115									
	-220		Box 12 Run 25	44		- trace black spots at 116 ft No recovery from 116.2 ft to 119 ft.				
	120					- 4 inch-thick well-cemented, calcareous, palebrown to light gray, fine-grainedSAND interval at 119 ft				
	-225		Box 13 Run 26	92						
						No recovery from 123.6 ft to 124 ft.				
	125					CLAY (CL): hard, yellowish brown, moist, variagated brownish yellow				
	-230		Box 13 Run 27	94						
						Poorly-graded SAND (SP): gray, wet, massive				
	130					No recovery from 128.7 ft to 129 ft.				
	-235		Box 14 Run 28	40		- 1 inch-thick CLAY seam at 130 ft No recovery from 131 ft to 134 ft.				

Continued

LOG OF BORING NO. B-402
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-10

CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

LOCATION:

N 33.08461 W 115.8284
SURFACE EL: -104.0 ft +/- (rel. MSL datum)

ELEV., (ft RMSL)	DEPTH, (ft BGS)	SAMPLER TYPE	BOX NO./RUN NO.	RECOVERY (%)	MATERIAL SYMBOL	MATERIAL DESCRIPTION	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX
			Box 14 Run 28	40						
135										
-240			Box 14 Run 29	40		CLAY (CL): hard, dark grayish brown, moist				
						Poorly-graded SAND (SP): brown, wet No recovery from 136 ft to 139 ft.				
140										
-245			Box 15 Run 30	60		SILTY SAND (SM): dark grayish brown, moist, fine-grained; with CLAY stringers - approximately 3 inch-diameter, hard calcareous CLAY nodules at 141.5 ft No recovery from 142 ft to 144 ft.				
145										
-250			Box 15 Run 31	100		CLAY (CL): hard, brown, moist, massive; with trace reddish brown, concentiric spotting				
			N/A Run 32	0		No recovery from 149 ft to 150 ft.				
150						NOTES: 1. Terms and symbols defined on Plate A-1.				

LOG OF BORING NO. B-402
CalEnergy Calibration Boreholes
Westmoreland, California

PLATE A-11

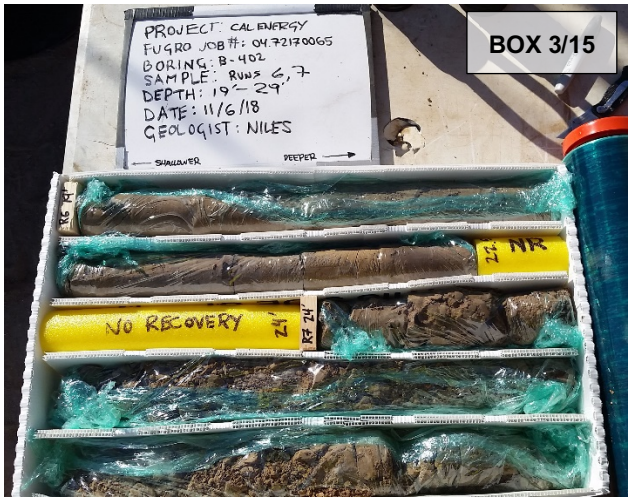
CALENERGY_CALIBRATION_BOREHOLES P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL4\02_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_011519.GPJ PURPLE_LINE_FAULT_INVESTIGATION_BOREHOL

APPENDIX B
CORE BOX PHOTOGRAPHS, B-402

BOX 1/15

BOX 2/15

BOX 3/15



BOX 4/15

NO PICTURE AVAILABLE

BOX 5/15

BOX 6/15

PLATE B-1

BOX 7/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS 14,15
DEPTH: 59'-69' BOX: 7
DATE: 11/7/18
GEOLOGIST: NILES
NO RECOVERY
NO RECOVERY

BOX 8/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS 16,17
DEPTH: 69'-79' BOX: 8
DATE: 11/7/18
GEOLOGIST: NILES

BOX 9/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 18,19
DEPTH: 79'-89' BOX: 9
DATE: 11/7/18
GEOLOGIST: NILES

BOX 10/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 20, 21
DEPTH: 89'-99' BOX: 10
DATE: 11/7/18
GEOLOGIST: NILES
NR
NO RECOVERY
NO RECOVERY

BOX 11/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 22, 23
DEPTH: 99'-109' BOX: 11
DATE: 11/7/18
GEOLOGIST: NILES
NR
NO RECOVERY
NR

BOX 12/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 24, 25
DEPTH: 109-119' BOX: 12
DATE: 11/7/18
GEOLOGIST: NILES
NR
NO RECOVERY

PLATE B-2

BOX 13/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 26,27
DEPTH: 119-129', BOX: 13
DATE: 11/7/18
GEOLOGIST: NILES
NR
NR

BOX 14/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 28,29
DEPTH: 129-139', BOX: 14
DATE: 11/7/18
GEOLOGIST: NILES
NO RECOVERY
NR
NR
NO RECOVERY

BOX 15/15
PROJECT: CALENERGY
FUGRO JOB #: 04.72170065
BORING: B-402
SAMPLE: RUNS: 30,31,32
DEPTH: 139-159', BOX: 15
DATE: 11/7/18
GEOLOGIST: NILES
NO RECOVERY
-NOT TO SCALE-
NO RECOVERY

PLATE B-3

APPENDIX C
LABORATORY RESULTS

DRILL HOLE	DEPTH, ft	SAMPLE NUMBER	MATERIAL DESCRIPTION	UWW pcf	UDW pcf	MC%	FINES %	ATTERBURG LIMITS		COMPACTION TEST		DIRECT SHEAR		COMPRESSIVE STRENGTH TESTS		CORROSIVITY TESTS				R-VALUE	EXPANSION INDEX	SAND EQUIVALENT (SE)	TEST LISTING
								LL	PI	MAX DD pcf	OPT MC %	C ksf	PHI deg	Qu, ksf	S_u (Cell Prs.) ksf	R	pH	Cl	So_4				
B-401	10.0		Lean CLAY (CL)				98	43	26														A, S
B-401	14.5		Fat CLAY (CH)				100	55	33														A, S
B-401	45.5		Lean CLAY (CL)				95	46	27														A, S
B-401	82.0		Silty CLAY (CL-ML)				99	28	5														A, S
B-401	95.0		Fat CLAY (CH)				99	66	43														A, S
B-402	26.0		Silty CLAY (CL-ML)				97	27	6														A, S
B-402	36.0		Fat CLAY (CH)				99	71	46														A, S
B-402	58.0		Fat CLAY (CH)				100	51	29														A, S
B-402	85.0		Fat CLAY (CH)					80	54														A, S
B-402	110.0		Silty SAND (SM)				23	NP	NP														A, S

Classification Tests
UWW = Unit Wet Weight
UDW = Unit Dry Weight
MC = Moisture Content
Fines = % Passing #200 Sieve
LL = Liquid Limit
PI = Plasticity Index

Direct Shear Test
C = Assigned Cohesion, ksf
PHI = Assigned Friction Angle, degrees

Compaction Test
MAX DD = Maximum Dry Density
OPT MC = Optimum Moisture Content

Compressive Strength Tests
Qu = Unconfined Compression
Su = Undrained Shear Strength
u = Unconsolidated Undrained
p = Pocket Penetrometer
t = Torvane
m = Miniature Vane

Corrosivity Tests
R = Resistivity, ohm-cm, satur.
pH = pH
Cl = Chloride, ppm
SO_4 = Sulfate, ppm

Test Listing Abbreviations
M = Moisture Content
T = Total & Dry Unit Weight
S = Sieve Analysis
FC = % Passing #200 Sieve
H = Hydrometer Analysis
A = Atterberg Limits
P = Compaction Test
D = Direct Shear Test
C = Consolidation Test
Co = Corrosivity Tests
CU = CU Triaxial
U = UU Triaxial
R = R-Value
SE = Sand Equivelant

SUMMARY OF LABORATORY TEST RESULTS

CalEnergy Calibration Boreholes
Westmoreland, California

PLATE C-1

SUM-1 LAB_SUMMRY (P:\PROJECTS\72_0000\72_170065_CALENERGY_DVC_CELL402_DATA_ACQUISITION\FIELD DATA\DRILLING\CALIBRATION_BOREHOLE\GINT\CALENERGY_CALIBRATION_BOREHOLES_WORKING_0107

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro1

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S01	Depth (ft):	10
Soil Description:	Lean Clay (CL); wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	273.20	267.69

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	273.2				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
H-24	48.90	48.25	16.70

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
31.55	0.65	**2.06%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	273.2

Corrected Dry Mass of Soil (g): 267.69

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	273.2	273.20	**>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<**		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
SG-6	52.1	51.05
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
9		
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	1.41	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
H-24	48.9	48.25	16.7
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
31.55	0.65	**2.06%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.06	0.06	0.1	99.9	99.9
No. 200	0.075	1	1.06	2.1	97.9	97.9
Pan	Pan	0.34	1.4	Sieve Continuity Check	100.7%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	48	5	43	8.4	0.01344	83.4	0.0276	20.8
5	42	5	37	9.4	0.01344	71.8	0.0184	20.9
15	36	5	31	10.4	0.01344	60.1	0.0112	20.8
30	34	5	29	10.7	0.01344	56.2	0.0080	20.7
60	31	5	26	11.2	0.01328	50.4	0.0057	21
90	30	5	25	11.4	0.01328	48.5	0.0047	21.2
120	29	5	24	11.5	0.01328	46.5	0.0041	21.5
240	27	5	22	11.9	0.01328	42.7	0.0030	21.8
480	25	5	20	12.2	0.01312	38.8	0.0021	22.2
1440	24	5	19	12.4	0.01344	36.8	0.0012	20.8
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro2

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S02	Depth (ft):	14.5
Soil Description:	Fat Clay (CH); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	436.20	421.06

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	436.2				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
h-1	96.80	94.02	16.70

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
77.32	2.78	**3.60%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	436.2

Corrected Dry Mass of Soil (g): 421.06

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	436.2	436.20	>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
15	53.5	51.64
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	0.1	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
h1	96.8	94.02	16.7
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
77.32	2.78	**3.60%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0	0	0.0	100.0	100.0
No. 200	0.075	0.1	0.1	0.2	99.8	99.8
Pan	Pan	0	0.1	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	59	5	54	6.6	0.01344	103.5	0.0245	20.6
5	56	5	51	7.1	0.01344	97.8	0.0160	20.6
15	51	5	46	7.9	0.01344	88.2	0.0098	20.6
30	48	5	43	8.4	0.01344	82.4	0.0071	20.6
60	45	5	40	8.9	0.01344	76.7	0.0052	20.7
90	43	5	38	9.2	0.01328	72.8	0.0043	21.1
120	42	5	37	9.4	0.01328	70.9	0.0037	21.5
240	37	5	32	10.2	0.01328	61.3	0.0027	21.5
480	36	5	31	10.4	0.01312	59.4	0.0019	22.4
1440	25	5	20	12.2	0.01328	38.3	0.0012	21.1
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro3

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S03	Depth (ft):	45.5
Soil Description:	Lean Clay (CL); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	213.50	-73.15

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	213.5				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
b1	72.10		18.40

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
-18.40	72.10	**-391.85%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	213.5

Corrected Dry Mass of Soil (g): -73.15

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	213.5	213.50	**>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<**		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
5	52.8	51.09
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	2.51	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
b1	72.1	70.36	18.4
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
51.96	1.74	**3.35%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	1.07	1.07	2.1	97.9	97.9
No. 200	0.075	1.32	2.39	4.7	95.3	95.3
Pan	Pan	0.12	2.51	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	55	5	50	7.3	0.01344	96.9	0.0256	20.7
5	53	5	48	7.6	0.01344	93.0	0.0166	20.8
15	51	5	46	7.9	0.01344	89.1	0.0098	20.7
30	48	5	43	8.4	0.01344	83.3	0.0071	20.7
60	45	5	40	8.9	0.01344	77.5	0.0052	20.8
90	43	5	38	9.2	0.01328	73.6	0.0043	21.1
120	41	5	36	9.6	0.01328	69.8	0.0038	21.1
240	37	5	32	10.2	0.01328	62.0	0.0027	21.9
480	36	5	31	10.4	0.01312	60.1	0.0019	22.2
1440	28	5	23	11.7	0.01328	44.6	0.0012	21
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro4

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S04	Depth (ft):	82
Soil Description:	Silty Clay (CL-ML); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	227.80	-68.66

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	227.8				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
H-12	73.40		17.00

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
-17.00	73.40	**-431.76%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	227.8

Corrected Dry Mass of Soil (g): -68.66

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	227.8	227.80	**>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<**		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
2	56.8	56.17
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	1.13	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
H-12	73.4	72.77	17
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
55.77	0.63	**1.13%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.03	0.03	0.1	99.9	99.9
No. 200	0.075	0.57	0.6	1.1	98.9	98.9
Pan	Pan	0.54	1.14	Sieve Continuity Check	99.1%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	42	5	37	9.4	0.01344	65.2	0.0292	20.7
5	31	5	26	11.2	0.01344	45.8	0.0201	20.8
15	22	5	17	12.7	0.01328	30.0	0.0122	21
30	19	5	14	13.2	0.01328	24.7	0.0088	21
60	17	5	12	13.5	0.01328	21.2	0.0063	21.2
90	15	5	10	13.8	0.01328	17.6	0.0052	21.3
120	15	5	10	13.8	0.01328	17.6	0.0045	21.5
240	14	5	9	14.0	0.01312	15.9	0.0032	22
480	14	5	9	14.0	0.01312	15.9	0.0022	22.2
1440	12	5	7	14.3	0.01328	12.3	0.0013	21.2
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro5

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S05	Depth (ft):	95
Soil Description:	Fat Clay (CH); , moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	358.00	-153.05

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	358				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
L16	57.10		17.10

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
-17.10	57.10	**-333.92%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	358

Corrected Dry Mass of Soil (g): -153.05

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	358	358.00	>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
8	57.8	55.33
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	0.49	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
L16	57.1	55.39	17.1
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
38.29	1.71	**4.47%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.08	0.08	0.1	99.9	99.9
No. 200	0.075	0.36	0.44	0.8	99.2	99.2
Pan	Pan	0.05	0.49	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	63	5	58	6.0	0.01344	103.8	0.0232	20.6
5	61	5	56	6.3	0.01344	100.2	0.0151	20.6
15	60	5	55	6.5	0.01344	98.4	0.0088	20.6
30	57	5	52	7.0	0.01344	93.0	0.0065	20.7
60	54	5	49	7.4	0.01328	87.7	0.0047	21
90	51	5	46	7.9	0.01328	82.3	0.0039	21.1
120	49	5	44	8.3	0.01328	78.7	0.0035	21.3
240	45	5	40	8.9	0.01328	71.6	0.0026	21.7
480	43	5	38	9.2	0.01312	68.0	0.0018	22.3
1440	39	5	34	9.9	0.01328	60.8	0.0011	21.2
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro6

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S01	Depth (ft):	26
Soil Description:	Silty Clay (CL-ML); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	364.30	361.29

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	364.3				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
L13	61.80	61.43	17.00

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
44.43	0.37	**0.83%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	364.3

Corrected Dry Mass of Soil (g): 361.29

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	364.3	364.30	**>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<**		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
3	57.7	57.22
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	1.97	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
L13	61.8	61.43	17
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
44.43	0.37	**0.83%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.04	0.04	0.1	99.9	99.9
No. 200	0.075	1.56	1.6	2.8	97.2	97.2
Pan	Pan	0.37	1.97	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	32	5	27	11.1	0.01344	46.7	0.0316	20.7
5	23	5	18	12.5	0.01344	31.1	0.0213	20.7
15	20	5	15	13.0	0.01344	26.0	0.0125	20.7
30	19	5	14	13.2	0.01344	24.2	0.0089	20.7
60	18	5	13	13.3	0.01328	22.5	0.0063	21.1
90	17	5	12	13.5	0.01328	20.8	0.0051	21.2
120	16	5	11	13.7	0.01328	19.0	0.0045	21.5
240	15	5	10	13.8	0.01312	17.3	0.0032	22
480	14	5	9	14.0	0.01312	15.6	0.0022	22.2
1440	14	5	9	14.0	0.01328	15.6	0.0013	21.2
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro7

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S02	Depth (ft):	36
Soil Description:	Fat Clay (CH); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	462.00	447.02

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	462				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
B2	47.00	46.05	17.70

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
28.35	0.95	**3.35%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	462

Corrected Dry Mass of Soil (g): 447.02

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	462	462.00	>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
11	56.9	55.06
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	0.54	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
B2	47	46.05	17.7
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
28.35	0.95	**3.35%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.18	0.18	0.3	99.7	99.7
No. 200	0.075	0.34	0.52	0.9	99.1	99.1
Pan	Pan	0.02	0.54	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	63	5	58	6.0	0.01344	104.3	0.0232	20.6
5	62	5	57	6.1	0.01344	102.5	0.0149	20.6
15	60	5	55	6.5	0.01344	98.9	0.0088	20.6
30	59	5	54	6.6	0.01344	97.1	0.0063	20.8
60	58	5	53	6.8	0.01328	95.3	0.0045	21
90	56	5	51	7.1	0.01328	91.7	0.0037	21.1
120	55	5	50	7.3	0.01328	89.9	0.0033	21.2
240	48	5	43	8.4	0.01312	77.3	0.0025	22.1
480	32	5	27	11.1	0.01312	48.6	0.0020	22.2
1440	18	5	13	13.3	0.01328	23.4	0.0013	21
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro8

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S03	Depth (ft):	58
Soil Description:	Fat Clay (CH); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	251.50	-270.72

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	251.5				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
L17	32.60		16.90

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
-16.90	32.60	**-192.90%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	251.5

Corrected Dry Mass of Soil (g): -270.72

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	251.5	251.50	**>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<**		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
14	54.2	53.51
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	0.19	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
L17	32.6	32.4	16.9
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
15.50	0.20	**1.29%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0	0	0.0	100.0	100.0
No. 200	0.075	0.19	0.19	0.4	99.6	99.6
Pan	Pan	0	0.19	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	60	5	55	6.5	0.01344	101.8	0.0242	20.6
5	55	5	50	7.3	0.01344	92.5	0.0162	20.6
15	48	5	43	8.4	0.01344	79.6	0.0101	20.7
30	44	5	39	9.1	0.01344	72.2	0.0074	20.8
60	40	5	35	9.7	0.01328	64.8	0.0054	21.1
90	38	5	33	10.1	0.01328	61.1	0.0044	21.1
120	37	5	32	10.2	0.01328	59.2	0.0039	21.4
240	34	5	29	10.7	0.01328	53.7	0.0028	21.9
480	31	5	26	11.2	0.01312	48.1	0.0020	22.3
1440	30	5	25	11.4	0.01328	46.3	0.0012	21.3
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro9

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S04	Depth (ft):	85
Soil Description:	Fat Clay (CH); moist - wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	206.90	196.45

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	206.9				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
L10	69.40	66.83	18.50

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
48.33	2.57	**5.32%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	206.9

Corrected Dry Mass of Soil (g): 196.45

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	206.9	206.90	>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
10	51.6	48.99
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	0.19	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
L10	69.4	66.83	18.5
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
48.33	2.57	**5.32%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0	0	0.0	100.0	100.0
No. 100	0.150	0.08	0.08	0.2	99.8	99.8
No. 200	0.075	0.09	0.17	0.3	99.7	99.7
Pan	Pan	0.02	0.19	Sieve Continuity Check	100.0%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	57	5	52	7.0	0.01344	105.1	0.0251	20.5
5	56	5	51	7.1	0.01344	103.1	0.0160	20.6
15	55	5	50	7.3	0.01344	101.0	0.0094	20.6
30	55	5	50	7.3	0.01344	101.0	0.0066	20.6
60	55	5	50	7.3	0.01344	101.0	0.0047	20.9
90	55	5	50	7.3	0.01328	101.0	0.0038	21.1
120	55	5	50	7.3	0.01328	101.0	0.0033	21.2
240	55	5	50	7.3	0.01312	101.0	0.0023	22
480	55	5	50	7.3	0.01312	101.0	0.0016	22.1
1440	55	5	50	7.3	0.01328	101.0	0.0009	21.1
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked by:	

HYDROMETER GRAIN-SIZE ANALYSIS

Hydro10

test performed in general accordance with ASTM D422 or Cal 202

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S05	Depth (ft):	110
Soil Description:	Silty Sand (SM); wet				

COARSE GRADING INFORMATION - GILSON

TRAY No:	AIR DRY MASS OF SOIL (g) :	CORRECTED TOTAL DRY MASS OF SOIL (g)
	580.70	579.55

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
4 in *	101.60	0.00	0	0.0	100.0	100.0
3 in *	76.20	0.00	0	0.0	100.0	100.0
2 1/2 in *	63.50	0.00	0	0.0	100.0	100.0
2 in *	50.80	0.00	0	0.0	100.0	100.0
1 1/2 in *	38.10	0.00	0	0.0	100.0	100.0
1 in *	25.40	0.00	0	0.0	100.0	100.0
3/4 in *	19.05	0.00	0	0.0	100.0	100.0
1/2 in *	12.70	0.00	0	0.0	100.0	100.0
3/8 in *	9.50	0.00	0	0.0	100.0	100.0
No. 4 *	4.75	0.00	0	0.0	100.0	100.0
Pan	minus #4	580.7				

INTERMEDIATE GRADING INFORMATION

Moisture Content on Minus #4 Material

Tray No.	Wt. of Wet Soil and Tray	Wt. of Dry Soil and Tray	Wt. of Tray
H-20	52.20	52.13	16.70

Wt. of Dry Soil	Wt. of Moisture	Moisture Content (%)
35.43	0.07	**0.20%**

Intermediate Grading [#4 by #10]

Tray No.	Tray Wt. (g)	Wt. of Soil + Tray (g)
	0	580.7

Corrected Dry Mass of Soil (g): 579.55

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 10	2.00	0.00	0.00	0.00	100.00	100.00
Pan	Minus #10	580.7	580.70	>>>>>> SPLIT THIS SAMPLE FOR HYDRO <<<<<<		

HYDROMETER AND FINE GRADING INFORMATION

TEST DATA

Container Number:	Air Dry Sample Wt (g):	**Dry Sample Weight (g):
4	70.8	70.66
Sedimentation Cylinder No.:	**Time Test Started:**	**Date Test Started:**
Dispersing Agent (g/l)	**Hydrometer Type / No.:**	**Specific Gravity *(Assumed)**
Na-HMP 40 g/l	152H/	2.7
After Wash Tare ID	**Dry Mass of Soil After Wash (g)**	
	59.34	

Hydroscopic - Moisture Content

Tare No.:	Wt of Wet Soil & Tare (g):	Wt of Dry Soil & Tare (g):	Wt of Tare (g):
H-20	52.2	52.13	16.7
Wt. of Dry Soil	**Wt. of Moisture**	**Moisture Content (%):**	
35.43	0.07	**0.20%**	

* DELETE IF MEASURED

**DRY SAMPLE WT. = Wet sample wt. / (1+(Hyrdroscopic moisture content/100))

SIEVE No.	SIEVE Size (mm)	Wt of Soil Ret.	Cumulative wt. of Soil Ret.	Cumulative % Ret.	% Passing	Combined Passing
No. 16	1.180	0	0	0.0	100.0	100.0
No. 30	0.600	0	0	0.0	100.0	100.0
No. 50	0.300	0.14	0.14	0.2	99.8	99.8
No. 100	0.150	15.22	15.36	21.7	78.3	78.3
No. 200	0.075	38.78	54.14	76.6	23.4	23.4
Pan	Pan	5.05	59.19	Sieve Continuity Check	100.3%	

Time (T) (mins)	Reading (Z)	Reading for Water + Dis. Agent	Corrected Reading (H)	Effective Depth (L)	Correction Factor (K)	% Pass (P)	Diam. (D)	Temp. (t)
2	15	5	10	13.8	0.01328	14.0	0.0349	21
5	14	5	9	14.0	0.01328	12.6	0.0222	21.1
15	13	5	8	14.2	0.01328	11.2	0.0129	21.1
30	12	5	7	14.3	0.01328	9.8	0.0092	21.2
60	10	5	5	14.7	0.01328	7.0	0.0066	21.5
90	10	5	5	14.7	0.01328	7.0	0.0054	21.6
120	10	5	5	14.7	0.01328	7.0	0.0046	21.8
240	10	5	5	14.7	0.01312	7.0	0.0032	22.2
480	9	5	4	14.8	0.01312	5.6	0.0023	22.3
1440	9	5	4	14.8	0.01328	5.6	0.0013	21.5
			0	16.3	#N/A	0.0	#N/A	
			0	16.3	#N/A	0.0	#N/A	

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

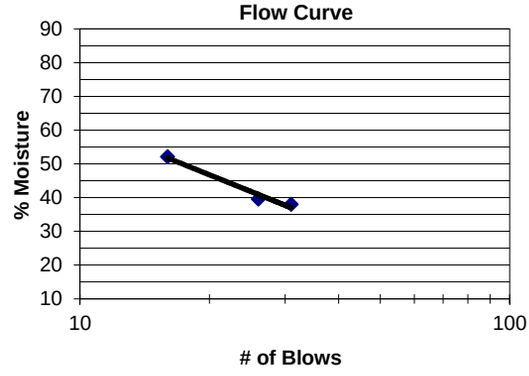
Test performed in accordance to ASTM D4318

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

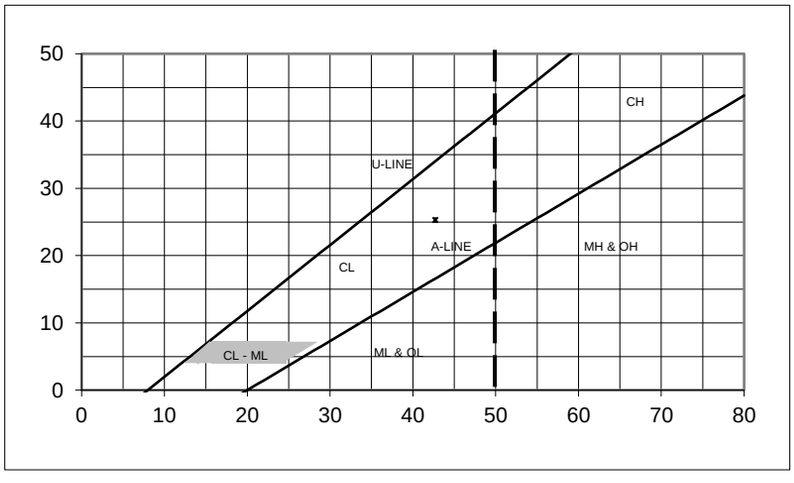
Boring #:	B-401	Sample #:	S01	Depth (ft):	10
Soil Description	Lean Clay (CL); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT		
Determination	1	2
Dish I.D. #:	A31	A20
Mass of Wet Soil + Dish:	20.18	20.04
Mass of Dry Soil + Dish:	18.84	18.73
Mass of Moisture:	1.34	1.31
Mass of Dish:	11.17	11.19
Mass of Dry Soil:	7.67	7.54
Moisture Content:	17.47	17.37

PI results have less than 1.4% difference



LIQUID LIMIT					CORRECTION		
Determination	1	2	3	4	Numbers of Blows	X	Factor
Dish ID	A46	A145	A33		20		0.974
# of Blows:	31	26	16		21		0.979
Mass of Dish + Wet Soil:	23.51	27.47	22.74		22		0.985
Mass of Dish + Dry Soil:	20.14	22.87	18.79		23		0.990
Mass of Moisture:	3.37	4.60	3.95	0.00	24		0.995
Mass of Dish:	11.27	11.25	11.21		25		1.000
Mass of Dry Soil:	8.87	11.62	7.58	0.00	26		1.005
% Moisture Content:	37.99	39.59	52.11	#DIV/0!	27		1.009
Corrected Moisture:	39.00	39.78	49.37	#DIV/0!	28		1.014
					29		1.018
					30		1.022



LIQUID LIMIT SUMMARY		
Single Point		
Corrected LL		42.71
Multipoint	x	
LL at 25 blows		42.57
Coef. Of Determination, r^2		0.9479

PI SUMMARY		
LL	=	43
PL	=	17
PI	=	25

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

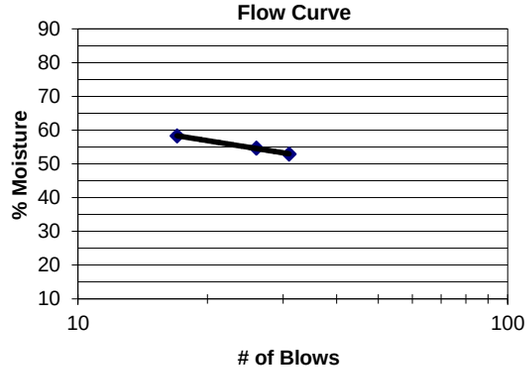
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S02	Depth (ft):	14.50
Soil Description	Fat Clay (CH); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A04	A110
Mass of Wet Soil + Dish:	20.86	20.91
Mass of Dry Soil + Dish:	19.14	19.16
Mass of Moisture:	1.72	1.75
Mass of Dish:	11.17	11.16
Mass of Dry Soil:	7.97	8.00
Moisture Content:	21.58	21.88

PI results have less than 1.4% difference

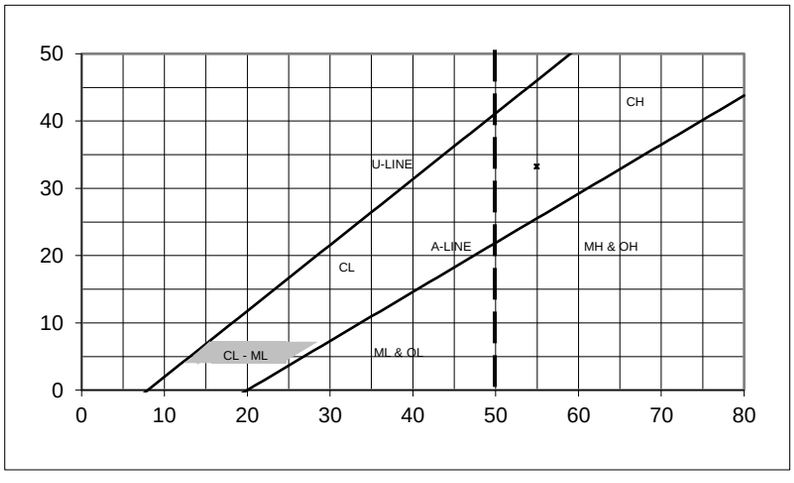


LIQUID LIMIT

Determination	1	2	3	4
Dish ID	A33	A16	A02	
# of Blows:	31	26	17	
Mass of Dish + Wet Soil:	24.48	22.43	24.14	
Mass of Dish + Dry Soil:	19.89	18.48	19.37	
Mass of Moisture:	4.59	3.95	4.77	0.00
Mass of Dish:	11.22	11.25	11.19	
Mass of Dry Soil:	8.67	7.23	8.18	0.00
% Moisture Content:	52.94	54.63	58.31	#DIV/0!
Corrected Moisture:	54.34	54.89	55.65	#DIV/0!

CORRECTION

Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY

Single Point		
Corrected LL		54.96
Multipoint	x	
LL at 25 blows		55.17
Coef. Of Determination, r^2		0.9978

PI SUMMARY

LL	=	55
PL	=	22
PI	=	33

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

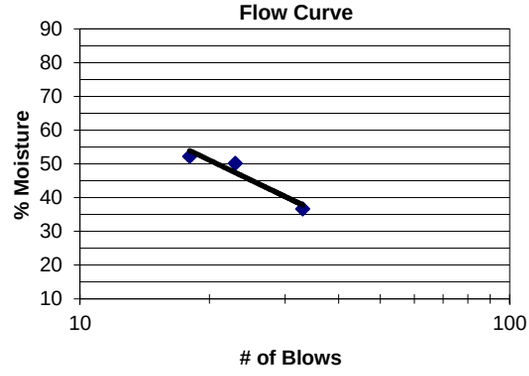
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S03	Depth (ft):	45.50
Soil Description	Lean Clay (CL); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A122	UNI
Mass of Wet Soil + Dish:	21.36	21.12
Mass of Dry Soil + Dish:	19.75	19.57
Mass of Moisture:	1.61	1.55
Mass of Dish:	11.22	11.28
Mass of Dry Soil:	8.53	8.29
Moisture Content:	18.87	18.70

PI results have less than 1.4% difference

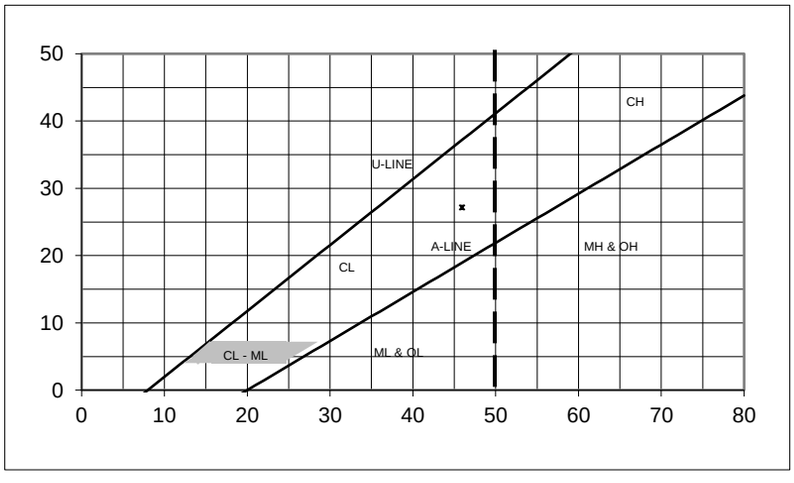


LIQUID LIMIT

Determination	1	2	3	4
Dish ID	A13	A44	A110	
# of Blows:	33	23	18	
Mass of Dish + Wet Soil:	22.44	22.52	24.63	
Mass of Dish + Dry Soil:	19.44	18.75	20.01	
Mass of Moisture:	3.00	3.77	4.62	0.00
Mass of Dish:	11.26	11.24	11.17	
Mass of Dry Soil:	8.18	7.51	8.84	0.00
% Moisture Content:	36.67	50.20	52.26	#DIV/0!
Corrected Moisture:	37.93	49.70	50.23	#DIV/0!

CORRECTION

Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY

Single Point		
Corrected LL		45.95
Multipoint	x	
LL at 25 blows		46.02
Coef. Of Determination, r^2		0.9560

PI SUMMARY

LL	=	46
PL	=	19
PI	=	27

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

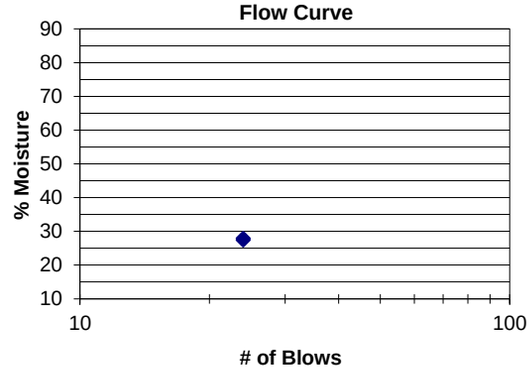
Test performed in accordance to ASTM D4318

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

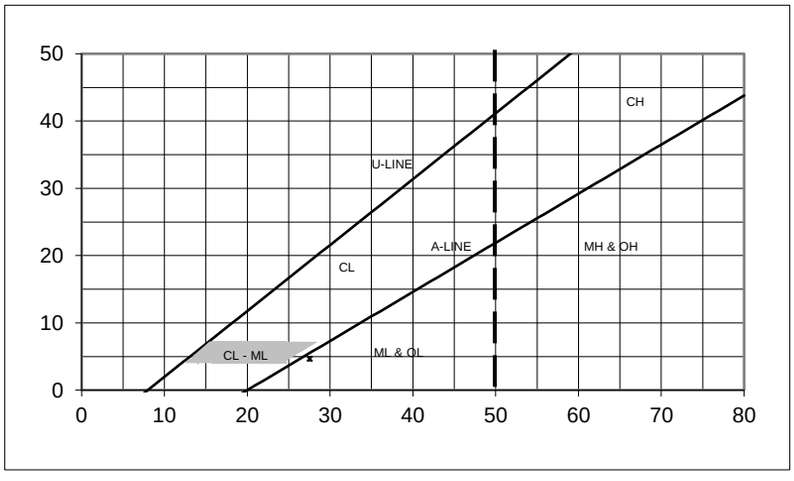
Boring #:	B-401	Sample #:	S04	Depth (ft):	82.00
Soil Description	Silty Clay (CL-ML); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT		
Determination	1	2
Dish I.D. #:	A36	A185
Mass of Wet Soil + Dish:	19.88	19.74
Mass of Dry Soil + Dish:	18.27	18.11
Mass of Moisture:	1.61	1.63
Mass of Dish:	11.25	10.97
Mass of Dry Soil:	7.02	7.14
Moisture Content:	22.93	22.83

PI results have less than 1.4% difference



LIQUID LIMIT					CORRECTION		
Determination	1	2	3	4	Numbers of Blows	X	Factor
Dish ID	A40	A05			20		0.974
# of Blows:	24	24			21		0.979
Mass of Dish + Wet Soil:	26.01	21.30			22		0.985
Mass of Dish + Dry Soil:	22.78	19.13			23		0.990
Mass of Moisture:	3.23	2.17	0.00	0.00	24		0.995
Mass of Dish:	11.22	11.22			25		1.000
Mass of Dry Soil:	11.56	7.91	0.00	0.00	26		1.005
% Moisture Content:	27.94	27.43	#DIV/0!	#DIV/0!	27		1.009
Corrected Moisture:	27.80	27.30	#DIV/0!	#DIV/0!	28		1.014
					29		1.018
					30		1.022



LIQUID LIMIT SUMMARY		
Single Point	X	
Corrected LL		27.55
Multipoint		
LL at 25 blows		#VALUE!
Coef. Of Determination, r^2		#VALUE!

PI SUMMARY		
LL	=	28
PL	=	23
PI	=	5

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

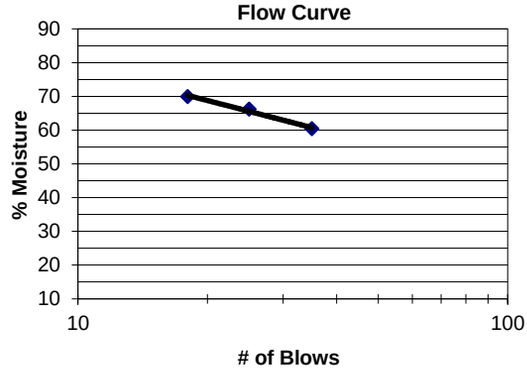
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S05	Depth (ft):	95.00
Soil Description	Fat Clay (CH); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A30	Z122
Mass of Wet Soil + Dish:	20.35	20.61
Mass of Dry Soil + Dish:	18.66	18.88
Mass of Moisture:	1.69	1.73
Mass of Dish:	11.23	11.27
Mass of Dry Soil:	7.43	7.61
Moisture Content:	22.75	22.73

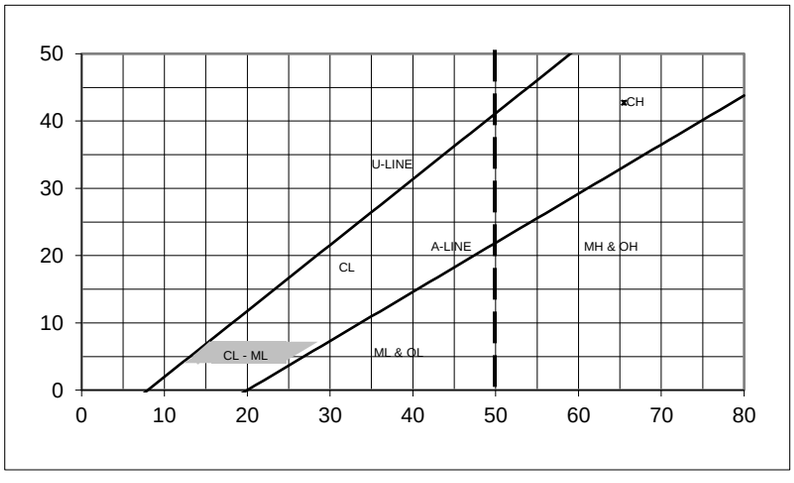
PI results have less than 1.4% difference



LIQUID LIMIT

Determination	1	2	3	4
Dish ID	25A	A03	A49	
# of Blows:	35	25	18	
Mass of Dish + Wet Soil:	20.72	24.11	23.45	
Mass of Dish + Dry Soil:	17.22	18.98	18.39	
Mass of Moisture:	3.50	5.13	5.06	0.00
Mass of Dish:	11.43	11.23	11.16	
Mass of Dry Soil:	5.79	7.75	7.23	0.00
% Moisture Content:	60.45	66.19	69.99	#DIV/0!
Corrected Moisture:	62.96	66.19	67.26	#DIV/0!

CORRECTION		
Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY		
Single Point		
Corrected LL		65.47
Multipoint	x	
LL at 25 blows		66.10
Coef. Of Determination, r^2		0.9997

PI SUMMARY		
LL	=	66
PL	=	23
PI	=	43

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

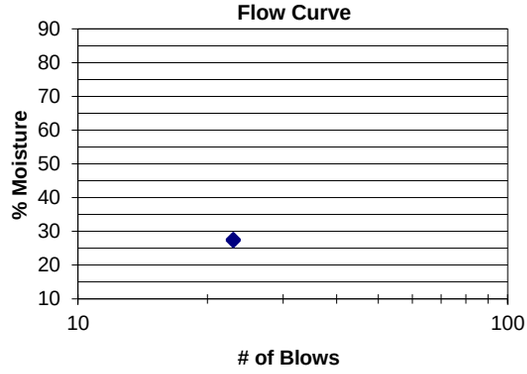
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S01	Depth (ft):	26.00
Soil Description	Silty Clay (CL-ML); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A105	A121
Mass of Wet Soil + Dish:	22.87	22.64
Mass of Dry Soil + Dish:	20.78	20.61
Mass of Moisture:	2.09	2.03
Mass of Dish:	10.96	11.21
Mass of Dry Soil:	9.82	9.40
Moisture Content:	21.28	21.60

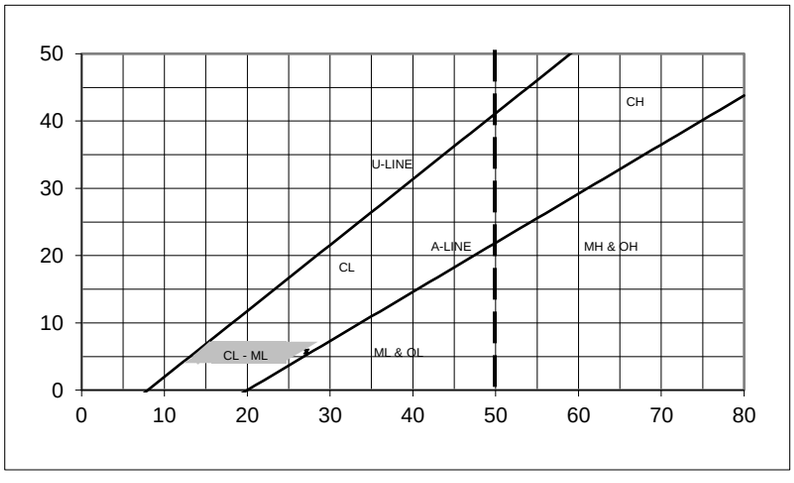
PI results have less than 1.4% difference



LIQUID LIMIT

Determination	1	2	3	4
Dish ID	A28	A19		
# of Blows:	23	23		
Mass of Dish + Wet Soil:	19.60	21.96		
Mass of Dish + Dry Soil:	17.83	19.63		
Mass of Moisture:	1.77	2.33	0.00	0.00
Mass of Dish:	11.33	11.20		
Mass of Dry Soil:	6.50	8.43	0.00	0.00
% Moisture Content:	27.23	27.64	#DIV/0!	#DIV/0!
Corrected Moisture:	26.96	27.36	#DIV/0!	#DIV/0!

CORRECTION		
Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY		
Single Point	X	
Corrected LL		27.16
Multipoint		
LL at 25 blows		#VALUE!
Coef. Of Determination, r^2		#VALUE!

PI SUMMARY		
LL	=	27
PL	=	21
PI	=	6

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

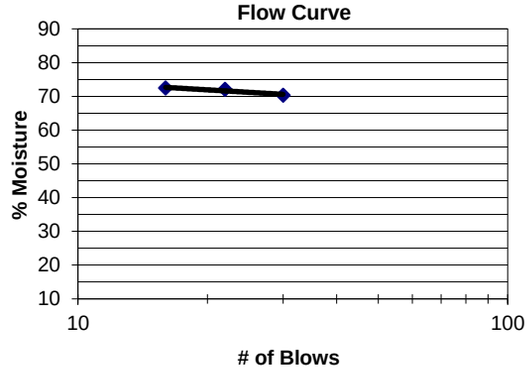
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S02	Depth (ft):	36.00
Soil Description	Fat Clay (CH); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A48	A42
Mass of Wet Soil + Dish:	20.12	20.65
Mass of Dry Soil + Dish:	18.33	18.77
Mass of Moisture:	1.79	1.88
Mass of Dish:	11.17	11.22
Mass of Dry Soil:	7.16	7.55
Moisture Content:	25.00	24.90

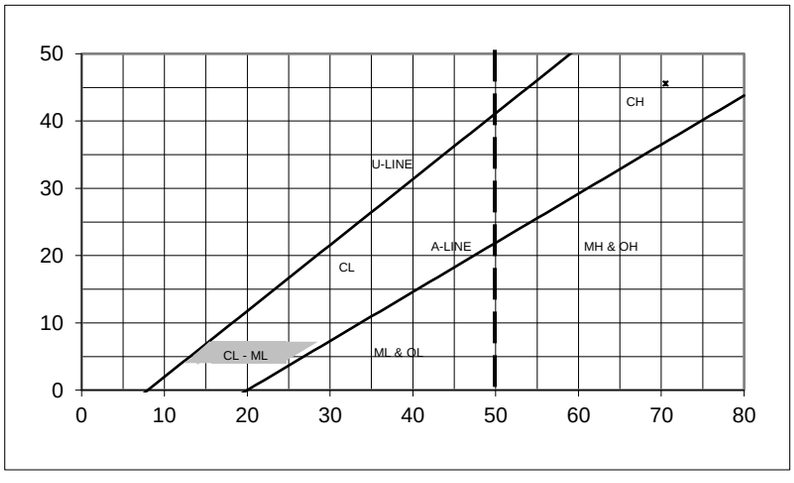
PI results have less than 1.4% difference



LIQUID LIMIT

Determination	1	2	3	4
Dish ID	A47	A39	A15	
# of Blows:	16	22	30	
Mass of Dish + Wet Soil:	22.84	21.79	22.84	
Mass of Dish + Dry Soil:	17.95	17.40	18.02	
Mass of Moisture:	4.89	4.39	4.82	0.00
Mass of Dish:	11.20	11.31	11.17	
Mass of Dry Soil:	6.75	6.09	6.85	0.00
% Moisture Content:	72.44	72.09	70.36	#DIV/0!
Corrected Moisture:	68.64	70.98	71.93	#DIV/0!

CORRECTION		
Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY		
Single Point		
Corrected LL		70.52
Multipoint	x	
LL at 25 blows		71.28
Coef. Of Determination, r^2		0.9241

PI SUMMARY		
LL	=	71
PL	=	25
PI	=	46

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

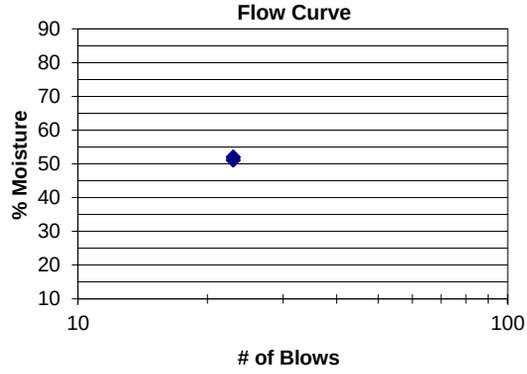
Test performed in accordance to ASTM D4318

Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

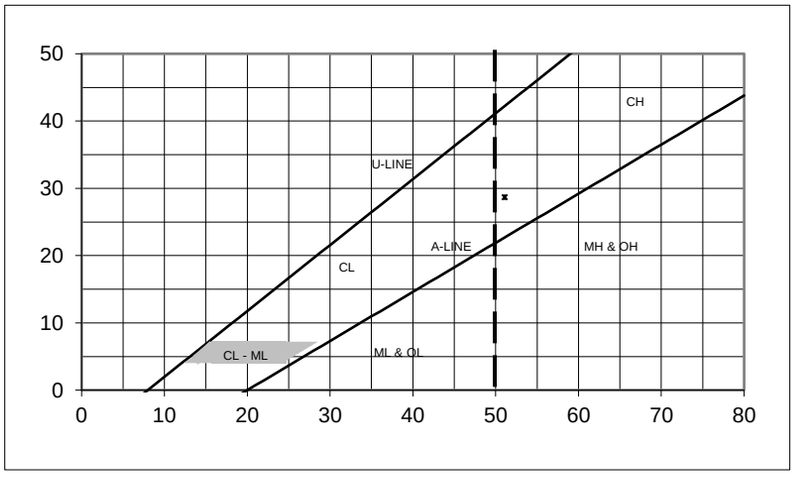
Boring #:	B-402	Sample #:	S03	Depth (ft):	58
Soil Description	Fat Clay (CH); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT		
Determination	1	2
Dish I.D. #:	A49	A40
Mass of Wet Soil + Dish:	20.93	20.78
Mass of Dry Soil + Dish:	19.14	19.03
Mass of Moisture:	1.79	1.75
Mass of Dish:	11.15	11.22
Mass of Dry Soil:	7.99	7.81
Moisture Content:	22.40	22.41

PI results have less than 1.4% difference



LIQUID LIMIT					CORRECTION		
Determination	1	2	3	4	Numbers of Blows	X	Factor
Dish ID	A19	A185			20		0.974
# of Blows:	23	23			21		0.979
Mass of Dish + Wet Soil:	21.01	19.95			22		0.985
Mass of Dish + Dry Soil:	17.65	16.91			23		0.990
Mass of Moisture:	3.36	3.04	0.00	0.00	24		0.995
Mass of Dish:	11.19	10.97			25		1.000
Mass of Dry Soil:	6.46	5.94	0.00	0.00	26		1.005
% Moisture Content:	52.01	51.18	#DIV/0!	#DIV/0!	27		1.009
Corrected Moisture:	51.49	50.66	#DIV/0!	#DIV/0!	28		1.014
					29		1.018
					30		1.022



LIQUID LIMIT SUMMARY		
Single Point	X	
Corrected LL		51.08
Multipoint		
LL at 25 blows		#VALUE!
Coef. Of Determination, r^2		#VALUE!

PI SUMMARY		
LL	=	51
PL	=	22
PI	=	29

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

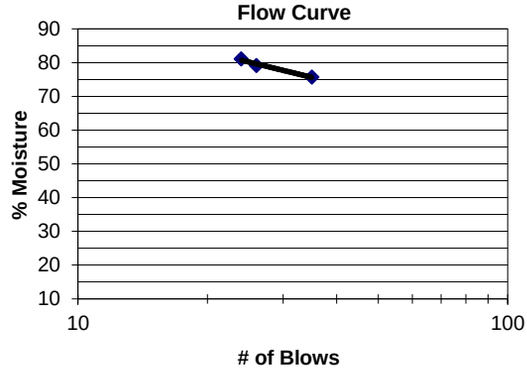
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S04	Depth (ft):	85.00
Soil Description	Fat Clay (CH); moist - wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

PLASTIC LIMIT

Determination	1	2
Dish I.D. #:	A26	A16
Mass of Wet Soil + Dish:	18.84	18.58
Mass of Dry Soil + Dish:	17.28	17.07
Mass of Moisture:	1.56	1.51
Mass of Dish:	11.26	11.25
Mass of Dry Soil:	6.02	5.82
Moisture Content:	25.91	25.95

PI results have less than 1.4% difference

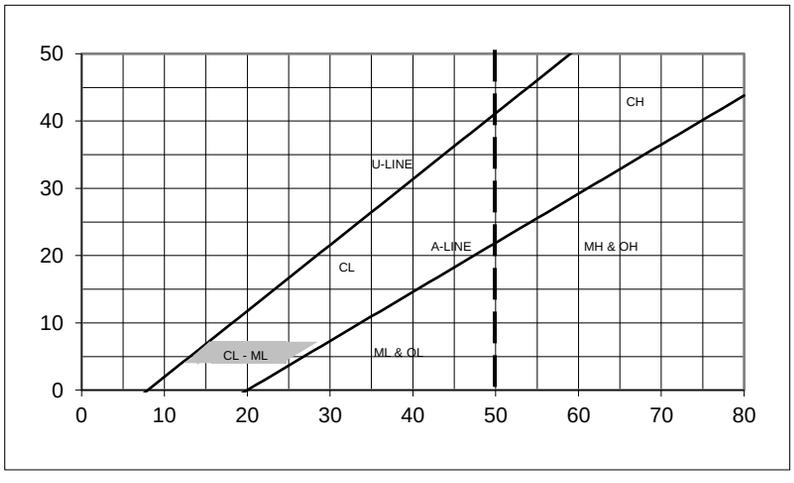


LIQUID LIMIT

Determination	1	2	3	4
Dish ID	A04	A34	A02	
# of Blows:	35	26	24	
Mass of Dish + Wet Soil:	19.36	19.47	21.46	
Mass of Dish + Dry Soil:	15.83	15.87	16.86	
Mass of Moisture:	3.53	3.60	4.60	0.00
Mass of Dish:	11.17	11.32	11.19	
Mass of Dry Soil:	4.66	4.55	5.67	0.00
% Moisture Content:	75.75	79.12	81.13	#DIV/0!
Corrected Moisture:	78.90	79.50	80.73	#DIV/0!

CORRECTION

Numbers of Blows	X	Factor
20		0.974
21		0.979
22		0.985
23		0.990
24		0.995
25		1.000
26		1.005
27		1.009
28		1.014
29		1.018
30		1.022



LIQUID LIMIT SUMMARY

Single Point		
Corrected LL		79.71
Multipoint	x	
LL at 25 blows		80.18
Coef. Of Determination, r^2		0.9578

PI SUMMARY

LL	=	80
PL	=	26
PI	=	54

Tested By:		Date:		Checked By:	

PLASTICITY INDEX

Test performed in accordance to ASTM D4318

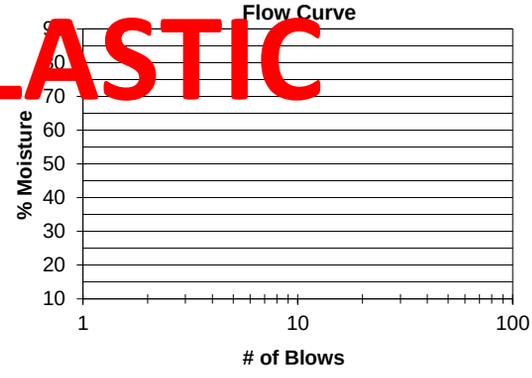
Job #:	4.72170065	Job Name:	DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S05	Depth (ft):	110.00
Soil Description	Silty Sand (SM); wet				
Preparation Method:	☐ Wet	☐ Air Dried	☐ Oven Dried	Date:	

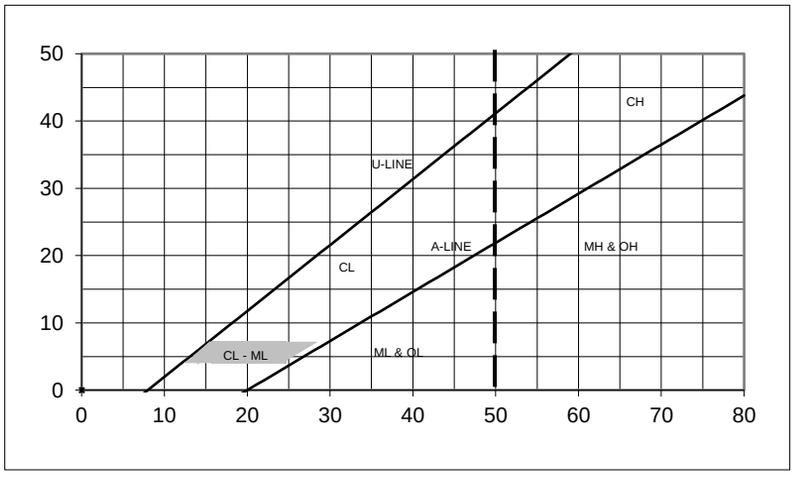
NON PLASTIC

PLASTIC LIMIT		
Determination	1	2
Dish I.D. #:	0.00	
Mass of Wet Soil + Dish:	1.00	1.00
Mass of Dry Soil + Dish:	1.00	1.00
Mass of Moisture:	0.00	0.00
Mass of Dish:	0.00	0.00
Mass of Dry Soil:	1.00	1.00
Moisture Content:	0.00	0.00

PI results have less than 1.4% difference



LIQUID LIMIT					CORRECTION		
Determination	1	2	3	4	Numbers of Blows	X	Factor
Dish ID					20		0.974
# of Blows:					21		0.979
Mass of Dish + Wet Soil:	1.00	1.00	1.00		22		0.985
Mass of Dish + Dry Soil:	1.00	1.00	1.00		23		0.990
Mass of Moisture:	0.00	0.00	0.00	0.00	24		0.995
Mass of Dish:	0.00	0.00	0.00		25		1.000
Mass of Dry Soil:	1.00	1.00	1.00	0.00	26		1.005
% Moisture Content:	0.00	0.00	0.00	#DIV/0!	27		1.009
Corrected Moisture:	0.00	0.00	0.00	#DIV/0!	28		1.014
					29		1.018
					30		1.022



LIQUID LIMIT SUMMARY		
Single Point		
Corrected LL		0.00
Multipoint	x	
LL at 25 blows		0.00
Coef. Of Determination, r^2		1.0000

PI SUMMARY		
LL	=	0
PL	=	0
PI	=	0

Tested By:		Date:		Checked By:	

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S-01	Depth (ft):	10
Soil Description:	Lean Clay (CL); brown, wet				

Initial Moisture Content (Moist Method)

Tare I.D.	H-24
Tare Mass, g	16.7
Wet Mass + Tare, g	48.9
Dry Mass + Tare, g	48.25
% Moisture	2.1%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	61.2	102.1
SP-SC, SM, SC	45.9	76.5
Silt or Clay	35.7	51.0

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	6
Calibrated Volume of Pycnometer, ml	499.83
Average Calibrated Mass of Dry Pycnomter, g	174.68
Mass of Pycnometer+Soil+Water, g	704.54
Test Temperature, C	19.6
Density of Water at Test Temp, g/ml	0.99829
Temperature Coefficient, K	1.00008

After Test Data

Tare I.D.	Slurry 2
Tare Mass, g	403.67
Dry Mass + Tare, g	453.92
Mass of Oven Dry Solids, g	50.25

Calculations

Mass of Pycnomter and Water at Test Temperature, g	673.66
Specific Gravity at Test Temperature	2.59
Specific Gravity at 20 Degrees C	2.60

Tested By:	JB	Date:	11/28/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S-03	Depth (ft):	45.5
Soil Description:	Fat CLAY (CH); olive gray, moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	B-1
Tare Mass, g	18.4
Wet Mass + Tare, g	72.1
Dry Mass + Tare, g	70.36
% Moisture	3.3%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	62.0	103.3
SP-SC, SM, SC	46.5	77.5
Silt or Clay	36.2	51.7

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	2
Calibrated Volume of Pycnometer, ml	499.43
Average Calibrated Mass of Dry Pycnomter, g	180.68
Mass of Pycnometer+Soil+Water, g	710.88
Test Temperature, C	19.8
Density of Water at Test Temp, g/ml	0.99825
Temperature Coefficient, K	1.00004

After Test Data

Tare I.D.	Nick
Tare Mass, g	415.53
Dry Mass + Tare, g	465.81
Mass of Oven Dry Solids, g	50.28

Calculations

Mass of Pycnomter and Water at Test Temperature, g	679.24
Specific Gravity at Test Temperature	2.70
Specific Gravity at 20 Degrees C	2.70

Tested By:	JB	Date:	11/28/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S-02	Depth (ft):	14.5
Soil Description:	Lean Clay (CL); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	H-1
Tare Mass, g	16.7
Wet Mass + Tare, g	96.8
Dry Mass + Tare, g	94.02
% Moisture	3.6%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	62.2	103.6
SP-SC, SM, SC	46.6	77.7
Silt or Clay	36.3	51.8

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	A
Calibrated Volume of Pycnometer, ml	500.01
Average Calibrated Mass of Dry Pycnomter, g	165.21
Mass of Pycnometer+Soil+Water, g	695.08
Test Temperature, C	20.4
Density of Water at Test Temp, g/ml	0.99812
Temperature Coefficient, K	0.99992

After Test Data

Tare I.D.	B-1
Tare Mass, g	385
Dry Mass + Tare, g	435.79
Mass of Oven Dry Solids, g	50.79

Calculations

Mass of Pycnomter and Water at Test Temperature, g	664.28
Specific Gravity at Test Temperature	2.54
Specific Gravity at 20 Degrees C	2.54

Tested By:	JB	Date:	11/28/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S-04	Depth (ft):	82
Soil Description:	Silty Clay (CL-ML); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	H-12
Tare Mass, g	17
Wet Mass + Tare, g	73.4
Dry Mass + Tare, g	72.77
% Moisture	1.1%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	60.7	101.1
SP-SC, SM, SC	45.5	75.8
Silt or Clay	35.4	50.6

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	A
Calibrated Volume of Pycnometer, ml	500.01
Average Calibrated Mass of Dry Pycnomter, g	165.21
Mass of Pycnometer+Soil+Water, g	695.26
Test Temperature, C	20
Density of Water at Test Temp, g/ml	0.99821
Temperature Coefficient, K	1

After Test Data

Tare I.D.	Nick
Tare Mass, g	415.92
Dry Mass + Tare, g	465.78
Mass of Oven Dry Solids, g	49.86

Calculations

Mass of Pycnomter and Water at Test Temperature, g	664.32
Specific Gravity at Test Temperature	2.63
Specific Gravity at 20 Degrees C	2.63

Tested By:	JB	Date:	11/30/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-401	Sample #:	S-05	Depth (ft):	95
Soil Description:	Fat Clay (CH); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	L-16
Tare Mass, g	17.1
Wet Mass + Tare, g	57.1
Dry Mass + Tare, g	55.39
% Moisture	4.5%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	62.7	104.5
SP-SC, SM, SC	47.0	78.3
Silt or Clay	36.6	52.2

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	2
Calibrated Volume of Pycnometer, ml	499.43
Average Calibrated Mass of Dry Pycnomter, g	180.68
Mass of Pycnometer+Soil+Water, g	710.8
Test Temperature, C	20
Density of Water at Test Temp, g/ml	0.99821
Temperature Coefficient, K	1

After Test Data

Tare I.D.	C
Tare Mass, g	266.19
Dry Mass + Tare, g	316.13
Mass of Oven Dry Solids, g	49.94

Calculations

Mass of Pycnomter and Water at Test Temperature, g	679.22
Specific Gravity at Test Temperature	2.72
Specific Gravity at 20 Degrees C	2.72

Tested By:	JB	Date:	11/28/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S-01	Depth (ft):	26
Soil Description:	Silty Clay (CL-ML); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	L-13
Tare Mass, g	17
Wet Mass + Tare, g	61.8
Dry Mass + Tare, g	61.43
% Moisture	0.8%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	60.5	100.8
SP-SC, SM, SC	45.4	75.6
Silt or Clay	35.3	50.4

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	A
Calibrated Volume of Pycnometer, ml	500.01
Average Calibrated Mass of Dry Pycnomter, g	165.21
Mass of Pycnometer+Soil+Water, g	695.01
Test Temperature, C	19.8
Density of Water at Test Temp, g/ml	0.99825
Temperature Coefficient, K	1.00004

After Test Data

Tare I.D.	C
Tare Mass, g	265.8
Dry Mass + Tare, g	316.34
Mass of Oven Dry Solids, g	50.54

Calculations

Mass of Pycnomter and Water at Test Temperature, g	664.34
Specific Gravity at Test Temperature	2.54
Specific Gravity at 20 Degrees C	2.54

Tested By:	JB	Date:	12/3/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S-02	Depth (ft):	36
Soil Description:	Fat Clay (CH); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	B-2
Tare Mass, g	17.7
Wet Mass + Tare, g	47
Dry Mass + Tare, g	46.05
% Moisture	3.4%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	62.0	103.4
SP-SC, SM, SC	46.5	77.5
Silt or Clay	36.2	51.7

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	B
Calibrated Volume of Pycnometer, ml	500.49
Average Calibrated Mass of Dry Pycnomter, g	164.33
Mass of Pycnometer+Soil+Water, g	694.04
Test Temperature, C	20
Density of Water at Test Temp, g/ml	0.99821
Temperature Coefficient, K	1

After Test Data

Tare I.D.	Slurry 2
Tare Mass, g	403.66
Dry Mass + Tare, g	453.44
Mass of Oven Dry Solids, g	49.78

Calculations

Mass of Pycnomter and Water at Test Temperature, g	663.92
Specific Gravity at Test Temperature	2.53
Specific Gravity at 20 Degrees C	2.53

Tested By:	JB	Date:	12/3/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S-03	Depth (ft):	58
Soil Description:	Fat Clay (CH); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	L-17
Tare Mass, g	16.9
Wet Mass + Tare, g	32.6
Dry Mass + Tare, g	32.4
% Moisture	1.3%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	60.8	101.3
SP-SC, SM, SC	45.6	76.0
Silt or Clay	35.5	50.6

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	B
Calibrated Volume of Pycnometer, ml	500.49
Average Calibrated Mass of Dry Pycnomter, g	164.33
Mass of Pycnometer+Soil+Water, g	694.3
Test Temperature, C	20.4
Density of Water at Test Temp, g/ml	0.99812
Temperature Coefficient, K	0.99992

After Test Data

Tare I.D.	C
Tare Mass, g	265.86
Dry Mass + Tare, g	316.09
Mass of Oven Dry Solids, g	50.23

Calculations

Mass of Pycnomter and Water at Test Temperature, g	663.88
Specific Gravity at Test Temperature	2.54
Specific Gravity at 20 Degrees C	2.54

Tested By:	JB	Date:	11/29/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S-04	Depth (ft):	85
Soil Description:	Fat Clay (CH); moist - wet				

Initial Moisture Content (Moist Method)

Tare I.D.	L-10
Tare Mass, g	18.5
Wet Mass + Tare, g	69.4
Dry Mass + Tare, g	66.83
% Moisture	5.3%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	63.2	105.3
SP-SC, SM, SC	47.4	79.0
Silt or Clay	36.9	52.7

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	6
Calibrated Volume of Pycnometer, ml	499.83
Average Calibrated Mass of Dry Pycnomter, g	174.68
Mass of Pycnometer+Soil+Water, g	704.18
Test Temperature, C	20
Density of Water at Test Temp, g/ml	0.99821
Temperature Coefficient, K	1

After Test Data

Tare I.D.	B-1
Tare Mass, g	384.94
Dry Mass + Tare, g	433.93
Mass of Oven Dry Solids, g	48.99

Calculations

Mass of Pycnomter and Water at Test Temperature, g	673.62
Specific Gravity at Test Temperature	2.66
Specific Gravity at 20 Degrees C	2.66

Tested By:	JB	Date:	11/30/18	Checked By:	AS

SPECIFIC GRAVITY

Test performed in accordance to ASTM D854

Job #:	4.72170065	Job Name	Cal Energy / DVC Cell 4
Lab Job #:	9594	Client:	Cal Energy

Boring #:	B-402	Sample #:	S-05	Depth (ft):	110
Soil Description:	Silty Sand (SM); wet				

Initial Moisture Content (Moist Method)

Tare I.D.	H-20
Tare Mass, g	16.7
Wet Mass + Tare, g	52.2
Dry Mass + Tare, g	52.13
% Moisture	0.2%

Soil Type	Moist Mass, g with 250ml Pycnometer	Moist Mass, g, with 500 ml Pycnometer
SP, SP-SM	60.1	100.2
SP-SC, SM, SC	45.1	75.1
Silt or Clay	35.1	50.1

Note: Values in above table are generated from the reported %M and guidance from Table 2 of ASTM D854-06

Pycnomter and Test Data

Pycnometer I.D.	B
Calibrated Volume of Pycnometer, ml	500.49
Average Calibrated Mass of Dry Pycnomter, g	164.33
Mass of Pycnometer+Soil+Water, g	708.19
Test Temperature, C	19.9
Density of Water at Test Temp, g/ml	0.99823
Temperature Coefficient, K	1.00002

After Test Data

Tare I.D.	B-1
Tare Mass, g	384.92
Dry Mass + Tare, g	458.26
Mass of Oven Dry Solids, g	73.34

Calculations

Mass of Pycnomter and Water at Test Temperature, g	663.93
Specific Gravity at Test Temperature	2.52
Specific Gravity at 20 Degrees C	2.52

Tested By:	JB	Date:	11/30/18	Checked By:	AS

APPENDIX D
BIOLOGICAL MONITORING REPORT

BIOLOGICAL MONITORING REPORT FOR DRILLING WORK AT THE DESERT VALLEY COMPANY (DVC) NON-MUNICIPAL SOLID WASTE LANDFILL CELL 4

IMPERIAL COUNTY, CALIFORNIA

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 92596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Juan J. Hernandez
Hernandez Environmental Services
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

November 1, 2018

Hernandez Environmental Services

Memorandum

Date: November 1, 2018

To: Janet M. Sowers, Ph.D, P.G. Principal Geologist

Fugro USA Land, Inc.

From: Juan J. Hernandez, Principal Biologist

Subject: Biological Monitoring Report for Drilling Work at the Desert Valley Company (DVC) Non-Municipal Solid Waste Landfill Cell 4 from November 6, 2018 to November 11, 2018.

This memorandum summarizes the biological monitoring completed by Hernandez Environmental Services (HES) for the drilling activities associated with the Desert Valley Company Solid Waste Landfill Cell 4 from November 6-November 11, 2018.

Our biological monitors cleared the drilling area and a buffer area of 500 feet around the drilling area prior to the initiation of drilling activities. HES monitors observed the drilling activities that occurred during the work period to ensure that the drilling activity did not remove native vegetation, impact state or federal jurisdictional streams, or take any sensitive animal or plant species or their habitats.

Location

The drilling sites are located southwest of Highway 86 and the Salton Sea and northwest of the cities of Westmoreland and Brawley, within Imperial County, California. The sites consisted of a drilling point in Section 27 and a drilling point in Section 33, Range 11 East, Township 12 South within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Kane Spring* Quadrangle. Refer to Figures 1, 2, and 3.

Methodology

HES met the work crew at the drilling location in Section 27 on November 6, 2018. Sensitive habitats present on the site and avoidance of impacts to these habitats were discussed. The monitor then proceeded to evaluate the drill area and a 500-foot buffer around the drilling area for any sensitive resources that were to be avoided. After the initial clearing within Section 27, the monitor was informed that the drilling operation would be moved the Section 33. Section 33 was then evaluated and cleared of biological resources. Drilling activities moved back to Section 27 on November 9, 2018. The drilling location and buffer areas were evaluated and cleared by a monitor for any sensitive resources that were to be avoided.

Monitors were present observing drilling activities during the duration of drilling operations. Monitors ensured that no vehicles or crews worked outside of the designated work areas. Monitors also ensured that no work occurred in state or federal streams. Drilling activities that had the potential to result in impacts to sensitive biological resources ceased on November 11, 2018.

Results

Evaluations of the drill areas and associated buffers found no sensitive species. Section 27 drilling locations did contain state and federal streams within the buffer areas. The crew was made aware of these resources and instructed to avoid them.

All sensitive areas, vegetation, and animal species were avoided by the drilling crews and no impacts to any sensitive areas, vegetation, or species occurred.

If you have any questions regarding our responsibilities as biological monitors during the drilling work, please feel free to contact me Juan Hernandez at (909) 772-9009.

Attachments

Figure 1-3

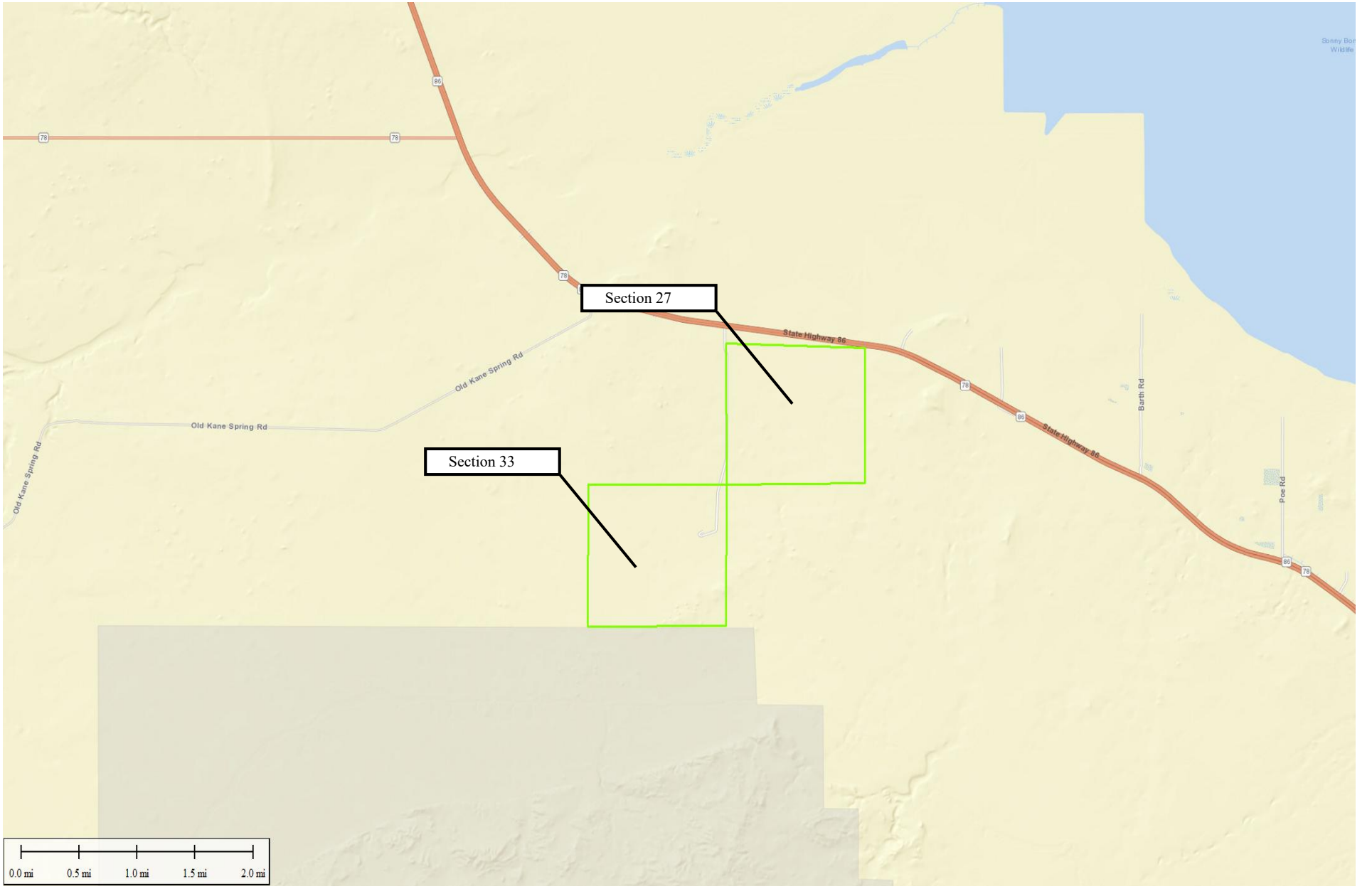


Figure 1 - Location Map

Biological Monitoring Report
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services

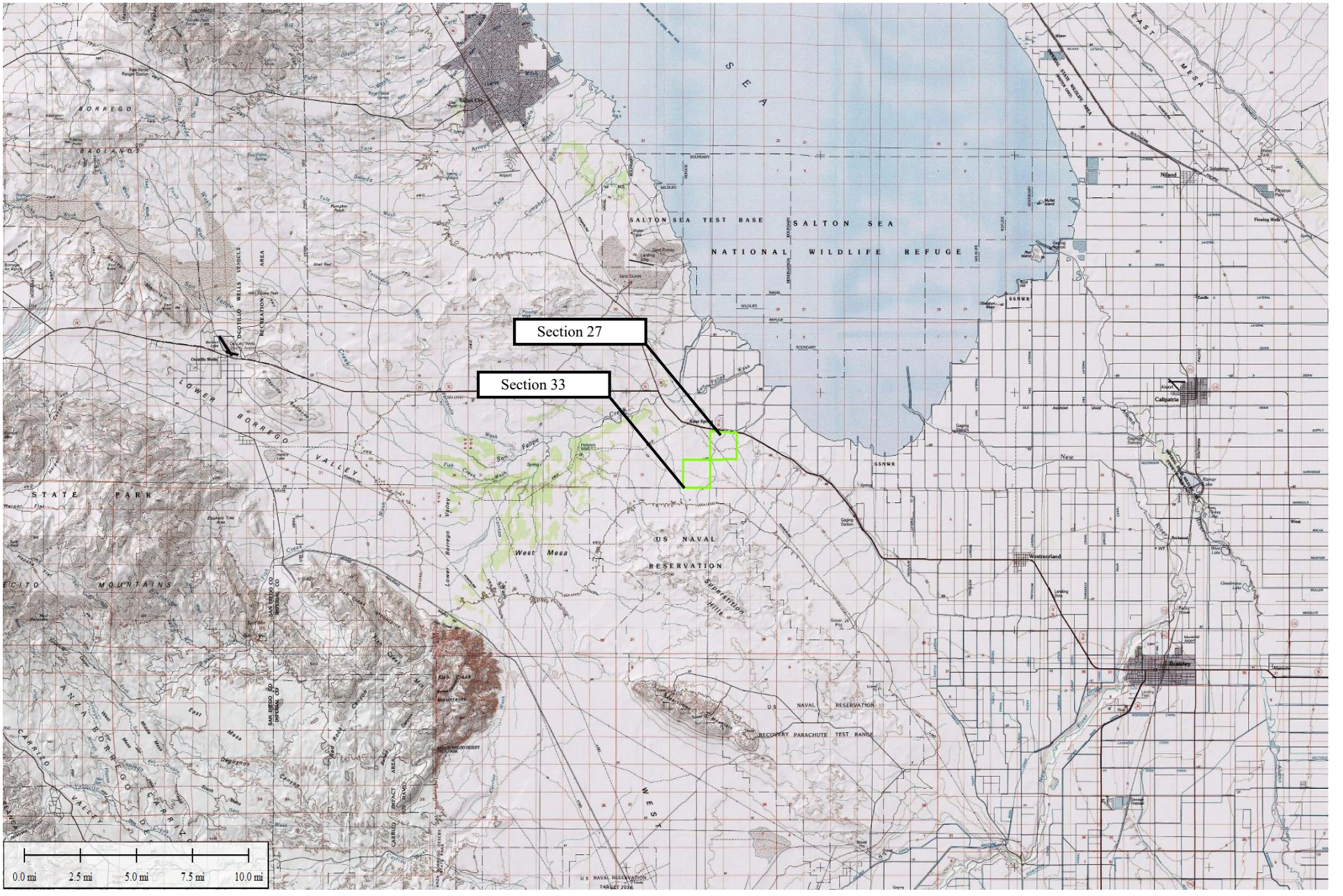


Figure 2 - Vicinity Map

Biological Monitoring Report
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services

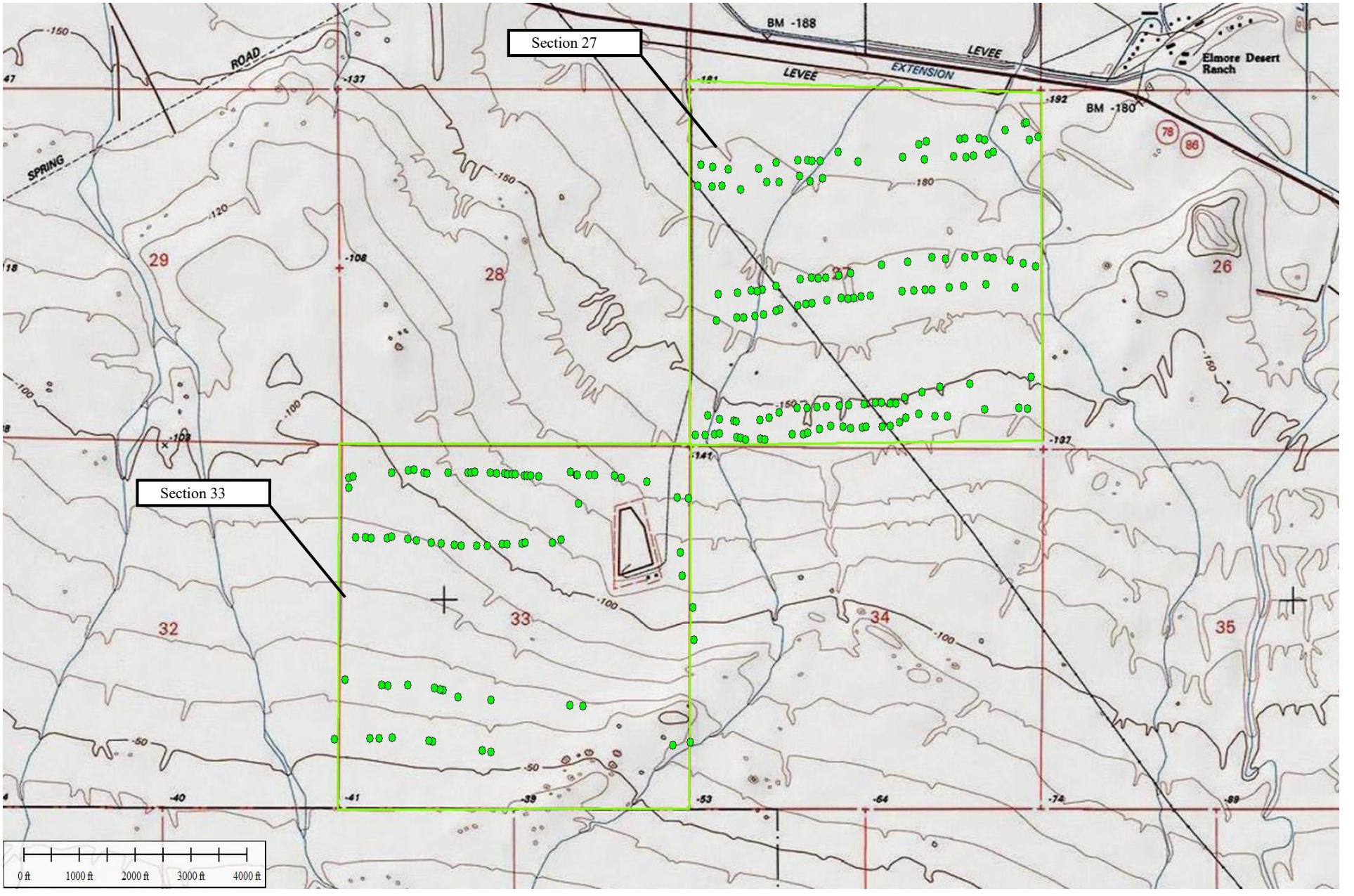


Figure 3 - Sample Points Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Sample Points

Hernandez Environmental Services

APPENDIX E
ARCHEOLOGICAL MONITORING REPORT

ILY MONITORING REPORT

BFSA
14010 Poway Road, Suite A
Poway, CA 92064
Phone (858) 484-0915
Fax (858) 679-9896
www.bfsa-ca.com

Client: _____

Job Name: Calenergy 18-240

Service Provided: A ☑ P ☐ B ☐ A/P ☐ A/P/B ☐ NAM ☐ Other ☐

Day of Week: Weds Date: Nov 7, 2018

Time Charged: BFSA: 4 hrs. NAM: –

Travel: BFSA: 175mi/4hrs. NAM: –

Monitor: BFSA: Mike Tyberg

NAM: –

Comments: Surveyed potential impact area for B-401 -

Approved By: _____

ILY MONITORING REPORT

BFSA
14010 Poway Road, Suite A
Poway, CA 92064
Phone (858) 484-0915
Fax (858) 679-9896
www.bfsa-ca.com

Client: _____

Job Name: Calenergy 18-240

Service Provided: A ☑ P ☐ B ☐ A/P ☐ A/P/B ☐ NAM ☐ Other ☐

Day of Week: Saturday Date: Nov 10, 2018

Time Charged: BFSA: 4.5 hrs. NAM: –

Travel: BFSA: 175mi/4hrs NAM: –

Monitor: BFSA: Mike Tyberg

NAM: –

Comments: Monitored mobilization and top 10' for drilling of B401 - No discoveries.

Approved By: _____

fwla-wc-file1/Project/Projects/72_0000/72_170065_CalEnergy_DVC_Cell4/05_Graphics/PR-005_Calibration_Boreholes_Data_Report/Appendices_A-E_V3.indd

I-3 Fault Setbacks Map

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FUGRO
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Fugro Project No. 04.72170065
Document No. 04.72170065-L-006 (Rev.0)
May 17, 2019

CalEnergy
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Re: DVC Cell 4 Project: Fault Setbacks Map

Dear Ms. Wu,

Fugro has integrated the results of the 2019 fault trenching studies with previous site geologic data to produce a map of siting constraints for proposed DVC Cell 4 based on the location of faults. The purpose of this map is to satisfy the State of California requirement that the cell be sited a minimum of 200 feet from a Holocene fault. Fault setback zones are defined and a recommended area for development of Cell 4 is delineated. This letter presents the map and describes the basis for the faults and setbacks shown.

Thirteen trenches were excavated to screen proposed areas in Section 33 and 27. Fault trenching field work was conducted between February 5, 2019 and May 10, 2019. The work was authorized under Change Order 6, for Phase 2 Task 12. The trenching targeted the extension of faults that had been previously identified in geologic investigations by Balderman (1988, 1989, 2002), were observed during field geologic mapping, and were noted as anomalies in seismic reflection profiles prepared by Fugro in the fall of 2018. Results for each trench are summarized in Table 1 below.

In the southwest quarter of Section 27 no faults were found in either of the two trenches excavated across the two geophysical lineaments identified in GL-1. Other than these two lineaments, seismic reflection results indicate the absence of faulting along lines GL-1 and GL-2 in Section 27. No fault setbacks were defined in the SW quarter of Section 27.

In Section 33, two zones of faulting were delineated. Figure 1 shows faults in Section 33 as they are currently understood, based on the data from Balderman (1988, 1989, and 2002) and the Fugro 2019 investigations. A zone of faulting immediately west of Cells 1, 2, and 3 consists of multiple north-trending fault segments F6, F7, F8, and F9, and includes zones of potential faulting identified from seismic reflection data along geophysical lines GL-2 and

GL-5. A second zone of faulting, trending northwest, lies to the west and consists of F12 and its projection to faults F1 through F5 identified in trench TR2 (Balderman, 1989). Fault setbacks were delineated at a distance of 200 feet from identified faults. Table 2 provides a detailed explanation of the map elements of Figures 1 and 2.

All faults displace early to middle Pleistocene sediments of the Brawley Formation, estimated to range in age from 1 million to 500,000 years (Kirby et al., 2009). The Brawley Formation has been tectonically deformed, eroded, and discontinuously overlain by a veneer of unfaulted late Holocene sediments less than 2,000 years old. No record of faulting in the late Pleistocene or early Holocene exists due to the lack of overlying deposits in this age range. Without such deposits to demonstrate lack of Holocene faulting, we assume all faults are Holocene for the purposes of establishing setbacks. This assumption is supported by their occurrence in an active tectonic environment, and by their similarity in trend with known Holocene faults within 5 miles of the site.

Table 1. Fault Trench Results Summary

Trench	Section	Length (ft.)*	Results	Fault
T-401	27	61	Beds of clay and silt appear to be deformed by earthquake-induced liquefaction and soft sediment deformation.	None
T-402	27	68	Planar continuous beds of silt and massive clay.	None
T-403	33	312	Fault zone 20-ft wide, vertical displacement down to east, extensional. Designated F13.	F13
T-404	33	44	Wavy to jumbled sand over massive silt. See Trench 410 for extension across F6.	None
T-405	33	42	Planar continuous beds of sand, silt, and clay, dipping 5-10 degrees east. Documents the absence of F6 of Balderman (1989)	None
T-406	33	86	Planar bedded sand and silt onlapping massive clay at east end of trench. A fault is present in the east end of the trench where a clay marker bed is truncated. Two small faults at the western end are overlain by unfaulted lacustrine strata.	F12
T-407	33	160	Fault zone, sheared zone 2-3 ft. wide within a 10-ft-wide zone of deformation, vertical displacement down to the west. This is assumed to be a continuation of fault F8.	F8
T-408	33	137	A strand of F13 with east-side-down displacement occurs at the far eastern end of the trench, aligning with the eastern strand of this fault in T-403. Most of the trench is a broad, unfaulted anticline.	F13
T-409	33	61	Fault occurs at the approximate midpoint of the trench, aligning with one strand of F13 in T-403.	F13
T-410	33	81	Wavy to jumbled sand with flame structures over massive silt exhibiting weak planar bedding. Documents the absence of F6 of Balderman (1989)	None
T-411	33	66	Planar clay bed with intermixed tephra and sand overlying unfaulted strata.	None
T-412	33	34	Fault shows displacement of marker bed east-side-down.	F12
T-413	33	154	Series of 19 parallel fault strands in the western half of the trench within a broad anticline, each with east-side-down displacement of up to 1 ft.	F12

* Measured from log

In addition to fault-related siting constraints are environmental considerations. Figure 2 illustrates the locations of cultural sites and jurisdictional drainages superimposed on the fault setback information. This figure covers relevant portions of Section 27 as well as Section 33.

Table 2: Detailed Explanation of Symbols

Fault, exposed in trench or wash	The solid red line depicts the location and strike of a fault that was exposed in a trench or in the bank of a wash. The line arbitrarily extends approximately 40 feet in either direction from the exposure. Where the fault is confidently judged to be a continuation of a fault exposed in a nearby trench, the solid line may be extended between the two exposures.
Fault, interpreted from aerial imagery	The long-dashed red line depicts the location of a tonal lineament mapped from aerial imagery. Some lineaments were confirmed in the field. The lineament appears as a juxtaposition of beds of contrasting composition. Along F12 north of T-406, the light colored sand beds are displaced right-laterally across the lineament, juxtaposing sand against the darker clay. At the north end of the lineament, the fault is exposed in the bank of a wash.
Fault, inferred projection	The short-dashed red line depicts the extension or projection of a fault from an exposure.
Queries	Added to the ends of faults to indicate uncertainty in the extension of the fault in that direction.
Trench, 2019	Fault trenches excavated and logged by Fugro in 2019
Trench, Balderman (1988, 1989, 2002)	Fault trenches excavated and logged by Morris Balderman & Associates in support of the siting of Cells 1, 2, and 3, and presented in reports dated as listed.
200-ft fault setback	Area located within 200 ft of a Holocene fault shown on Figure 1.
Fault avoidance zone	Area positioned along the trend of known faults and geophysical anomalies, but not sufficiently explored to establish setbacks.
Recommended development area	Area sufficiently investigated to support the conclusion that Holocene faults are absent. The conclusion is based on fault trench data, geophysical survey data, field mapping, and aerial photo interpretation. The likelihood of discovering Holocene faults within this area during construction is considered low. Note: Areas to the north and west of the recommended development area are not included due to the lack of field investigation. If expansion into this area is desired, additional investigation in the form of field geologic mapping and fault trenching, would be needed.

We have enjoyed conducting the fault study for CalEnergy's DVC Cell 4 siting project. This letter will be followed by a complete fault trenching report, including detailed logs of each trench. Please do not hesitate to contact us if you have any questions or need further assistance.

Sincerely,
Fugro USA, Inc.

REGISTERED GEOLOGIST
JANET M. SOWERS
No. 5614
Exp. 04/30/2020
STATE OF CALIFORNIA

Janet M. Sowers, Ph.D, P.G
Principal Geologist

Kelley A. Shaw, M.S., P.G.
Project Geologist

Cc: Lue, Flores, Trujillo, Rubin

Attachments: Figures 1 and 2

00	Final	KAS	JMS	JMS	May 17, 2019
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

REFERENCES

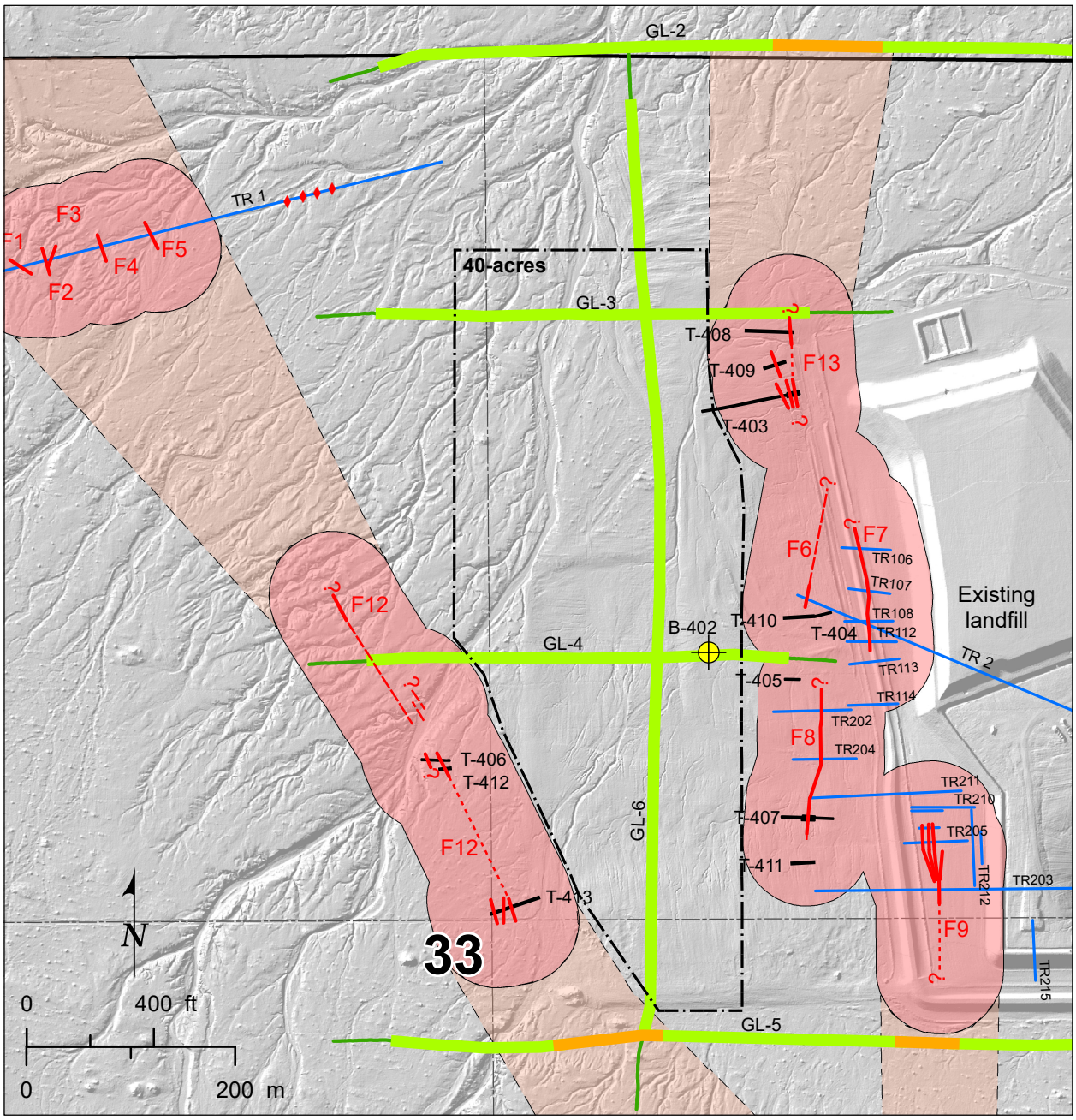
Balderman, M. A., 1988. Report of Site Selection and Geologic Exploration, Monofill Project Imperial County, California, prepared for Targhee, Incorporated, Long Beach, CA, 113 pages including figures and oversized plates.

Balderman, M. A., 1989. Report of geologic investigations, Desert Valley Company Monofill project, Imperial County, California: prepared for Targhee, Incorporated, Long Beach, CA, 257+ pages including appendices of test pit logs, soil tests, boring logs, trench logs, CPT, Well records, water quality analyses.

Balderman Consulting, Inc., 2002. Geologic Investigations, proposed Cell 3 area, Desert Valley Company Monofill, Imperial County, California, September 2002, prepared for McDowell & Associates, Midland, Michigan.

Kirby, S. M., Janecke, S. U., Dorsey, R. J., Housen, B. A., and Langenheim, V. E., 2007, Pleistocene Brawley and Ocotillo Formations: Evidence for initial strike-slip deformation along the San Felipe and San Jacinto fault zones, southern California: Journal of Geology, v. 115, no. 1, pp. 43-62.

FIGURES



Hillshade base from Fugro 2018 LiDAR

Legend

- Calibration borehole
- 33 — Sections 33, with quadrants
- T-403 — Trench, 2019
- TR 203 — Trench, Balderman 1988, 1989, 2002
- Possible fault feature (Balderman, 1989)

Fault
(2019 studies; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection
- 200-ft fault setback area
- Fault avoidance zone

Seismic Reflection Results

- Potential fault area
- Absence of faulting
- Geophysical line, faulting not evaluated
- Recommended development area

FAULT SETBACK AREAS, SECTION 33

FIGURE 1

D-72

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Siting\D-72_Siting_Faults_S33_ks.mxd; K.Shaw; 5/17/2019

Figure 2: Cell 4 Siting Constraints contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

I-4 Fault Trenching Investigation

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FUGRO

Fault Trenching Investigation
Desert Valley Company Monofill
DVC Cell 4 Project

Brawley, California

June 14, 2019
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-006(Rev.00)

CalEnergy Operating Corporation

Final

FUGRO

Fault Trenching Investigation
Desert Valley Company Monofill
DVC Cell 4 Project
Brawley, California

June 14, 2019
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-006(Rev.00)

Final

Prepared for:

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

00	Final	JN/KS	DW	JS	June 14, 2019
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-006(Rev.00)
June 14, 2019

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Fault Trenching Investigation
Desert Valley Company (DVC) Monofill, DVC Cell 4 Project
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present this report of the fault trenching investigation conducted to assist with siting of the proposed Desert Valley Company (DVC) Monofill DVC Cell 4 solid waste facility. This report is one of several Phase 2 siting studies designed to facilitate selection of a viable site for Cell 4. This work was authorized under a general services contract between CalEnergy Operating Corporation and Fugro USA Land, Inc., effective October 18, 2017, under Purchase Agreement #245885, and change order Nos. 6 and 8, approved on January 17, 2019 and April 1, 2019, respectively.

A total of thirteen trenches were excavated and logged from February 6 through May 10, 2019. The report provides an introduction, description of methods, presentation of the trench logs, material and feature descriptions, and conclusions regarding the constraints active faulting places on the potential Cell 4 site footprint.

It has been our pleasure to prepare this report for CalEnergy in support of the DVC Cell 4 project. We look forward to continuing to serve CalEnergy in future phases of this project. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

John H. Niles
Project Geologist

Kelley Shaw, PG
Project Geologist

Janet Sowers, PhD, PG
Principal Geologist

REGISTERED GEOLOGIST
JANET M. SOWERS
No. 5614
Exp. 04/30/2020
STATE OF CALIFORNIA

Distribution: One electronic copy to Ms. Yanqiu Wu

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A. **BIOLOGICAL MONITORING REPORT**

B. **ARCHEOLOGICAL MONITORING REPORT**

1. INTRODUCTION

CalEnergy owns and operates the Desert Valley Company (DVC) Class II Monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Three cells have thus far been constructed, beginning with Cell 1 in 1990. Cells 1 and 2 have been filled and closed and Cell 3, completed in 2004, is projected to reach its capacity in the year 2025. Proposed Cell 4, with a capacity of at least 1,300,000 cu yd. (same as Cell 3), would need to be operational before Cell 3 can be closed. Cell 3 occupies approximately 20 acres including the surrounding berm, thus a similar acreage is targeted for Cell 4.

CalEnergy owns Section 33 and diagonally adjacent Section 27 (Figure 1), herein referred to as the DVC property. The purpose of the Phase 2 siting studies is to identify a suitable 20-acre site within the DVC property for the construction of Cell 4. Multiple factors are considered in the site selection process, including suitability, access, biological and cultural resource impacts, groundwater, water supply, cost, and public acceptance. This report focusses on the geologic constraints of faulting for site suitability.

This report presents the results of fault trenching investigations conducted between February and May of 2019. The field investigation was conducted by geologists Janet Sowers, Kelley Shaw, John Niles, and Joe Whearty of Fugro's Walnut Creek, California office, and geologist Andrew Barron of Infraterra, Inc. based in Oakland, California. Environmental monitoring was provided by Brian F. Smith & Associates, Inc. of Riverside, California. Excavation and backfill services were provided by Primo Construction and Price Construction, both of Brawley, California, under separate contract to CalEnergy.

1.1 Background

California regulations require that a Class II landfill be set back at least 200-feet from any known Holocene fault. A Holocene fault is defined as a fault which is or has been active during the last 11,000 years (California Code of Regulations, Title 27). The presence of a Holocene fault within the landfill footprint would constitute a fatal flaw.

Active faults were identified during the investigations for Cells 1, 2, and 3, and these cells were designed with appropriate setbacks. Balderman (1988, 1989, 2002) identified eleven faults at the site through a combination of field mapping and fault trenching. Faulting was identified in trench exposures as vertical displacements of stratified lake beds of the Pleistocene Brawley Formation.

At the DVC site, most faults displace the Brawley Formation at the surface or beneath a veneer of late Holocene to modern soils and deposits. The Brawley Formation is early to middle Pleistocene in age (Kirby et al., 2007), thus displacement of these strata do not positively indicate Holocene activity. However, without a cover of unfaulted late Pleistocene or early Holocene sediments to constrain the age of latest faulting, Holocene activity cannot be precluded. If cover exists, it is typically too young (e.g., Late Holocene Lake Cahuilla deposits and modern alluvium) to provide a constraint that would preclude early Holocene faulting. As the area is seismically active, a conservative approach is taken, to presume that all faults that displace the Brawley Formation at the surface are Holocene faults.

1.2 Purpose

The purpose of the fault trenching investigations is to locate and delineate active faults that may constrain site boundaries for proposed DVC Cell 4, and to establish regulatory fault setbacks.

The scope of work presented in this report was performed in accordance with the General Services Contract, CalEnergy purchase order #245885, dated October 18, 2017, and the scope of work detailed in Change Order Nos. 6 and 8, approved on January 17, 2019 and April 1, 2019, respectively. This report is the deliverable for Phase 2, Task 12, Fault Trenching Investigations, and Task 14, Additional Fault Trenching.

2. METHODS

This section describes the methods used including as trench site selection, permitting and planning, environmental clearance, excavation, cleaning and logging, photography, survey, and delineation of active fault traces.

2.1 Field Preparation and Planning

In preparation for field activities, Fugro selected the trench sites, obtained necessary permits, and prepared a health and safety plan.

2.1.1 Trench Site Selection

We targeted the identification and delineation of faults that would constrain the boundaries of a new cell located either immediately west of the current cells 1, 2, and 3, or in the southwest quarter of Section 27. In Section 27 (Figure 1), the approach was to evaluate possible faulting of strata that overlie geophysical anomalies identified in seismic reflection line GL-1, as documented in Fugro's April 2018 geophysical survey report (Document No. 04.72170065-PR-002).

Geophysical survey results for Section 33 (Figure 2) show significant portions of the area west of the existing cells to be underlain by continuous unbroken reflectors, indication the absence of faulting in these areas (Fugro, 2018b). Previous fault trenching investigations and field mapping suggest, however, that this area is bounded by faults on either side. Therefore, in Section 33, the approach was to: (1) locate and extend fault traces identified by previous fault trenching and field mapping, and (2) screen areas that lie at the margins of areas where geophysical data are able to clearly preclude faulting.

Excavation and logging of trenches T-401 through T-407 took place in February and March of 2019. Based on the results of this work, fault trench locations T-408 through T-413 were selected to clarify or refine the delineation of faults identified in T-403 through T-407. Excavation and logging of trenches T-408 through T-413 took place April 30 through May 10, 2019. Figures 1 and 2 summarize previous fault data in map view and show the as-built locations of 2019 fault trenches T-401 through T-413.

2.1.2 Permitting and Planning

Imperial County requires that a grading permit be obtained prior to the excavation of trenches. Fugro prepared the permit application materials, and Landmark Consultants of El Centro, California worked with CalEnergy to submit the application to Imperial County. The permit was granted on February 6, 2019.

Fugro prepared and followed a health and safety plan for the fault trenching task to maximize the safety and security of all personnel who worked on the job, and to minimize the impact of the work on the environment. The health and safety plan includes identification of hazards, risk assessment, and control measures to reduce and manage risk. At least one Fugro geologist on-site is a certified competent person, having completed the OSHA training for trench excavations. Appended to the plan is Fugro's California OSHA trenching permit, training certificates for Fugro personnel, and checklists for equipment, daily safety meetings, and site inspections.

Underground Service Alert was contacted to clear the trench sites for underground utilities, and Cal OSHA was notified 48 hours in advance of the trenching.

2.2 Trench Excavation

In the field, Fugro geologists, accompanied by one biologist and one archaeologist, marked the trench locations and established minimum-impact access routes. Fugro geologists located the endpoints of each trench based on matching planned GPS coordinates with coordinates shown on hand-held GPS devices and matching on-the-ground features to aerial imagery. Once located, wooden stakes were placed to mark either end of each trench. The field team identified and marked the access routes for the excavation equipment, water truck, and support vehicle, and delineated the expected areas of impact of the trenches and spoil piles.

The archeological and biological monitors inspected each trench site and access route and provided guidance as needed to avoid impacts to resources. The biologist monitored the field work to ensure that neither the excavation nor the spoil pile would intersect a jurisdictional drainage, and that access routes avoided or minimized impact to such drainages. The biologist and archeologist remained on site during the trench excavation. Monitoring reports for biology and archeology are presented in Appendix A and Appendix B, respectively.

The trenches were excavated by Primo Construction, Inc. of Brawley, California. A track-mounted excavator with a 4-foot-wide bucket was used within the area previously disturbed during construction of Cells 1, 2, and 3. Within the natural areas (trenches T-401, 402, 406, 412, and 413), a rubber-tire backhoe was used to minimize impact to drainages, vegetation, and natural soils. The backhoe excavated a 3-foot-wide trench.

Each trench was initially excavated to a depth of 5 feet. The top approximately 1 foot of loose material was scraped back 6 feet from the edge of the trench and the lower 4 feet excavated as a vertical exposure (Figure 3). Dust was controlled as needed in windy conditions by spraying water from a water truck. Geologists cleaned the walls periodically as the excavation proceeded to make preliminary notes of geologic features, identify any features such as faults that may require deeper excavation, or make other adjustments based on geologic conditions. Deep excavations were done where faults were encountered in trenches T-403 and T-407. The 9-foot deep trenches were benched according to the OSHA requirements for Type A soils (Figure 4). Field photographs of the excavation and cleaning of the walls are presented in Figures 5 and 6.

To provide safety, visibility and prevent accidental entry, the perimeter of each trench was enclosed with a line of yellow rope, chest-high, supported by metal T-posts. Orange cones or delineators were placed at the trench ends. Stakes were set at the ends of each trench so that their locations and elevations could be surveyed at a later date. If faults were identified in the trench, two stakes were placed along the surface projection of each fault, one on either side of the trench. After the work was completed, the rope and posts were removed, and the trenches were backfilled using the spoils. Care was taken to leave the stakes undisturbed. Surveying was conducted on March 21, 2019 and May 14, 2019 by Precision Engineering and Surveying of El Centro, under a separate contract with CalEnergy.

Table 1. As-Built Trench Summary

Trench Number	Date Excavated	Total Length (ft.)[2]	Azimuth Bearing (Degrees)[3]	West End Point[1]		East End Point[1]	
				Latitude	Longitude	Latitude	Longitude
T-401	2/7/2019	61	084.7	33.091896	-115.818658	33.091911	-115.818457
T-402	2/7/2019	68	086.8	33.091939	-115.817231	33.091949	-115.816997
T-403	2/7/2019	312	078.7	33.086671	-115.828496	33.086839	-115.827473
T-404	2/26/2019	44	077.2	33.084897	-115.827348	33.084929	-115.827179
T-405	2/26/2019	42	090.9	33.084354	-115.827661	33.084351	-115.827501
T-406	2/26/2019	86	091.6	33.083672	-115.831391	33.083664	-115.831099
T-407	2/27/2019	160	092.2	33.083167	-115.827700	33.083148	-115.827165
T-408	4/30/2019	137	091.7	33.087361	-115.828043	33.087347	-115.827536
T-409	5/2/2019	61	074.0	33.087032	-115.827856	33.087092	-115.827617
T-410	5/2/2019	81	087.0	33.084879	-115.827663	33.084892	-115.827336
T-411	5/2/2019	66	086.7	33.082758	-115.827597	33.082769	-115.827342
T-412	5/1/2019	34	083.6	33.083581	-115.831206	33.083593	-115.831069
T-413	5/1/2019	154	071.2	33.082329	-115.830680	33.082474	-115.830167

Notes:
1. Coordinates of end point stakes were surveyed 3/212019 and 5/14/2019 by Precision Engineering and Surveying, Inc. of El Centro, California. Datum: NAD83
2. Total length of trench wall exposed and logged. The distance between end point stakes is 1 to 13 feet greater than the length of the wall.
3. Bearing is measured along a straight line drawn between surveyed end points.

2.3 Cleaning, Photography, and Logging

The south wall of each trench was selected for logging due to the preferable lighting conditions. This wall was carefully cleaned using hand tools and a leaf blower to expose stratigraphy (Figure 6). In key locations the opposite wall was also cleaned to clarify stratigraphic and structural relationships. Once cleaned, a string level-line was nailed to the wall to provide a horizontal reference (Figure 7). The string line was assigned an arbitrary height. Control points, consisting of labelled squares of white duct tape, were nailed to the wall at measured horizontal and vertical intervals along the south wall to serve as coordinates for the construction of a scaled photomosaic.

Trench walls were systematically photographed such that at least three overlapping photographs covered any given point on the trench wall. Agisoft Photoscan Pro (ver. 1.3.1) software was used to align, scale, and orthorectify photos in general accordance with a workflow established by the USGS (Reitman et al., 2015). The resulting seamless, scaled and orthorectified photomosaic of the trench wall was printed on high-quality photo paper at a scale of 1:30 (1 inch=2.5 feet, or roughly 1 cm = 1 foot) using ESRI ArcMap software. Prints were assembled and taped to masonite boards and covered with a mylar overlay.

Inside the trench, the geologist sketched geologic contacts and features directly onto the mylar overlay using the underlying photomosaic as a guide (Figure 8). The scale of logging was 1:30 (1 inch = 2.5 feet). All logging was supervised by a California Professional Geologist. Standards for trench logging style are set

forth in Fugro's (2012) in-house fault trenching manual. Stratigraphic units were defined and described in each trench (Figure 7). The generally planar contacts between stratigraphic units provided a basis for evaluating faults and other geologic structures.

2.4 Fault Identification and Delineation

The main objective of the fault trenching investigation was to identify the presence of faults and determine whether faults displaced the near-surface lake bed deposits in the study area so that appropriate setbacks could be established for the siting of Cell 4. Faults were recognized in the trench exposures primarily on the basis of observed displacement of planar strata. Other features, such as vertical fractures, folds or warps, may be observed in association with the faulting, but alone did not establish the presence of a fault. Liquefaction and soft sediment deformation associated with strong ground shaking or loading of water-lain sediment may also account for such features. Where faults were identified, a measurement was made of the strike and dip of the fault plane. If a specific bed could be matched on either side of the fault, measurements also were made of the magnitude and direction of vertical displacement.

Vertical and sub-vertical fractures and joints were common throughout, especially in clay units. These do not vertically displace planar strata. Vertical fractures and joints often extended the entire depth of the exposure, passing through multiple strata. Some are filled with sand, varying from a few tenths of an inch to several inches in thickness. Fractures filled with sand were interpreted to be the result of either: (1) surficial eolian or alluvial sands filtering downward to fill cracks in the clay, or (2) sand dikes injected along joints by the upward movement of liquefied sand. Where the sand fill was thicker than 0.5 inches, the second interpretation was preferred. Where the sand fill tapered with depth, the first interpretation was preferred. In many cases the origin was not clear. The above criteria for identifying faults and other features are consistent with those developed by Balderman (1988, 1989, 2002) in the trenching investigations for Cells 1, 2, and 3.

3. RESULTS

The results of the trenching are presented below. The key features exposed in each trench are described, followed by a discussion of each fault. Please refer to Figures 1 and 2 for trench and fault locations.

3.1 Trench Stratigraphy and Features

The siting rationale and key geologic features noted in each trench are summarized below. Those geologic features that have bearing on the presence or absence of faulting are emphasized. The trenches primarily expose strata of the Brawley Formation, a sequence of lacustrine and fluvio-deltaic sediments of Early to Middle Pleistocene age. Individual stratigraphic units are identified in each trench and the contacts between them are used as strain markers to evaluate deformation and faulting. The characteristics of each unit identified are documented on the trench logs (Figures 9 through 17; Plates 1 through 5).

3.1.1 Trench T-401

Trench T-401, 61 feet in length, was sited along geophysical line GL-1 in Section 27 to examine the area above a geophysical lineament noted in the seismic reflection profile (Figure 1). The geophysical data suggested the presence of a fault with less than 3 meters of east-side-down displacement at depth. The trench revealed no evidence of fault displacement, indicating that the geophysical feature does not extend to the surface, therefore it is not an active fault.

The trench did reveal evidence for significant liquefaction and soft sediment deformation (Figure 9; Plate 1). The south wall exposed planar strata consisting of a thick bed of silty clay (unit 110) overlain by beds of clayey silts and clay (units 120, 121, and 130). In the center of the wall, a vertical sand dike, 2 to 4 inches wide, cuts upward through units 110 to 130, and is truncated at the top of unit 130, by overlying unit 140. Striking 145°, the dike could be seen in both walls and the floor of the trench. The sand dike is interpreted as the conduit for a sand blow from seismically-induced liquefaction of deeper sand layers. Units 120, 121, and 130 overlying unit 110 are down-warped into a 20-foot-wide, convex, dish shape approximately centered on the location of the sand dike. We interpret this as a subsidence feature resulting from the loss of material at depth from the liquefaction-related sand blow. Although it was not logged, the opposite wall revealed additional soft sediment deformation features including folding and distorted bedding.

3.1.2 Trench T-402

Trench T-402, 68 feet in length, was sited along geophysical line GL-1 in Section 27 to examine the area above a geophysical lineament noted in the seismic reflection profile (Figure 1). The geophysical data suggested the presence of a fault with less than 3 meters of west-side-down displacement at depth. The trench revealed no evidence of fault displacement, indicating that the geophysical feature does not extend to the surface, therefore it is not an active fault (Figure 10; Plate 1). Horizontal, planar layers of clay, silt, and sand can be traced unbroken along the entire length of the trench. Vertical fractures filled with gypsum, 0.2 to 0.5 inches thick, were noted in the wall and likely correlate with linear traces of gypsum observed at the ground surface during the field geologic mapping (Fugro, 2018d, Appendix A).

3.1.3 Trench T-403

Trench T-403, 312 feet in length, was sited to examine an area that had not been previously examined by the Cells 1, 2, and 3 investigations, but may define constraints for Cell 4. Known faults to the south project into this area and align with a geophysical feature in GL-2 to the north (Figure 2). The trench was sited opposite the north end of Cell 2 and extended west approximately 300 feet from the perimeter access road.

The east end of the trench exposed a fault zone about 30-feet wide, consisting of multiple extensional faults with net east-side-down displacement (Figure 10; Plate 2). This fault zone strikes NNW and lies along the general trend of faults F6 and F7 described by Balderman (2002). We assign the name F13 to this fault zone.

The remaining 250 feet of the trench exposes planar, unbroken beds of lacustrine and deltaic deposits without fault displacement, consistent with geophysical survey results on line GL-3.

3.1.4 Trench T-404

Trench T-404, 44 feet in length, was originally sited to cross fault F6, which had been identified by Balderman (1988, 1989) from a surface lineament and trenching (Figure 2). Due to a mistake in marking the trench location, T-404 did not cross the projection of the fault so was not able to provide an exposure to confirm the location or character of fault F6. Trench T-410 (described below) extended west to cross the projection of fault F6.

The trench exposes two stratigraphic units which are unfaulted (Figure 11; Plate 3). The upper unit, unit 420, a sand, is highly disrupted and deformed. This deformation is interpreted as representing either soft sediment deformation or seismically-induced liquefaction. The lower unit, unit 410, exhibits planar stratigraphy and a planar, horizontal contact with the overlying unit 420, providing evidence of the absence of faulting. A sand dike within unit 410, interpreted as a liquefaction feature, is truncated by unit 420.

3.1.5 Trench T-405

Trench T-405, 42 feet in length, was sited along the southward projection of fault F6 to locate and document a potential southern continuation of this fault. (Figure 2). The trench exposed planar strata, dipping about 5 degrees to the west in the plane of the trench wall (Figure 11; Plate 3). No displacements of stratigraphic contacts were observed, therefore fault F6 does not extend to the location of Trench T-405.

3.1.6 Trench T-406

Trench T-406, 86 feet in length, was sited across the projection of fault F-12 (Figure 2) as identified in a wash exposure during field geologic mapping (Fugro, 2018d, Appendix A). This fault is visible on aerial photographs as a series of right-lateral displacements of light-colored beds extending about 400 feet southeast from the wash exposure toward T-406.

The trench exposes two small faults at its west end, and a third fault adjacent to a zone of vertical fracturing and disturbance in the east end. The two small faults form a graben 11 feet wide within which unit 620 is

juxtaposed against unit 610 (features E and F, Figure 12; Plate 4). Both faults are truncated by overlying unit 630. Units 630 through 650 comprise a sequence of broad channel-fill deposits inset within older units 610 and 620. Planar laminated sands, continuous beds of clay and the presence of 0.25-inch gastropod shells are indicative of a lacustrine or fluvio-deltaic environment. We propose that both the older units and the channel fill deposits likely belong to the Brawley Formation. The sands and clays have a similar sedimentologic composition and features to those of other Brawley sediments, and the degree of weathering and cohesion are similar. The interbedded clay unit 640 features prominent blocky jointing seen in clay layers throughout the Brawley Formation trench exposures. Vertical joints are observed in all units. The contact between channel-fill sand unit 630 and underlying clay-rich units 610 and 620 is stained with iron suggesting long-term perching of pedogenic water along the interface and subsequent weathering and oxidation. Assuming the channel-fill sequence is indeed of Brawley age, and is therefore several hundred thousand years old, the two graben faults do not meet the criteria for “Holocene faults.”

An east-dipping fault at the east end of the trench juxtaposes units 610 and 615 (feature B, Figure 12; Plate 4). Unit 610 is composed of beds of silt and clayey silt with a prominent 6- to 12-inch clay bed. These beds, including a thin white marker bed at the base of the prominent clay interbed, can be traced laterally for tens of feet, but is truncated by the fault. Unit 615 is similarly composed of silt and clay, but bedding is not clear nor continuous. Instead, the unit is cross-cut by numerous vertical and sub-vertical fractures, many filled or coated with sand. This fault projects into but does not displace unit 640, which is concordant to and likely conformable with the underlying channel-fill deposits of unit 630, suggesting that movement on this fault is likely contemporaneous with the two graben faults in the west end of the trench. Direct evidence for style and amount of displacement on this fault is not present in the trench exposure; however, if displacement is down-to-the-east, there is a minimum of 4.5 feet of throw.

3.1.7 Trench T-407

Trench T-407, 160 feet in length, was sited to characterize the southward continuation of fault F8, which was first identified in three previous trenches by Balderman (2002). Fault F8 would likely constrain the eastern perimeter of the proposed Cell 4 (Figure 2).

A fault zone was clearly exposed near the trench midpoint, in line with the projection of the fault F8 (Figure 13; Plate 5). The trench was excavated to a depth of 8 feet in the vicinity of the fault zone. The fault is expressed as a shear zone consisting of multiple sub-vertical shears separating contrasting slices of material including sand dikes within a 2- to 3-foot-wide zone. The fault is oriented 187°, 51°W, with a down-to-the-west sense of vertical displacement. Some component of lateral displacement is likely based on the width of the sheared zone but could not be quantified. Vertical displacement exceeds 9 feet as unit 750 is not observed west of the fault zone.

3.1.8 Trench T-408

Trench T-408, 137 feet in length, was sited along the northward projection of fault F13 as observed in T-403, to locate and document the northward projection of this fault (Figure 2).

Two faults in a 3-foot-wide zone are exposed at the far east end of the trench. The westernmost fault, oriented 004°, 76°E (feature A, Figure 14 and Plate 6), is characterized by a 5-cm-wide shear fabric with possible down-to-the-east vertical displacement. The easternmost fault (feature B, Figure 14 and Plate 6), oriented 001°, 65°E, juxtaposes unit 850 against unit 860, with a minimum of 1.5 feet of down-to-the-east vertical displacement. These faults align with the eastern strands of fault zone F13 exposed in T-403 (Figure 2; Plate 2).

Feature C, a gently west-dipping fracture, cross-cuts fault B and terminates at fault A. Feature C is one of a series of similarly oriented fractures (e.g., feature E, Plate 6) that occur in the footwall of the fault zone. Slickensides are observed on the face of these fractures, but displacement of strata is not observed.

The remaining 132 feet of the trench exposes a gentle anticline (172° interlimb angle) with continuous unfaulted strata.

3.1.9 Trench T-409

Trench T-409, 74 feet in length, was sited along the northwest projection of fault F13 to locate and document the continuation of this fault identified in T-403 (Figure 2). Strata exposed in T-409 are gently east-dipping clays and silts of the Brawley Formation.

The trench exposes an NNW-striking (~340°), steeply (~70°) ENE-dipping, 0.4- to 1.0-foot-wide fault zone, with a minimum of 4 feet of down-to-the-east vertical displacement (feature C, Figure 15 and Plate 7). This fault projects to the central strands of fault zone F13 documented in T-403 (Figure 2). Although the fault geometry and sense of slip are similar in both trenches, the slip magnitude on any discreet fault in T-403 is less than that observed in T-409, suggesting that multiple fault strands converge and contribute to the cumulative slip of fault F13 in T-409.

3.1.10 Trench T-410

Trench T-410, 81 feet in length, was sited adjacent to the west end of trench T-404, to intersect the southward projection of fault F6, which had been identified during the initial siting study (Balderman, 1988, 1989) (Figure 2). Similar to T-404, the trench exposes four unfaulted stratigraphic units (Figure 12 and Plate 8. Sedimentary structures observed in the upper sandy units 1020 and 1025 are highly disrupted and deformed and include numerous flame structures, interpreted to be the result of soft sediment deformation or seismically induced liquefaction. Underlying unit 1010 exhibits weak stratification with planar lenses of coarse-grained sands and a planar, horizontal contact with overlying unit 1015, providing evidence for the absence of faulting in T-410

3.1.11 Trench T-411

Trench T-411, 74 feet in length, was sited along the southward projection of fault F8 (Figure 2) (Figure 16 and Plate 8). The trench exposes two gently (~5°) east-dipping stratigraphic units of the Brawley Formation, units 1110 and 1120, and a younger, inset coarse-grained clastic deposit, unit 1130. Continuous, planar contacts between these units provide evidence for the absence of faulting in T-411, therefore fault F8 does not extend to the location of T-411.

The trench exposes numerous clastic dikes infilled with coarse- to fine-grained sand and lapilli (feature A, Figure 16 and Plate 8). The generally upward-opening dike geometries suggest infill from the surface during a liquefaction event. These dikes often extend through unit 1110 and into unit 1120 where they thin to discontinuous, generally vertical joints. While composed of sediments similar in composition and texture as the overlying unit 1130, the clastic dikes are truncated by the generally horizontal bounding contact. Further, the absence of lapilli in unit 1130 suggest this it a younger unit inset into unit 1120.

3.1.12 Trench T-412

Trench T-412, 34 feet in length, was sited approximately 20 feet south of the east end of T-406 where features suggestive of faulting had been observed in the trench wall. The purpose of T-412 was to provide an additional exposure of these features and more clearly establish the presence or absence of faulting. The location is in general alignment with the surface projection of fault F12 observed as a north-northwest trending lineament in aerial imagery, and as exposed in a cut bank outcrop to the northwest (Figure 2).

Two clear fault strands are exposed near the trench midpoint (features G and H, Figure 16 and Plate 8). Units west of the faults (1210 to 1250) consist of interbedded silt and clays, including a thin white marker bed at the base of the unit 1240. These units are vertically displaced 0.5 feet down-to-the-east on a fault striking 007° and dipping 61°E. The white marker bed can be traced down along the fault and continues east until it is abruptly terminated against a second fault (feature H, Figure 16 and Plate 8), striking 335° and dipping 65°E. This fault juxtaposes interbedded silts and clays against a more massive unit composed of silts and clays with numerous subvertical fractures. We estimate a minimum of 4 feet of down-to-the-east vertical displacement on this fault.

3.1.13 Trench T-413

Trench T-413, 165 feet in length, was sited along the projection of fault F12 (Figure 2) as documented in trenches T-406 (Section 3.1.6; Figure 12 and Plate 4) and T-412 (Section 3.1.12; Figure 16 and Plate 8). The trench was sited considerably south from T-412 to avoid an environmentally sensitive area.

Strata encountered in T-413 comprise layered clays, silty clays and sands of the Brawley Formation folded into a gentle, symmetrical anticline (~160° interlimb angle) with an approximately NNW hinge line trace (Figure 17 and Plate 9). Folding affects all exposed units of the Brawley Formation, but does not affect the late Holocene veneer of fluvial deposits (unit 1395).

The western end of trench T-413 exposes a 75-foot-wide fault zone consisting of eighteen sub-parallel, east-dipping normal fault strands, with individual down-to-the-east displacements ranging from 0.2 ft to 1.3 ft, and cumulative vertical and horizontal displacement of approximately 8.2 and 9.5 feet, respectively (features A-E, G-J, L-T, Figure 17 and Plate 9). Faults generally exhibit discreet slip planes that, in places, splay upwards producing horst and graben geometries. Polished surfaces with vertical to subvertical slickensides (e.g., rake=~90°) were observed on several fault planes.

Fault strands displace strata in both fold limbs, and therefore are interpreted to be superimposed on earlier folding. Several strands (features E, F, G, Q, Figure 17 and Plate 9) project into and are truncated at the

contact between Brawley Formation strata and inset late Holocene fluvial deposits of unit 1395. This fault zone is in alignment with fault F12 exposed in T-406 and T-412. The absence of younger Brawley Formation overlying the displaced strata leaves open the possibility that these strands of fault F12 may be active.

The eastern end of the trench exposes unfaulted, gently east-dipping, planar beds of primarily trough cross-laminated deltaic sands and lesser interbedded lacustrine clay deposits.

3.2 Fault Characteristics and Setbacks

The DVC site is in a tectonically active area (USGS/CGS, 2007). Major active faults to the northwest and southeast of Sections 27 and 33 ruptured at the ground surface during the 1987 Superstition Hills earthquake (Hudnut et al., 1989) (Treiman et al, 1989). No surface rupture was documented following the 1987 earthquake in either Section 27 or 33 at the DVC site (Fugro, 2018a). Faults have been identified at the DVC site based on fault trenching, geologic mapping, and geophysical surveys. These faults were presumed to be active because they displace Pleistocene sediments that are overlain by only a thin veneer of modern soils and fluvial deposits at the ground surface. In general, the faults thus far documented in trenches and washes at the DVC site are considered to be minor faults with small displacements that do not constitute major tectonic elements of the Superstition Hills fault system.

Faults documented on the DVC property through field mapping or fault trenching were assigned numbers F1 through F12 in Fugro's 2018 report "Site Geologic Data Review and 3D Model," No. 04.72170065-PR-003). Fault F13 has been added in this report based on this 2019 fault trenching investigation. Fault zone numbers are labeled on Figure 18. Each fault zone may consist of multiple fault strands observed in the field exposures.

The discussion below summarizes the characteristics of fault zones are likely to constrain the boundaries of Cell 4. These are faults F6, F7, F8, F9, F12, and F13. In each section, the evidence and nature of the mapped trace is reviewed, and the setback delineation associated with that fault zone is presented. Fault setback areas are defined as the area located within 200 feet of the mapped fault trace and are illustrated in Figure 18.

In addition to the setback areas, we also delineate fault avoidance zones on Figure 18. These zones are positioned along the trend of known faults and geophysical anomalies that have not been sufficiently explored to establish whether setbacks are required.

3.2.1 Fault F6

Fault F6 was documented in Trench 2, excavated for the initial site selection study (TR2 on Figure 2) (Balderman, 1988). Trench 2 was sited along a surface lineament identified by Balderman in the field and on aerial imagery. The fault zone in the trench exposure was described as a disturbed zone several feet across that appears to be nearly vertical and has an average strike of 010°. A later trench, Trench 3, was excavated across the same lineament about 550 feet north (Balderman, 1989). Documentation of the exact location of Trench 3 was not available, thus it is not shown on Figure 2. Balderman (1989) reports that in Trench 3, the fault zone consisted of a 10-ft-wide zone of clay-filled fractures. The main break strikes 035°

and dips about 65°NE. Bedding on the east side of the fault dips to the west near the fault zone, suggesting west-side-down vertical displacement. The 1988-1989 investigations determined that beds on the west side of the fault appeared to be about 20 feet lower than their equivalents on the east, based on borehole correlations.

As described in Section 3.1, no evidence for southward extension of fault F6 was observed in trenches T-404, T-405, or T-410. This suggests that the fault terminates at a point between Balderman's Trench 2 and trench T-410. The slip on this fault may step to a nearby fault. Given the generally left-stepping geometry of adjacent faults, a transfer of slip eastward to F7 may occur. The presence of planar continuous stratigraphy at depth in geophysical line GL-4 to the south suggests the fault does not step to the west.

A 200-ft setback is delineated around the trace of F6 based on mapping by Balderman (2002) and modified by the trenching results at T-410 and T-404 (Figure 18).

3.2.2 Fault Zone F7

In 1989, additional trenches excavated for the Cell 1 and 2 investigations identified fault F7 east of and parallel to F6 (Balderman, 1989). Five trenches, TR-106, 107, 108, 112, and 113 were excavated to track the extent of this fault (Figure 2). The fault was encountered in all but TR-113, the southernmost trench, thus the southern termination of the fault was placed between TR-112 and TR-113. The northern termination is not well constrained. This fault, as described in TR-106, 107, and 108, is a zone of sheared clay with drag folds on both sides indicating east-side-down displacement. To the south, in trench TR-112 it is a series of discreet faults each of which shows an east-side-down displacement of less than one foot along with an eastward dip to the strata. In trench TR-113, only an eastward dip to the strata is evident along the projection of the fault. Based on the location of the fault in this line of trenches, the overall strike is 006°. A 200-foot setback from F7 established the western margin of Cell 2 (Balderman, 2002) (Figure 18).

3.2.3 Fault Zone F8

Fault zone F8 was identified by Balderman (2002) in trenches TR-202, 204, and 211, and has been extended south by the present study to trench T-407 (Figure 2 and 18). In TR-202 the fault is a one-foot wide shear zone striking 005° and dipping 65° to 75° west. Drag folds on either side indicate west-side-up displacement. In TR-204, the fault is a narrow shear with truncation of beds on either side and no clear indicator of direction of vertical displacement. In TR-211, the fault is a series of parallel, NNW-striking faults with net down-to-the-east vertical displacement of 1.6 feet.

In trench T-407, as described in Section 3.1.3, the fault consists of multiple sub-vertical shears separating contrasting slices of material, including sand dikes, within a 2- to 3-foot-wide zone (Figure 13 and Plate 5). Fault F8, as exposed in trench T-407, is oriented 187°, 51°W, and has minimum of 9 feet of down-to-the-west vertical displacement.

The varying sense and magnitude of vertical displacement along fault F8 is puzzling. It may indicate a significant lateral component to the total displacement.

To track the extent of F8 to the south, trench T-411 was excavated perpendicular to the southward projection of the fault strike measured in trench T-407 (Figure 2). As described in Section 3.1.3., no faulting was observed in T-411. This suggests that fault F8 either terminates at a point between T-407 and T-411, or the fault steps laterally. An eastward step south of T-407 may be precluded by the absence of faulting reported in trench TR203 (Balderman, 2002) (Figure 2), unless the fault steps as far east as F9.

It is difficult to reconcile an abrupt termination of fault F8, given the minimum vertical displacement of 9 feet documented in T-407 (Section 3.1.7; Plate 5). Two possibilities are considered. First, the fault may step east toward fault F9. It is possible there is an unmapped strandeast of T-411 and between F9 and the southern termination of fault F8. This possibility is consistent with the left-stepping geometry of other faults in the area. Second, the fault may step west. The westward step is not consistent with the presence of continuous planar strata in geophysical line GL-5 to the south, unless the fault dies out in the area southwest of T-411.

A 200-foot setback area is delineated around the trace of fault F8 based on mapping by Balderman (2002) and the trenching results of T-407 and T-411. To address the uncertainty in the presence and location of a possible lateral step in the fault south of T-407, a fault avoidance zone is delineated extending south from the setback area and east toward the projection of F9 (Figure 18).

3.2.4 Fault Zone F9

Fault F9 was identified and described by Balderman (2002) during the trenching investigations for Cell 3. No additional trenching of this fault was conducted for this study. It is included here for completeness. Setbacks from F9 constrained the perimeter of Cell 3 but are not likely to affect the siting of Cell 4. Fault F9 was identified in TR203 as a single east-dipping fault plane. To the north, in TR205, the fault consists of a number of separate strands distributed over a 60-ft-wide zone, variably dipping to the east or the west. Differences in thickness of the units across the fault zone suggested lateral movement. The fault was extended south of TR203 on the basis of a subtle photo lineament.

3.2.5 Fault Zone F12

Fault F12 was initially identified in an incised wash exposure during Fugro's 2018 field mapping (Fugro 2018d, Appendix A). Here, the fault is observed as a one-foot-wide zone with several parallel traces having 1.4 feet of cumulative, down-to-the-east vertical displacement of lacustrine strata. The strata were originally thought to be of Lake Cahuilla age but now are recognized as belonging to the Brawley Formation. In the field, the fault could not be traced north of the wash due to lack of exposure. However, in Trench 1, much further north, Balderman (1988) documented five faults, designated F1 through F5 on Figure 18. As a group, these faults are in alignment with the northward projection of F12, thus faulting may be continuous between F12 and fault F1 to F5..

This fault was extended south of the wash exposure based on the interpretation of aerial imagery, which reveals a series of right-lateral displacements of light-colored beds extending about 400 feet southeast from the wash exposure. Trench T-406, T-412, and T-413 were sited across the southward projection of this lineament (Figure 2).

The three faults exposed in T-406 are considered strands of fault F12 (Section 3.1.7; Figure 12 and Plate 4). These fault strands are overlain by as much as four-feet of unfaulted lacustrine and fluvio-deltaic strata having weathering and lithologic characteristics consistent with the Brawley Formation. Assuming the overlying unbroken strata are Brawley Formation, these strands of fault F12 are not Holocene faults. The easternmost fault strand in T-406 is also exposed in T-412.

The numerous faults exposed in trench T-413 are also considered strands of fault F12 (Section 3.1.12; Figure 14 and Plate 9). Here, stratigraphic relationships do not provide sufficient constraints to establish recency of activity. Specifically, the absence of younger Brawley Formation sediments that could be used to assess the recency of displacement allows for the possibility that these strands of F12 are active. Feature T, the easternmost strand, defines the eastern boundary of fault F12 (Figure 17 and Plate 9).

Continuing south, fault F12 projects toward a feature in geophysical line GL-5. Additional trenching would be required to establish the presence and an exact location of this fault at the surface southeast of T-413.

Fault setbacks are delineated 200 feet from the mapped traces of fault zone F12 based on field mapping and trench results (Figure 18). In addition, fault avoidance zones are drawn to encompass the likely extent of F12 along the trend of the mapped traces, assuming that F1 through F5, as identified by Balderman (1988), also are a part of the F12 fault zone, and assuming that the geophysical anomaly ("potential fault area") noted in line GL-5 is an expression of F12 at depth.

3.2.6 Fault F13

Fault F13 was first identified in trench T-403 and, as described in Section 2.1.3, is a 30-foot-wide zone of small discrete normal faults with a net east-side-down displacement of gently east-dipping strata (Figure 10 and Plate 2). This fault is north of and parallel to the general trend of faults F6 and F7, and projects northward toward a possible fault feature in geophysical line GL-2. Its relationship to other structures is not clear. Fault strands exposed in T-408 and T-409 are continuations of fault F13; they display similar orientations and sense of displacement.

From T-403, the central strand of F13 continues to T-409 where it is observed as a narrow shear zone with east-side-down displacement. Continuing further north, this particular strand is not observed in T-408. Instead, the strata are folded into a broad anticline. However, an eastern strand is exposed in the far eastern end of T-408 (Figure 2, Figure 10 and Plate 2). This strand trends north, toward the geophysical anomaly in geophysical line GL-2. The exact location of the northward continuation of fault F13 is not currently known, but evidence from T-408 suggests the western strands have died out and only the eastern strand extends northward. We were unable to trench further east due to the presence of the DVC access road, thus additional eastern strands may exist.

Geophysical line GL-3 crosses the projection of fault F13 immediately north of T-408. Reflectors appear to be continuous and unbroken at depth, however the data are inconclusive regarding faulting at the surface. The data resolution near the ends of the geophysical lines is poor, as shown by the thin green lines on

Figure 18, especially so in the upper 50 feet. If the fault is east dipping, the geophysical data cannot resolve a fault in this location.

Fault setbacks are delineated 200 feet from the mapped trace of fault F13 based on fault trenching results (Figure 18). No fault trenching has been conducted north of T-408, however, the fault is expected to continue northward. A fault avoidance zone is therefore drawn extending northward from F13 to the geophysical feature (“potential faulting”) in line GL-2.

4. SUMMARY AND CONCLUSIONS

Fugro conducted a fault trenching investigation to identify and delineate surface faults and establish 200-ft setbacks required for Cell 4 siting. Thirteen trenches, T-401 through T-413, were excavated and logged from February to May of 2019. Two trenches were sited in Section 27 (Figure 1) and eleven trenches were sited in Section 33 (Figure 2). The results from this trench investigation, in combination with geologic mapping, aerial photo interpretation, and the results of previous fault trenching investigations, form the basis for defining the mapped trace of each fault.

All faults identified in this trenching investigation lie within Section 33. Trenches in Section 27 showed no evidence of faults. Many faults in Section 33 were extensions of faults identified in previous studies for Cells 1, 2, and 3. Several are newly discovered faults. Figure 18 shows the final mapped fault traces and trench locations.

The faults mapped in Section 33 can be grouped into two main fault systems. The western fault system is a northwest-trending zone of faulting defined by faults F1 through F5, F12 and a geophysical feature in line GL-5. The eastern fault system is a north-trending fault system defined by F13, F6, F7, F8, and F9, and geophysical anomalies in lines GL-2 and GL-5. The eastern margin of this fault system provided a constraint to the western boundary of existing Cells 1, 2, and 3.

Setback areas were delineated for the area within 200 feet of each mapped trace (Figure 18). These setbacks constrain the potential boundaries of Cell 4. To address the likelihood that faults extend along trend beyond the mapped traces, “fault avoidance zones” are also identified. If these zones were to be considered for future siting, additional fault trenching would be required to map fault traces and establish setbacks.

In summary the area in Section 33 under consideration for Cell 4 is traversed by an eastern fault system and a western fault system. Cell 4 may be sited in the area between these fault systems with required setbacks, as shown on Figure 18.

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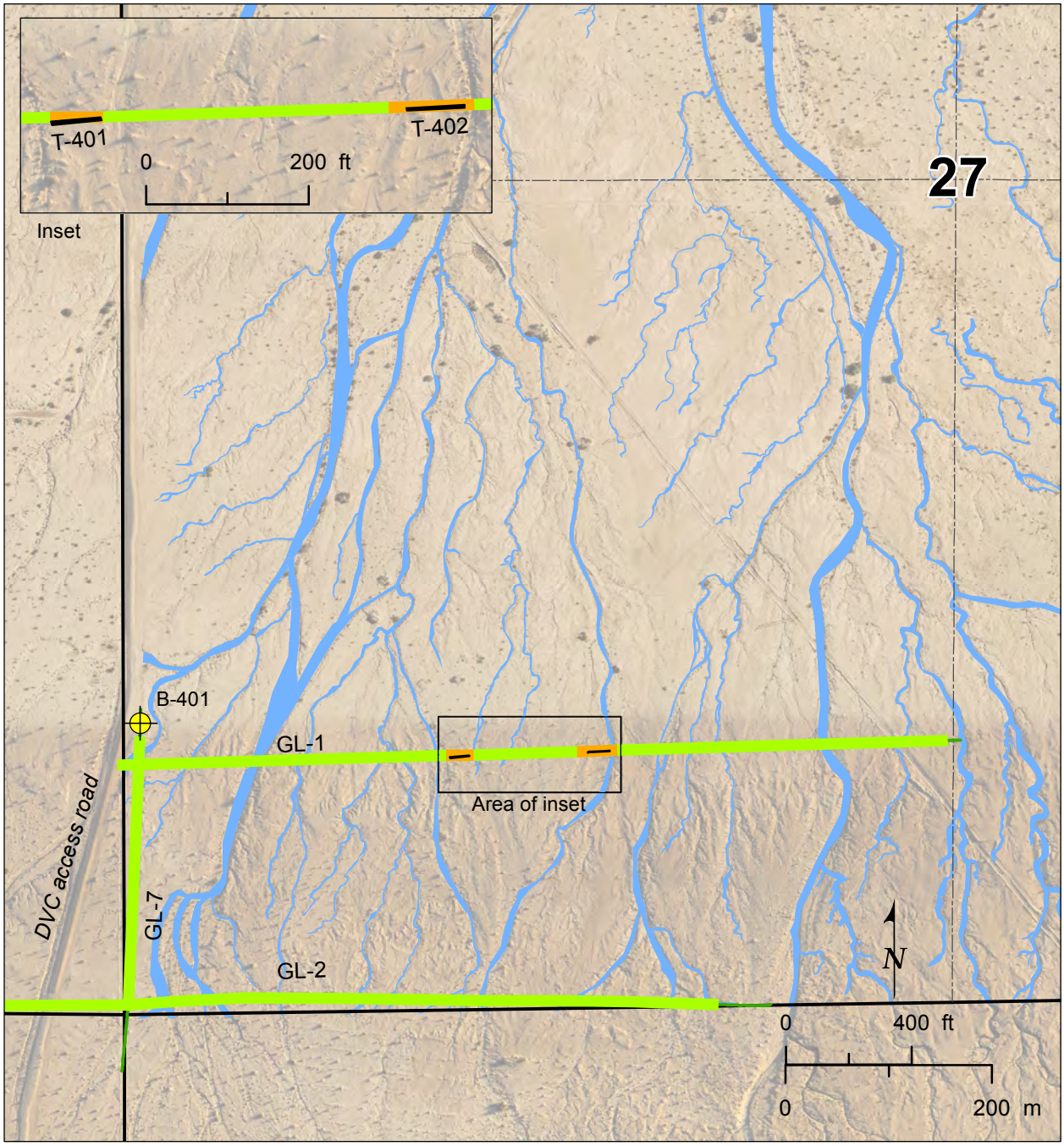
FIGURES



Imagery base from Fugro 2018

Legend

Calibration borehole

27 Section 27, with quadrants

T-403 As-built trench, 2019

Jurisdictional drainage

Seismic Reflection Results

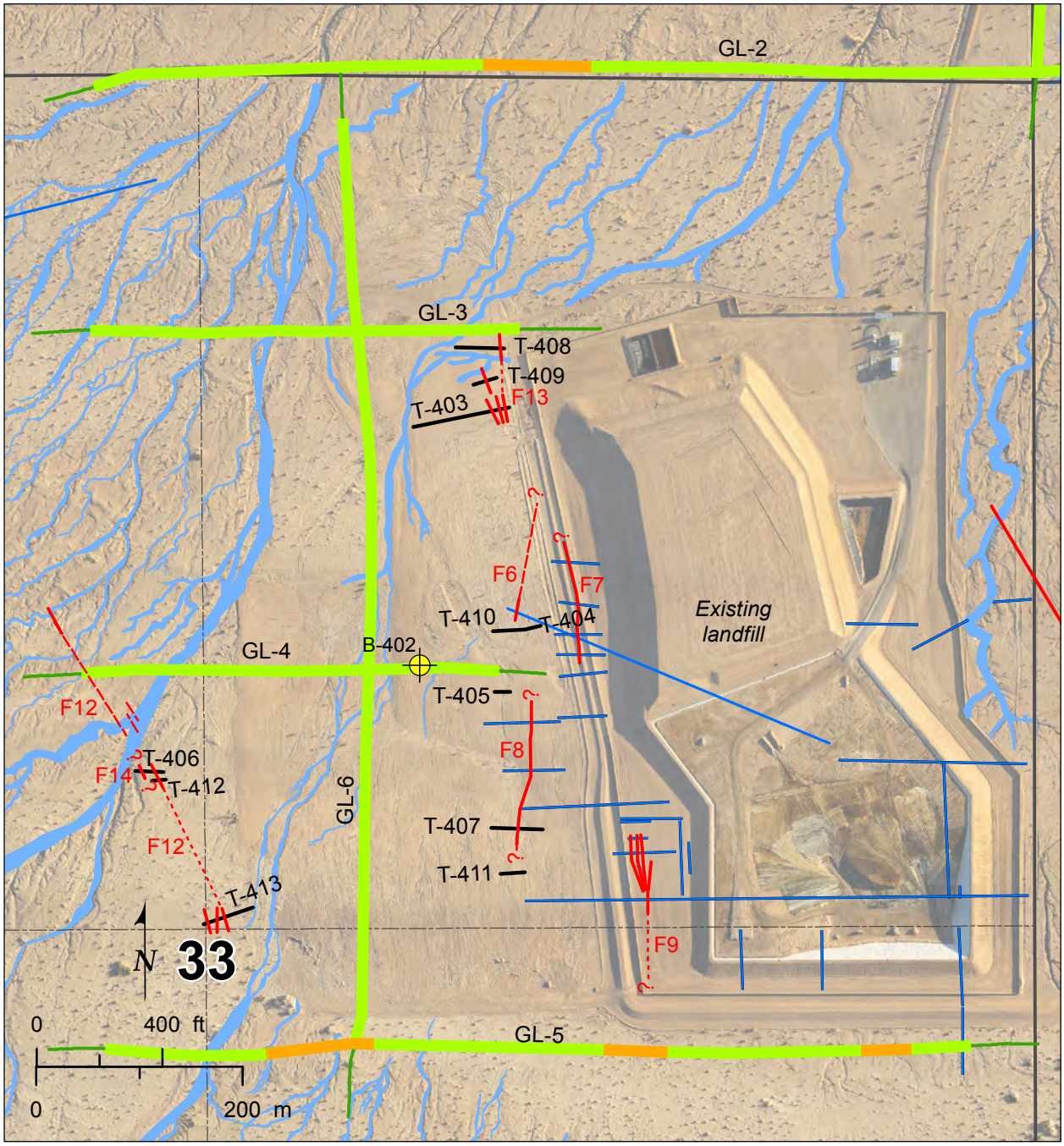
Potential fault area

Absence of faulting

Geophysical line, faulting not evaluated

FAULT TRENCHES, SECTION 27 FIGURE 1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Trenching_June2019\1_Trenches_Section27.mxd; m.ticci; 6/13/2019



Imagery base from Fugro 2018

Legend

- Calibration borehole
- 33 — Section 33, with quadrants
- T-403 — Trench, 2019
- Trench, Balderman 1988, 1989, 2002

Faults
(2019 studies; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection

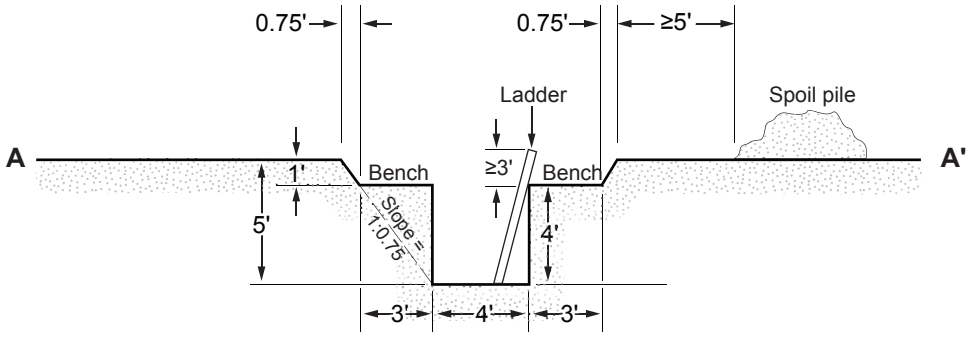
Seismic Reflection Results
(Fugro, PR-004)

- Potential faulting
- Absence of faulting
- GL-4 — Geophysical line, faulting not evaluated
- Jurisdictional drainage

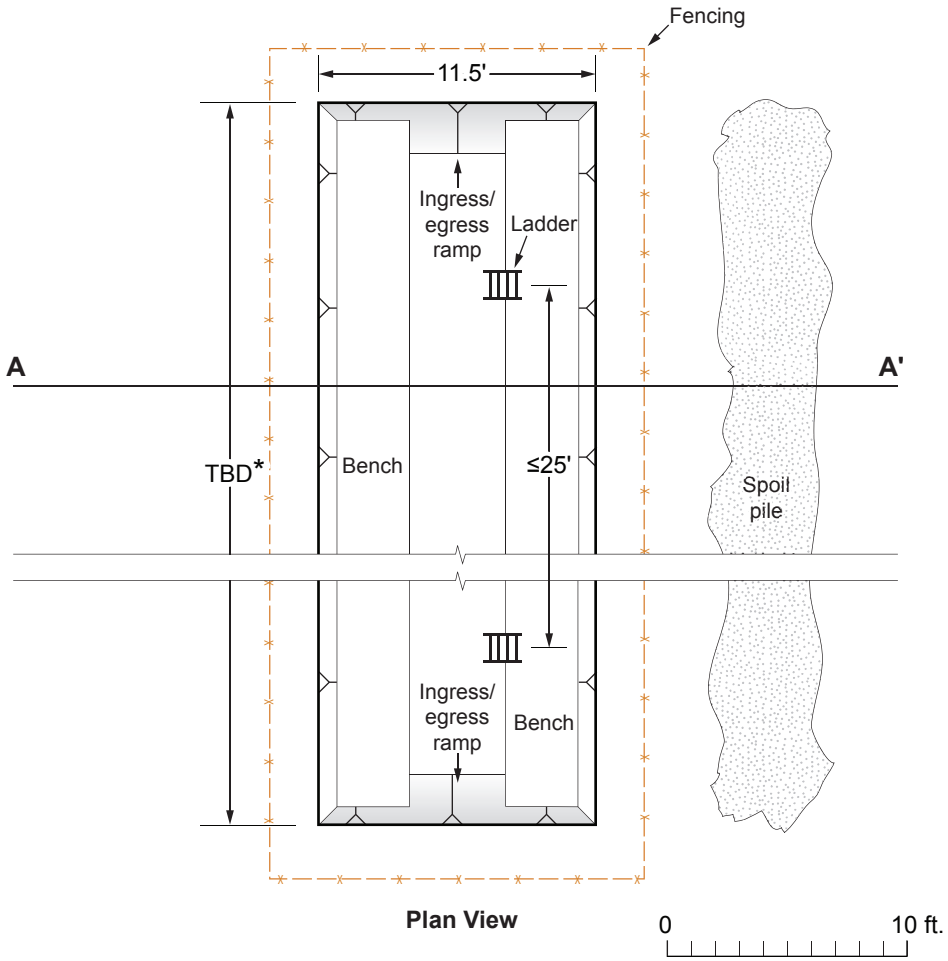
FAULT TRENCHES, SECTION 33

FIGURE 2

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Trenching_June2019\2_Trenches_Section33.mxd; m.ticci; 6/14/2019



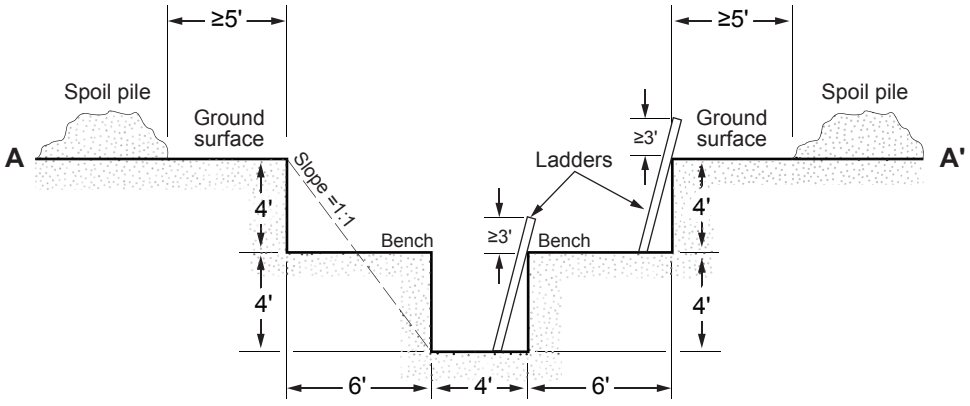
Section A View



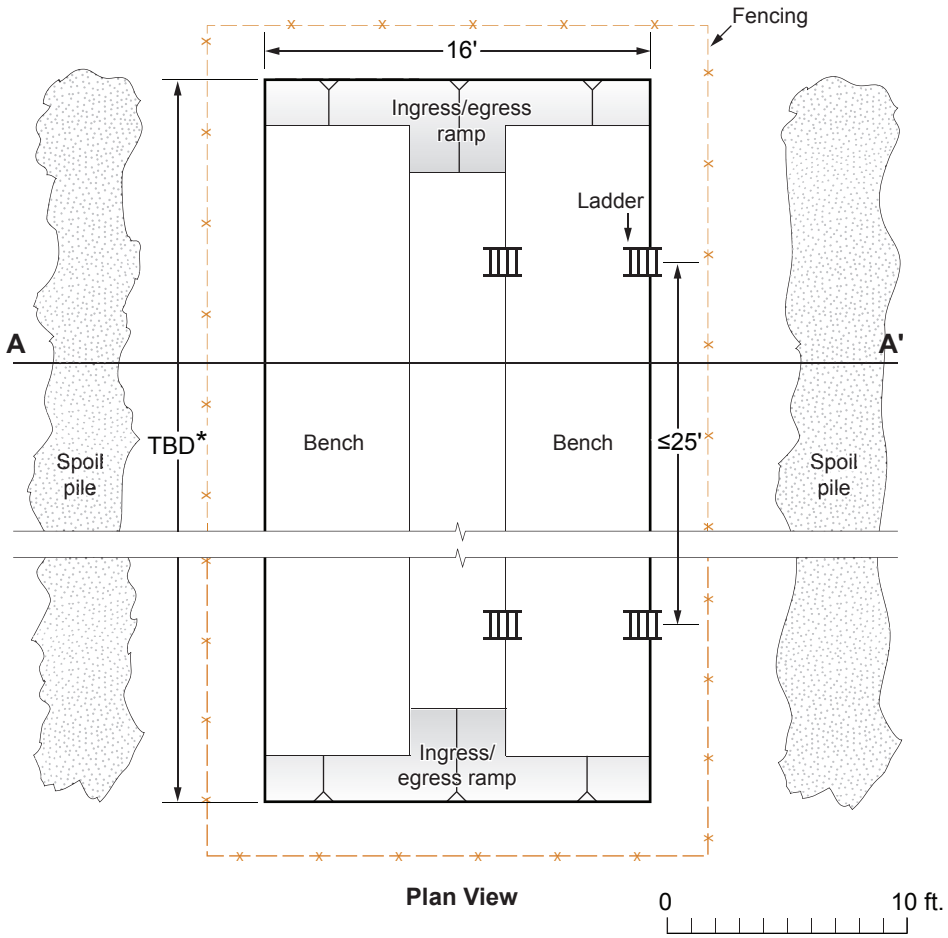
Plan View

4-FOOT DEEP TRENCH DESIGN FOR TYPE A SOIL

FIGURE 3



Section A View



Plan View

8-FOOT DEEP TRENCH DESIGN FOR TYPE A SOIL

FIGURE 4

Figure 5. Start of excavation operations at T-409.

Figure 6. Geologist cleaning the trench wall with a leaf blower during a pause in the excavation of T-408.

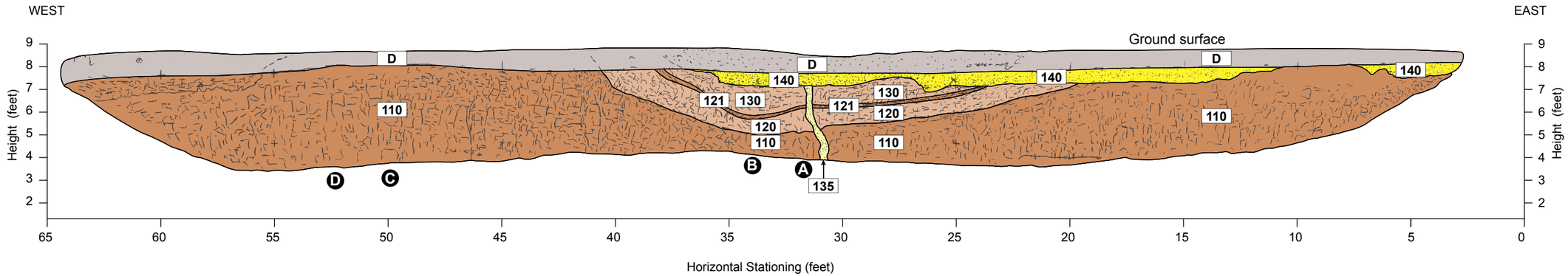
FIELD PHOTOGRAPHS FIGURES 5 AND 6

Figure 7. Geologist describing stratigraphic units at T-408.
The pink string is the horizontal reference; the yellow tape notes unit designations.

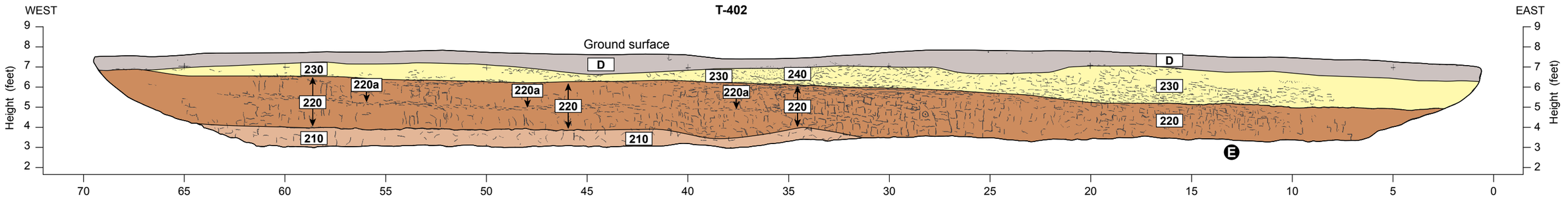
Figure 8. Geologist logging the south wall of trench T-413 on mylar laid over the photomosaic.

FIELD PHOTOGRAPHS FIGURES 7 AND 8

T-401



T-402



Legend

Contact

110 Unit number keyed to Plate 1

Geologic Material

HOLOCENE
- Fill or disturbed soil, not logged
- Holocene SAND

PLEISTOCENE
- SAND
- Silty CLAY/Clayey SILT
- CLAY

For detailed unit descriptions see Plate 1

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

Feature Descriptions

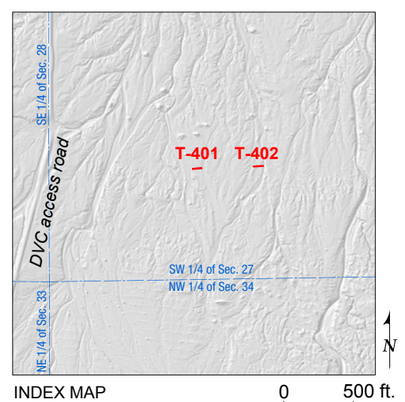
A Sand dike, strike = 145°, a tabular body of sand (unit 135) filling a vertical joint. Interpreted as the conduit for a sand blow from seismically-inducted liquefaction of deeper sand layers.

B Sag feature, 20-feet wide, interpreted as subsidence resulting from loss of material at depth from liquefaction-related sand blow.

C Sand-filled vertical fracture, < 1-cm-thick. Possible liquefaction feature.

D Iron-stained ped and joint faces in the upper 1 ft. of unit 110.

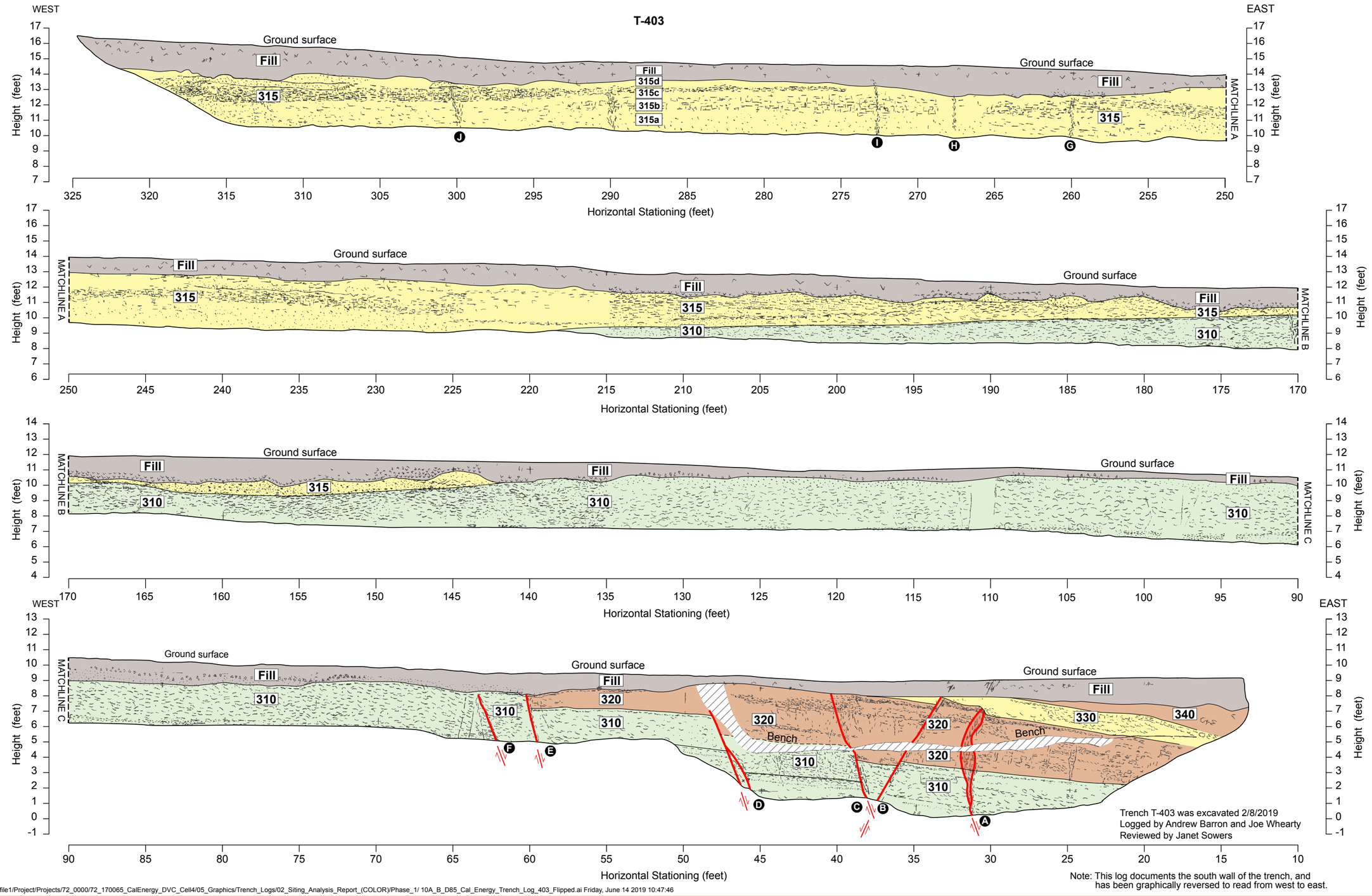
E Gypsum-filled vertical fracture 1-2 cm wide.



GEOLOGIC LOG OF TRENCH T-401 AND T-402

FIGURE 9

CALENERGY OPERATION CORPORATION
FAULT TRENCHING INVESTIGATION
BRAWLEY, CA



Trench T-403 was excavated 2/8/2019
Logged by Andrew Barron and Joe Whearty
Reviewed by Janet Sowers

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

For legend see Figure 10B

GEOLOGIC LOG OF TRENCH T-403

FIGURE 10A

Legend

Contact

Fault

Direction of displacement

Fault zone

315 Unit number keyed to Plate 2

Not logged

Geologic Material

HOLOCENE

Fill or disturbed soil, not logged

PLEISTOCENE

SAND

SILT

Silty CLAY/Clayey SILT

For detailed unit descriptions see Plate 2

Feature Descriptions

A Fault, subvertical zone of fracturing up to 1 ft. wide, with down-to-the-east displacement of 0.5 ft.

B Fault, strike=159˚, dip=63˚W, with down-to-the-west displacement of 0.5 ft.

C Fault, strike=345˚, dip=77˚E, with down-to-the-east displacement of 1.7 ft.

D Fault, strike=338˚, dip=64˚E, with down-to-the-east displacement of 1.35 ft.

E Fault, dip ~75˚E, with down-to-the-east displacement

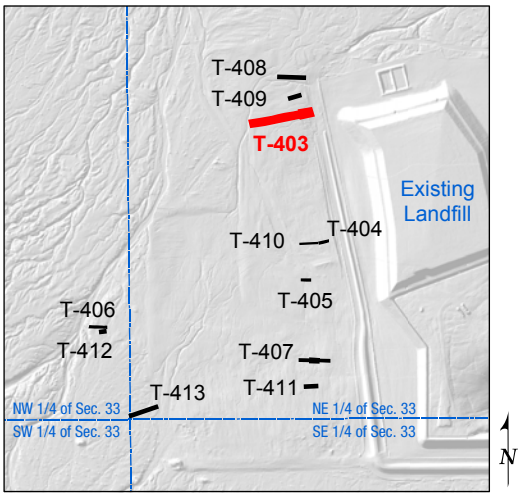
F Fault, dip ~70˚E, with down-to-the-east displacement

G Vertical fracture, no displacement.

H Vertical fracture, no displacement.

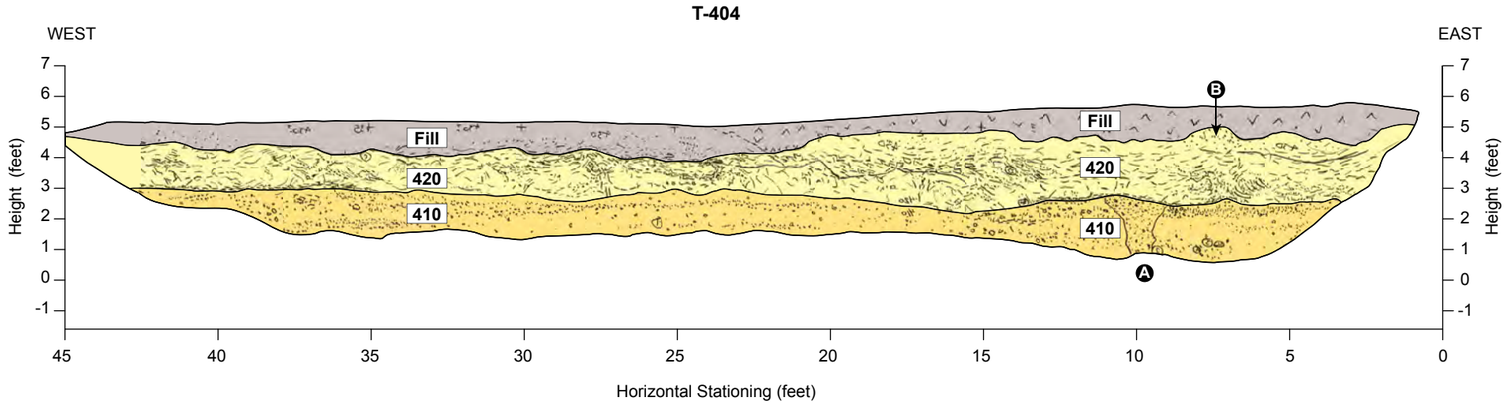
I Vertical fracture, no displacement.

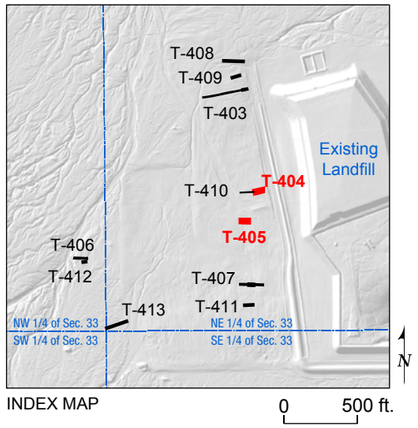
J Vertical fracture, no displacement.



INDEX MAP

EXPLANATION OF GEOLOGIC LOG OF TRENCH T-403 FIGURE 10B





Legend

Contact

570 Unit number keyed to Plate 3

Geologic Material

HOLOCENE
- Fill or disturbed soil, not logged
- SAND
- Poorly sorted SAND, SILT, CLAY, GRAVEL

PLEISTOCENE
- SILT
- Silty CLAY/Clayey SILT
- CLAY

For detailed unit descriptions see Plate 3

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

Feature Descriptions

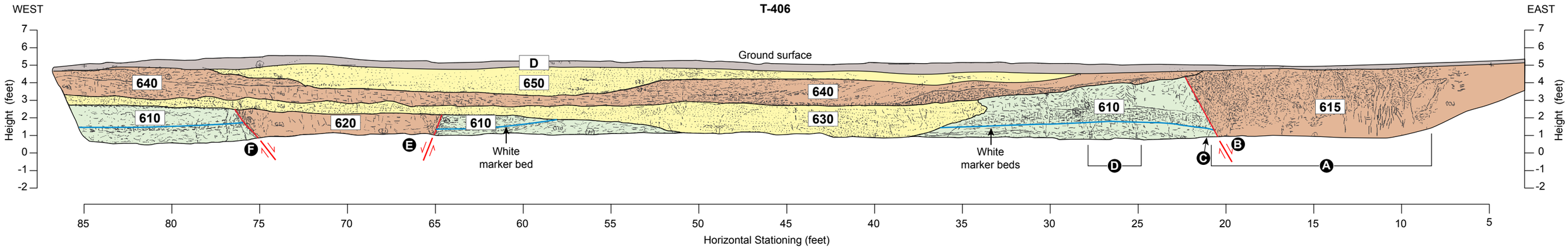
A Body of sand, 1-2-ft.-wide, cuts vertically through unit 410 and is truncated at the base of unit 420. Interpreted as a sand dike from seismically-induced liquefaction.

B Bedding throughout unit 420 is highly disrupted and deformed. Interpreted as the result of seismically-induced liquefaction and soft sediment deformation.

C Planar bedding dips 5-6˚ west in the plane of the trench wall. Dip decreases to the east.

GEOLOGIC LOG OF TRENCH T-404 AND T-405

FIGURE 11



Legend

- Contact
- White marker bed
- Fault
- Direction of displacement
- **640** Unit number keyed to Plate 4

Geologic Material

HOLOCENE
- Fill or disturbed soil, not logged

PLEISTOCENE
- SAND
- SILT
- Silty CLAY/Clayey SILT

For detailed unit descriptions see Plate 4

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

Feature Descriptions

A Twelve-foot-wide zone of closely spaced vertical fractures, 0.5 to 1.5 feet apart. Most are filled with sand. Possible sand dikes. The zone appears highly disturbed and original bedding is difficult to discern.

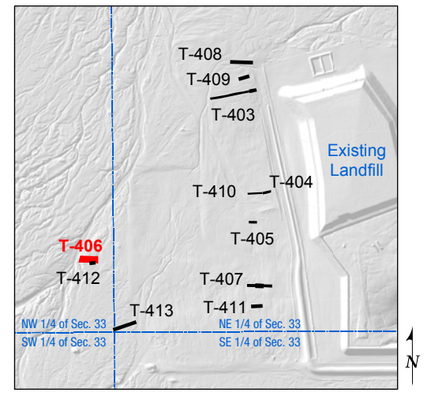
B Fault, juxtaposing units 610 and 615. Sense of vertical displacement is unclear from the exposure, but is assumed to be east-side-down similar to the fault in T-412.

C Prominent vertical fracture, open, filled with sand.

D Vertical fractures filled with sand

E Fault, strike=161˚, dip 61˚W, west-side-down. The thin white marker bed within unit 610 abruptly terminates against this fault. This fault is truncated by overlying unit 630. The amount of vertical displacement could not be determined.

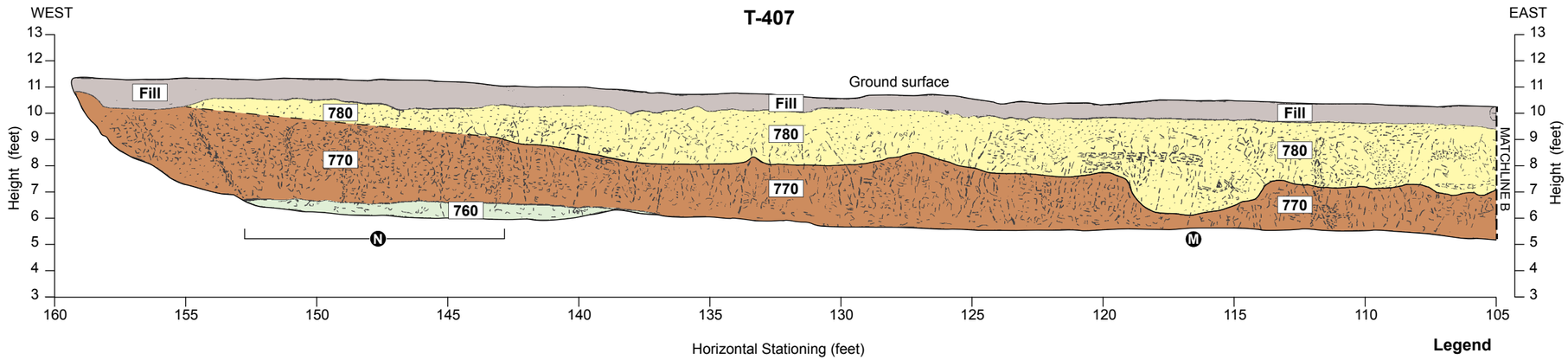
F Fault, strike=346˚ dip 57˚E, east-side-down. This fault is truncated by overlying unit 630. The amount of vertical displacement could not be determined. Faults D and E form the boundaries of a small graben.

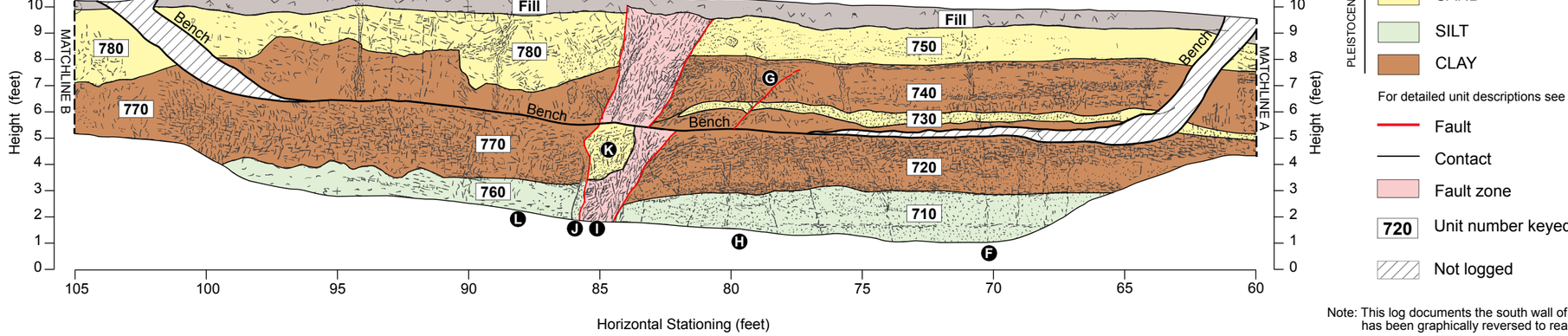


INDEX MAP

GEOLOGIC LOG OF TRENCH T-406

FIGURE 12





Trench T-407 was excavated 2/26-27/2019
Logged by Andrew Barron and Joe Whearty
Reviewed by Janet Sowers

Legend

Geologic Material

- Fill or disturbed soil, not logged
- SAND
- SILT
- CLAY

For detailed unit descriptions see Plate 5

- Fault
- Contact
- Fault zone
- 720 Unit number keyed to Plate 5
- Not logged

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

Feature Descriptions

A→F Vertical fracture filled with sand. No displacement.

G Sand dikes and minor secondary fault.

H Down-warping of strata within a 3-foot-wide zone west of the main fault zone.

I Fault, shear zone consisting of multiple sub-vertical shears separating contrasting slices of material and sand dikes within a 2- to 3-foot-wide zone. Strike = 187°, dip = 51°W. Total displacement cannot be measured but exceeds 9 feet as unit 750 is not observed in the wall west side of the fault zone.

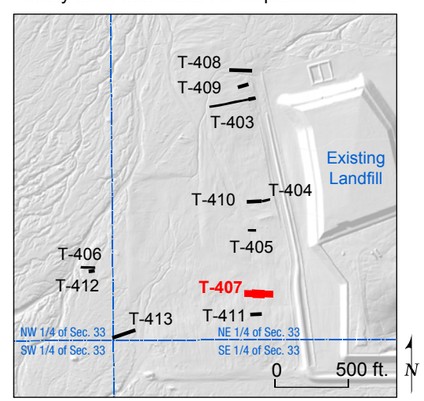
J Sand dike, 3 inches wide, with medium to coarse-grained sand filling the fracture and coating joint faces.

K Body of laminated sand dipping 30°E, trapped within the fault zone at a height of 4-5 feet. Matches the laminated sand of unit 750 which located at a height of 8-9 feet, suggesting vertical displacement of this material about 4 feet down-to-the-west.

L Multiple small sand dikes and sand coating fractures within a 3-foot-wide zone east of the main fault, accompanied by up-warping of strata.

M Curved basal contact of unit 780 is interpreted as a channel feature eroded into the top of unit 770.

N Zone of vertical fractures, 2 to 3 feet apart, many filled with sand. No displacement.



INDEX MAP

GEOLOGIC LOG OF TRENCH T-407

FIGURE 13

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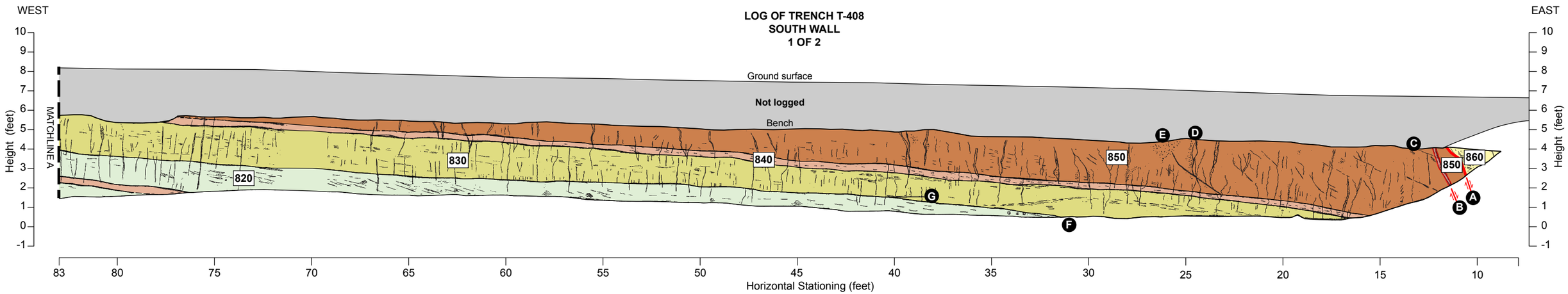
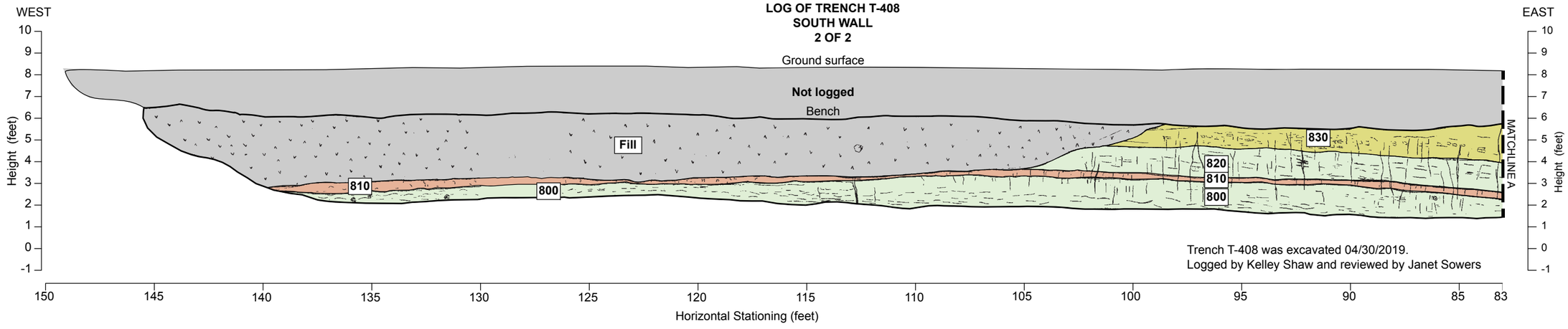




Trench T-408 was excavated 04/30/2019.
Logged by Kelley Shaw and reviewed by Janet Sowers

Legend

HOLOCENE
- Fill or disturbed soil, not logged

PLEISTOCENE
- SAND
- Sandy CLAY/Clayey SAND
- SILT
- Silty CLAY/Clayey SILT
- CLAY

For detailed unit descriptions see Plate 6

Feature Descriptions

A. Fault, strike=001°, dip=65°E, down-to-the-east displacement. Fault juxtaposes unit 850 and fine- to medium-grained SAND unit 860. Total vertical displacement could not be determined.

B. Shear zone, strike=4°, dip=76°. 5-cm-wide zone of sheared fabric aligned with dip of the zone. Amount of vertical displacement could not be determined.

C. Fracture, slickensides on face.

D. Light greenish gray clay, ~1 inch thick, lines vertical joint.

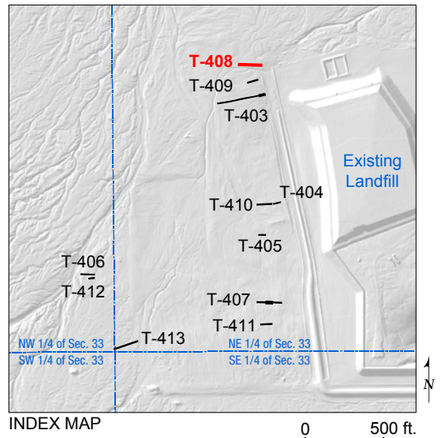
E. East-dipping fracture with slickensides, no displacement of 830/840 contact, possibly due to shrink-swell.

F. Prominent joints east of this point vary in dip and orientation. Joints west of this point are consistently vertical. Many joints are fractures filled with sand.

G. Black, hard, 1-mm-thick coating on joint face, manganese staining (?),4 ft long, 0.5 inches wide.

- Contact
- Fault
- Direction of displacement
- Fault zone
- 800 — Unit number keyed to Plate 6

Note: This log documents the south wall of the trench, and has been graphically reversed to read from west to east.

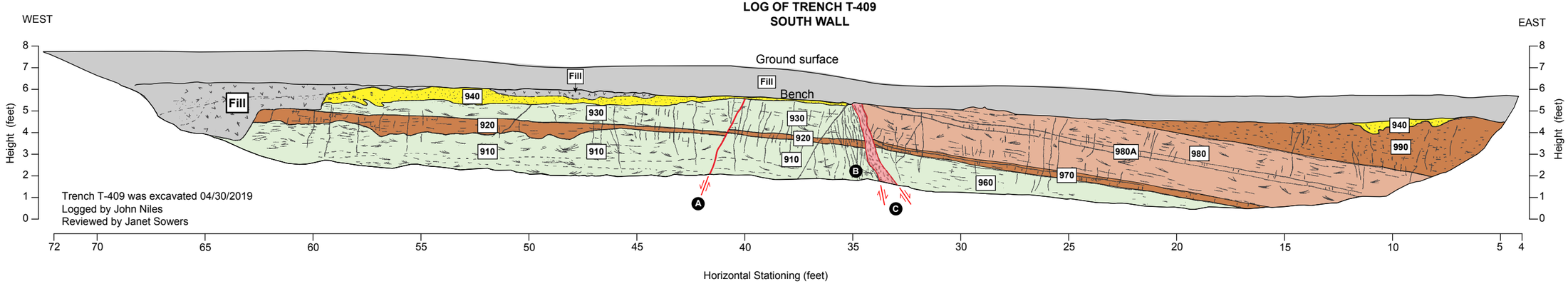


INDEX MAP

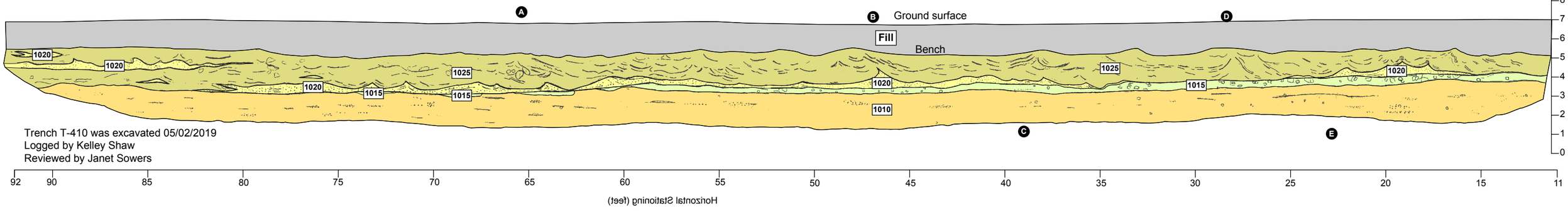
GEOLOGIC LOG OF TRENCH T-408

FIGURE 14

LOG OF TRENCH T-409
SOUTH WALL



LOG OF TRENCH T-410
SOUTH WALL



Legend

- HOLOCENE
  - Fill or disturbed soil, not logged
  - Holocene SAND
- PLEISTOCENE
  - SAND
  - Poorly sorted SAND, SILT, CLAY, GRAVEL
  - Sandy CLAY/Clayey SAND
  - SILT
  - Silty CLAY/Clayey SILT
  - CLAY

For detailed unit descriptions see Plate 7

Feature Descriptions T-409

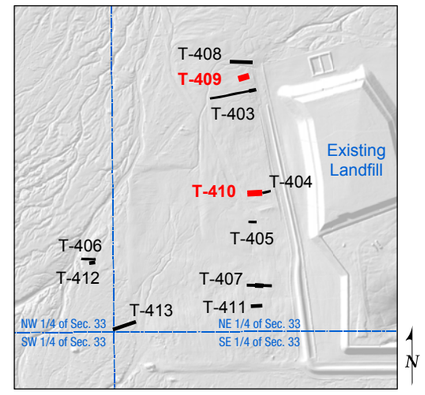
- **A** Fault, strike=158°, dip=65°W, with ~0.2 ft of down-to-the-west displacement.
- **B** Zone of closely spaced vertical fractures; no vertical displacement observed.
- **C** Fault zone; strike measured from string line connecting fault exposures in facing trench walls=340°, approximate dip taken from fault exposure=70°E; with a minimum of 4 ft of down-to-the-east displacement; discrete fault planes bound an 0.4-to 1.0-ft-wide zone of intense, non-systematic fracturing.

Note: These logs document the south wall of the trench, and have been graphically reversed to read from west to east.

Feature Descriptions T-410

- **A** Hard rounded blocks of gravely silty sandy, bedding flows around.
- **B** Large flame structure in unit 1020
- **C** Charcoal in the base of unit 1015 and unit 1010, 2 pieces, 1.0 - 0.5 inches in size.
- **D** Large flame structure in unit 1025
- **E** Planar bedding of more indurated materials.

- Contact
- Fault
- Direction of displacement
- Fault zone
- 1020 Unit number keyed to Plate 7

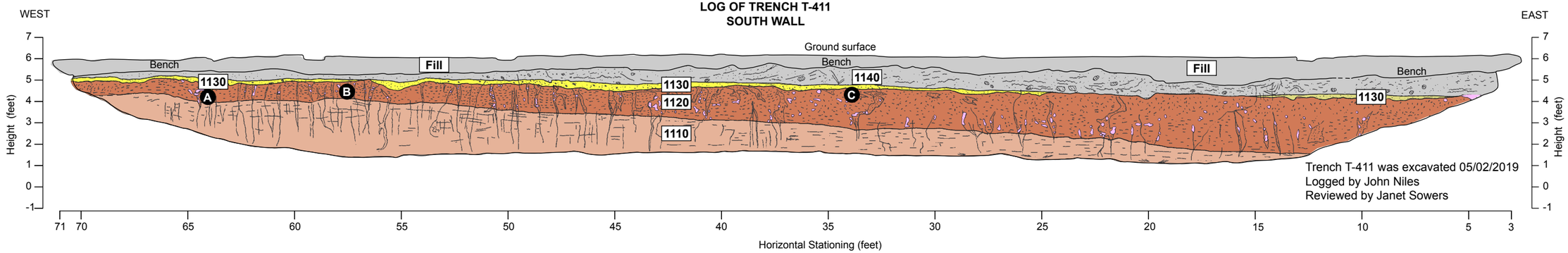


INDEX MAP

GEOLOGIC LOG OF TRENCH T-409 AND T-410

FIGURE 15

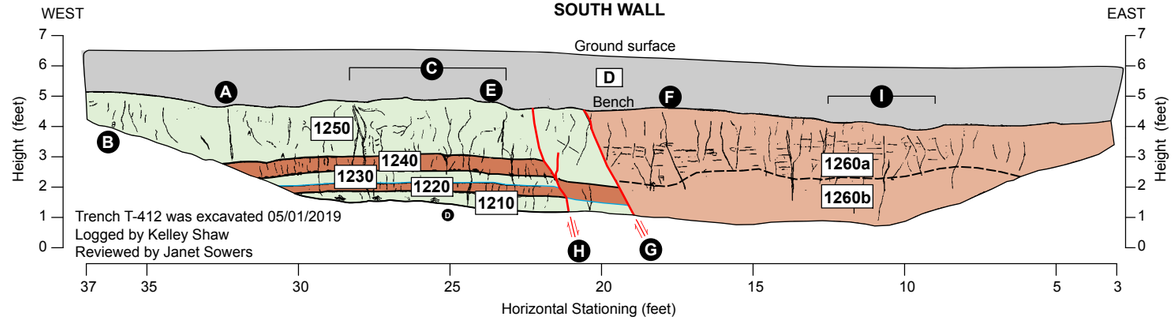
LOG OF TRENCH T-411
SOUTH WALL



Feature Descriptions for T-411

- **A** Clastic dikes or fractures filled with poorly sorted sand, tephra lapilli, and gastropod shells; fractures exhibit a generally upward opening, extensional geometry, though are anastomosing and / or lensoid in three dimensions. Vertical fractures are abundant in unit 1120, and terminate downward within unit 1110. Vertical displacement was not observed. Anastomosing sand bodies are interpreted as small-scale soft-sediment deformation structures.
- **B** Concave upward jointing of Unit 1120 between infilled fissures.
- **C** Pervasive, blocky, non-systematic jointing of unit 1120.

LOG OF TRENCH T-412
SOUTH WALL



Feature Descriptions T-412

- **A** Vertical Fissure < 3 cm wide filled with coarse- to fine-grained SAND
- **B** Surficial coating on joint face of fine- to medium-grained SAND with shells 3 mm in size.
- **C** Ellipsoid fracture pattern in unit 1250, fractures filled with sandy silt, soft sediment deformation.
- **D** Funnel shaped fissure in unit 1240, filled with sand.
- **E** Orange staining in unit 1250, oxidation?
- **F** Crystallization on surface of blocks, 2 mm in size. Gypsum?
- **G** Fault, strike=025˚, dip 65˚E, east side down. Thin white marker bed along the base of unit 1240 abruptly terminates against this fault, cannot correlate units across the feature. Total vertical displacement could not be determined; minimum displacement is 0.8 feet.
- **H** Fault, strike=007˚E, dip 61˚E, east side down, 0.6-ft vertical displacement measured along unit 1240 basal contact/marker bed.
- **I** Zone of 0.5-cm-wide vertical fractures

Legend

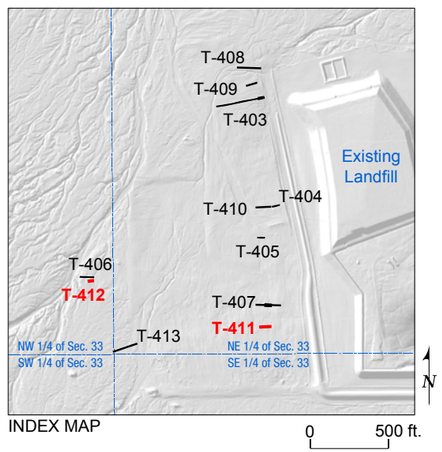
HOLOCENE
- Fill or disturbed soil, not logged

PLEISTOCENE
- Sandy CLAY/Clayey SAND
- SILT
- Silty CLAY/Clayey SILT
- CLAY

For detailed unit descriptions see Plate 16

- Tephra
- White marker beds
- Contact, location approximate where dashed
- Fault
- Direction of displacement
- 800 Unit number keyed to Plate 8

Note: These logs document the south wall of the trench, and have been graphically reversed to read from west to east.

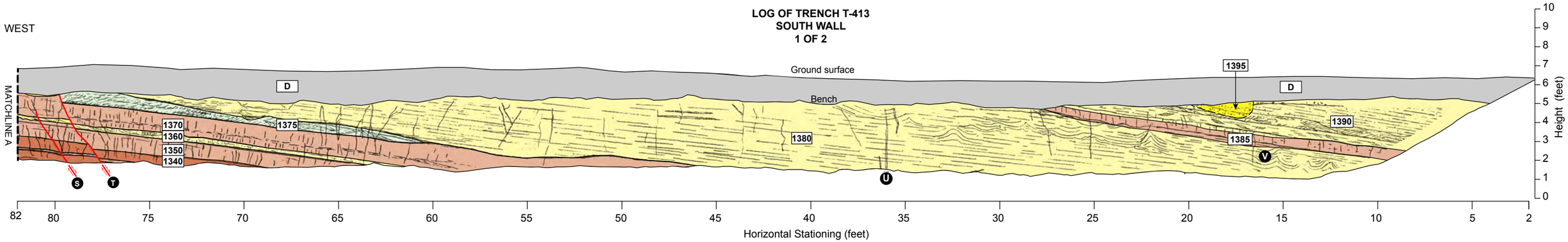


INDEX MAP

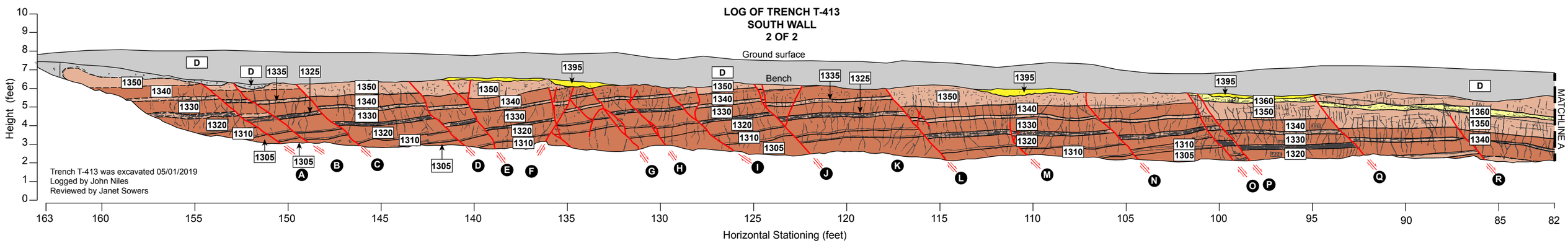
GEOLOGIC LOG OF TRENCHES T-411 AND T-412

FIGURE 16

LOG OF TRENCH T-413 SOUTH WALL 1 OF 2



LOG OF TRENCH T-413 SOUTH WALL 2 OF 2



Legend

HOLOCENE
- Fill or disturbed soil, not logged
- Holocene SAND

PLEISTOCENE
- SAND
- Sandy CLAY/Clayey SAND
- SILT
- Silty CLAY/Clayey SILT
- CLAY

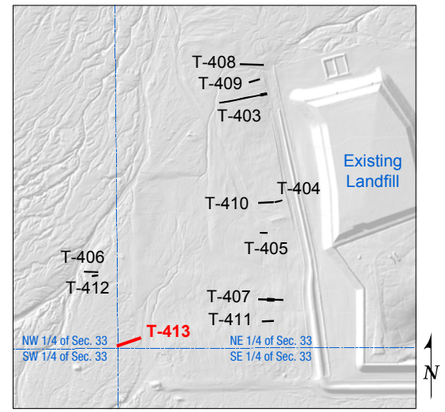
For detailed unit descriptions see Plate 9

Feature Descriptions

- **A** Fault, strike=353°, dip=50°E, with down-to-the-east displacement of 0.3 ft.
- **B** Fault, strike=015°, dip=40°E, with down-to-the-east displacement of 0.2 ft.
- **C** Fault, strike= 345°, dip=35°E, rake=~90°E with down-to-the-east displacement of 0.5 ft; curviplanar; ~90° rake angle of striations on fault surface
- **D** Fault, strike=005°, dip=45°E, with down-to-the-east displacement of 0.5 ft.
- **E** Fault, strike=310°, dip=57°E, with down-to-the-east displacement of 0.3 ft; subvertical slickensides on fault surface.
- **F** Fault, strike=155°, dip=60°W, with down-to-the-west displacement of 0.6 ft; fault bifurcates upwards forming intensely fractured graben geometry.
- **G** Fault, strike=320°, dip=47°E, rake=~80°E, with down-to-the-east displacement of 0.5 ft; anastomosing geometry.
- **H** Minor fault with ~4 cm down-to-the-east displacement; discontinuous upwards
- **I** Fault, strike=340°, dip=45°E, with down-to-the-east displacement of 0.7 ft.
- **J** Fault, strike=025°, dip=62°E, rake=~80°E, with down-to-the-east displacement of ~0.5 ft.
- **K** Orange oxidation and calcite on fracture surfaces.
- **L** Fault, strike=000°, dip=49°E, with down-to-the-east displacement of 1.4 ft.
- **M** Minor fault; discontinuous upwards; steepens into fracture zone.
- **N** Fault, strike=350°, dip=50°E, with down-to-the-east displacement of 0.4 ft., curviplanar.
- **O** Fault, strike=342°, dip=53°E, with down-to-the-east displacement of cumulative 0.9 ft with feature N.
- **P** Fault, strike=002°, dip=50°E, see feature N for displacement.
- **Q** Fault, strike=008°, dip=50°E, with down-to-the-east displacement of 0.5 ft.
- **R** Fault, strike=020°, dip=56°E, with down-to-the-east displacement of 0.2 ft.; steepens upwards into fracture zone.
- **S** Minor fault; steepens upwards into fracture zone.
- **T** Fault, strike=025°, dip=53°E, with down-to-the-east displacement of 0.2 ft.; curviplanar.
- **U** Vertical, ~1-cm-wide calcite-filled fractures.
- **V** Broad (~1.5-foot wavelength) soft sediment deformation features.

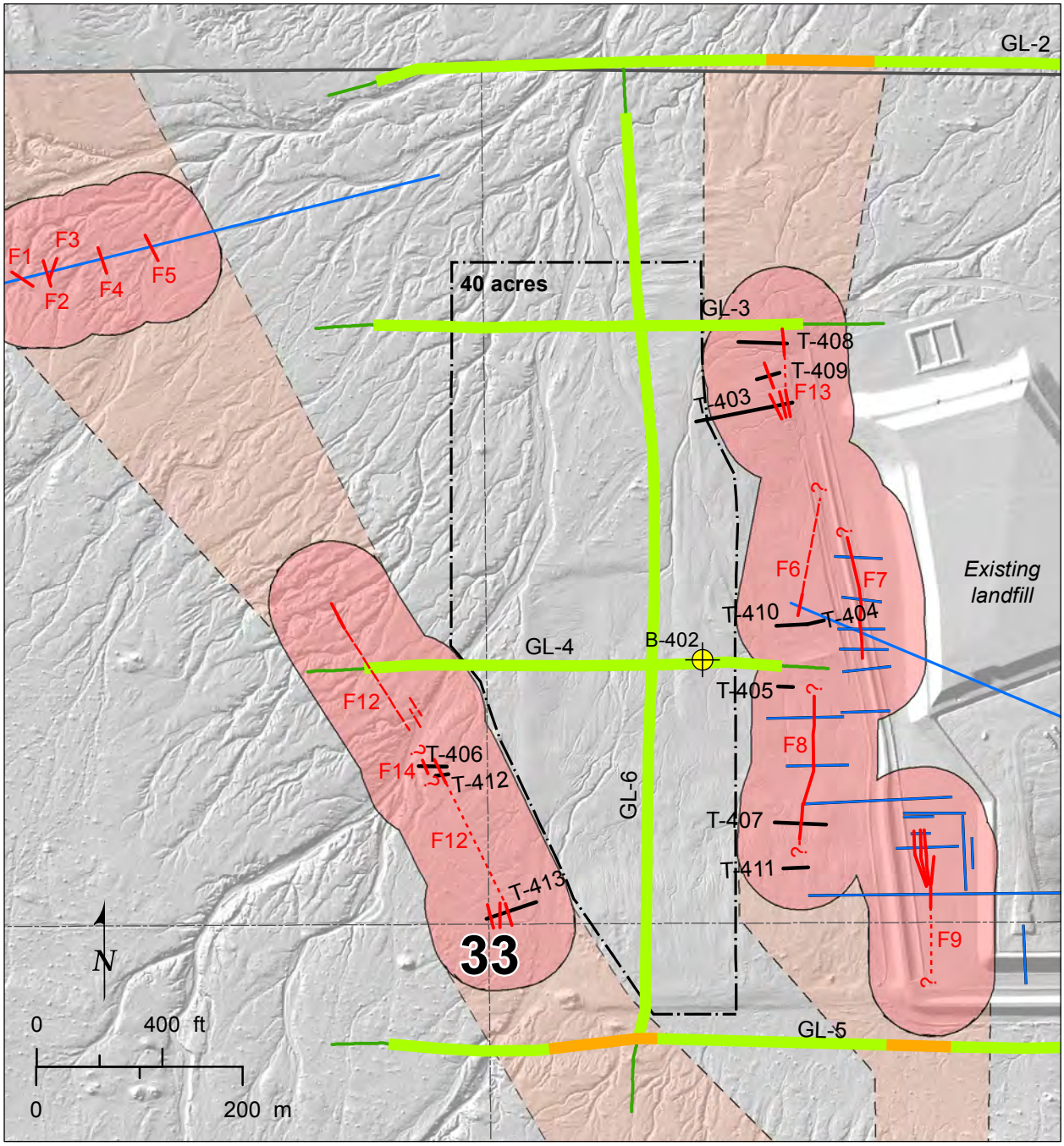
Contact, location approximate where dashed
Fault
Direction of displacement
800 Unit number keyed to Plate 9

Note: These logs document the south wall of the trench, and have been graphically reversed to read from west to east.



GEOLOGIC LOG OF TRENCH T-413

FIGURE 17



Hillshade base from Fugro 2018 LiDAR

Legend

- Calibration borehole
- 33 — Section 33, with quadrants
- T-403 — Trench, 2019
- Trench, Balderman 1988, 1989, 2002

Faults
(2019 studies; Balderman 1988, 1989, 2002)

- Exposed in trench or wash
- Interpreted from aerial imagery
- Inferred projection
- 200-ft fault setback area
- Fault avoidance zone

Seismic Reflection Results
(Fugro, PR-004)

- Potential faulting
- Absence of faulting
- GL-4 — Geophysical line, faulting not evaluated
- Recommended development area

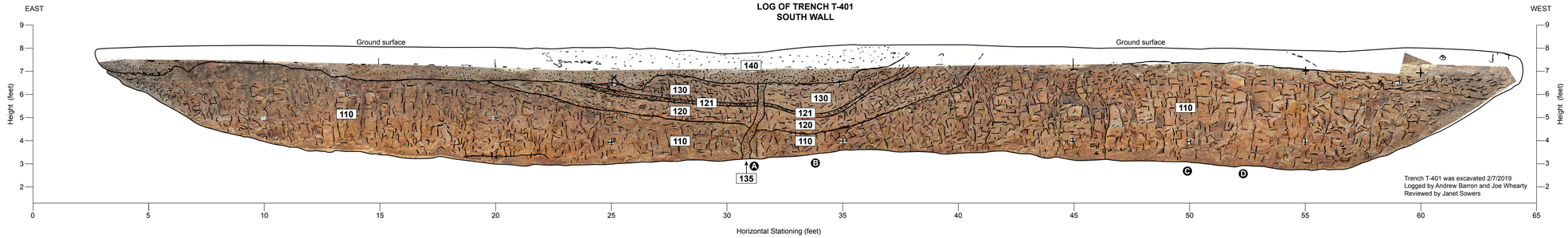
FAULT SETBACK AREAS

FIGURE 18

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Trenching_June2019\18_Fault_Setbacks.mxd; m.ticci; 6/14/2019

PLATES

LOG OF TRENCH T-401
SOUTH WALL



Legend

Unit Descriptions

Contact

Station 35

D Disturbed surface soils from trench excavation. Not logged.

140 SAND - Tan-gray (10YR 7/3m 8/2d), dry, unweathered, loose, rounded to sub rounded, poorly sorted, moderately well graded, fine to coarse grained with 10% fine rounded gravel, stratified, poorly consolidated.

135 SAND – Fine to medium grained, forming a sub-vertical dike, 1-3 inches thick, cutting through units 110, 120, and 130 and truncating at the base of unit 140.

130 Clayey SILT – Tan/light brown (7.5YR 7/2), moderate plasticity, laminated, cross-bedded, beds 3-5 cm thick. Bedding planes and sub-vertical fractures with fine grained clay infill. No offset along fractures.

121 CLAY – brown (7.5YR 4/2 to 5/2) 2-5 cm-thick interbed between similar units 120 and 130.

120 Clayey SILT – Tan/light brown (7.5YR 7/2), moderate plasticity, laminated, cross-bedded, beds 3-5 cm thick. Bedding planes and sub-vertical fractures with fine grained clay infill. No offset along fractures.

110 Silty CLAY - brown (7.5 YR 5/3 to 6/3 m), very fine-grained, well indurated, massive bedding, moderate plasticity, conchoidal fracturing, widely spaced vertical fractures with clay and gypsum infill (≤1-2 cm width). Sharp contact with overlying unit 120. Liquefaction features consist of sand dikes. Similar lithology to Unit 210 in T-402.

Feature Descriptions

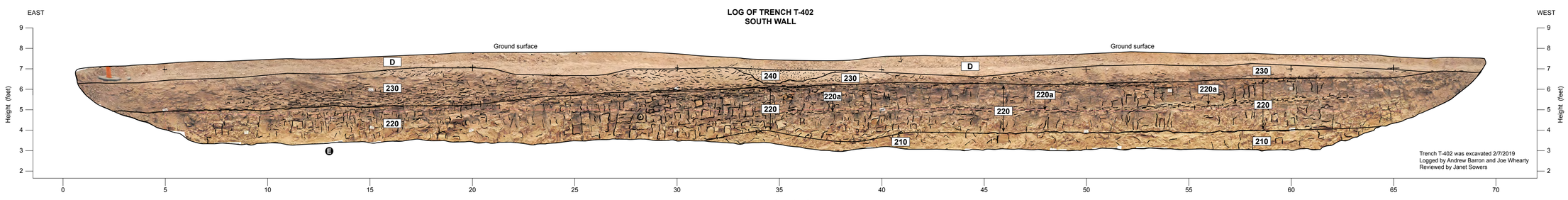
A Sand dike, strike=145˚, a tabular body of sand (unit 135) filling a vertical joint. Interpreted as the conduit for a sand blow from seismically-inducted liquefaction of deeper sand layers.

B Sag feature, 20-feet wide, interpreted as subsidence resulting from loss of material at depth from liquefaction-related sand blow.

C Sand-filled vertical fracture, < 1 cm thick. Possible liquefaction feature.

D Iron-stained ped and joint faces in the upper 1-ft. of unit 110.

LOG OF TRENCH T-402
SOUTH WALL



Legend

Unit Descriptions

Contact

Station 30 ft.

D Disturbed surface soils from trench excavation. Not logged.

240 SAND - very pale brown (10YR 7/3m 8/2d), fine to coarse, unweathered, very friable, laminated, non-sticky, non-plastic, abrupt lower contact. Fluvial deposits.

230 SILT – light brown (7.5 YR 5/3m), laminated, fine cross-bedding, friable, non-sticky, non-plastic, strong vertical joints 2-6" apart extend downward into unit 220.

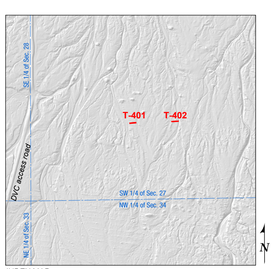
220 CLAY – brown (7.5YR 5/3m), silty, hard, massive bedding, sticky, plastic, prominent vertical joints, conchoidal fracture, weakly bedded, prominent silt interbed (unit 220a). In the upper 3" of this unit, a brownish yellow (10YR 6/6d) material coats the bedding planes and joint faces. The coating is <0.5mm thick and composed of weakly cemented silt, interpreted as iron-stained silt translocated from above and stained by perched groundwater. The coating extends downward along the face of vertical joints as deep as 1 ft. below the upper contact. Some joint faces are coated with a light greenish gray mineralization (Gley 1 7/2). Vertical joints in this unit are in places filled with 2-5 cm thick sand dikes, gypsum cemented sand, or crystalline gypsum.

220a SILT – light brown (7.5 YR 6/3 m) and silty CLAY, brown (7.5 YR 5/3 m), moderately hard, finely laminated lacustrine deposit forming a discontinuous 0.4 ft-thick interbed within unit 220.

210 Clayey SILT – brown (7.5 YR 5/3m to 6/3 m), hard, massive, slightly sticky, slightly plastic, strong vertical joins, vertically continuous with the more prominent joints in Unit 202, conchoidal fracture, Estimated 25% clay, 75% silt.

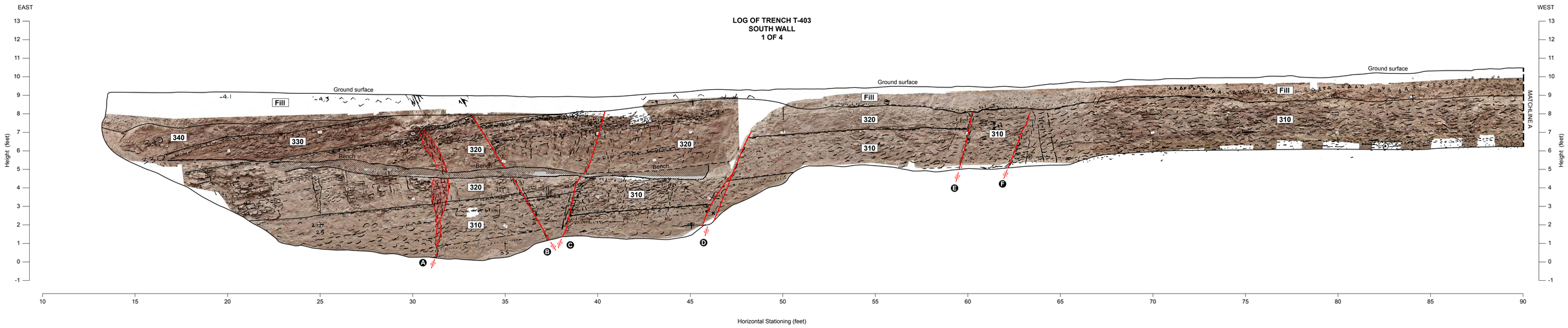
Feature Descriptions

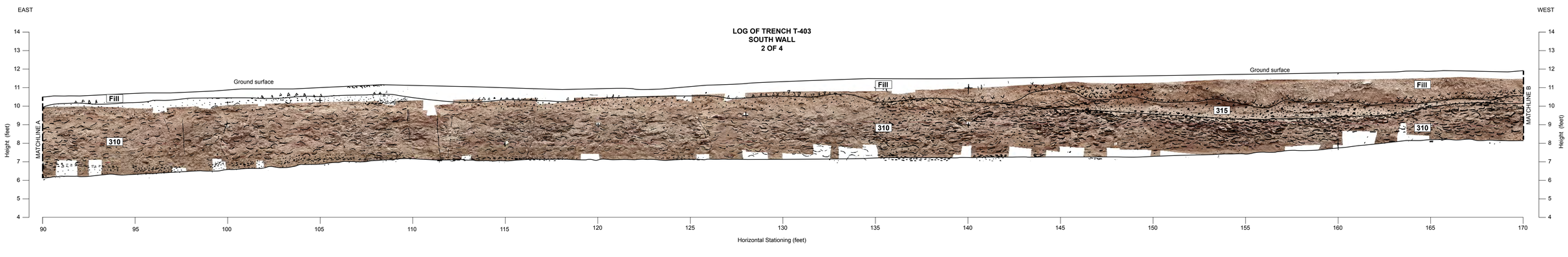
E Gypsum-filled vertical fracture 1-2 cm wide.

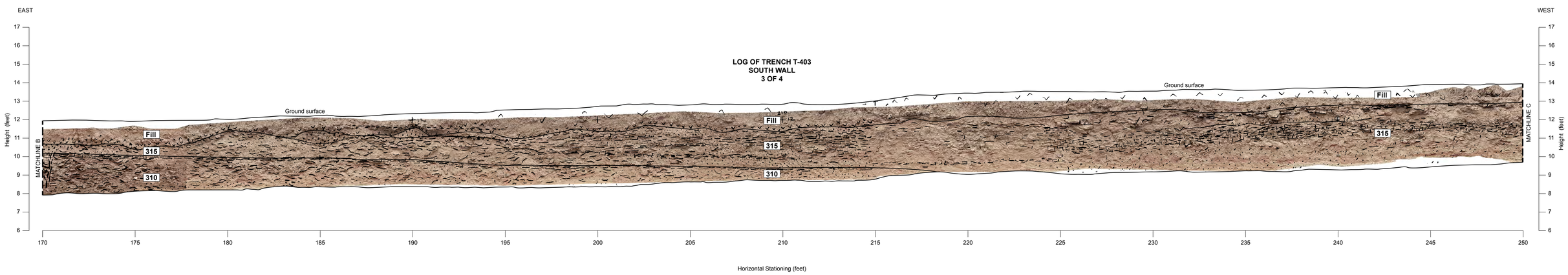


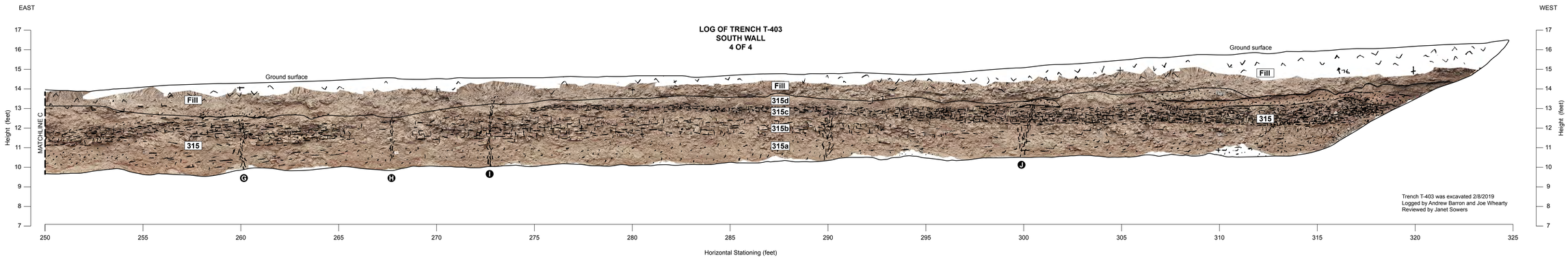
PHOTOGRAPHIC LOG OF TRENCHES T-401 AND T-402

PLATE 1









Legend

Contact

Fault

Direction of displacement

Fault zone

Unit Descriptions

Stations 20 to 30 ft.:

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

340 Unit 340 – Interbedded clayey SILT and silty CLAY

330 Unit 330 – SAND – brown (7.5 YR 5/3m), fine to very fine, firm to friable, laminated and cross bedded, non-sticky, non-plastic.

320 Unit 320 – Clayey SILT – brown (7.5 YR 5/3m), with interbeds of light brown SILT as in Unit 310, and thin interbeds of silt CLAY, brown (7.5 YR 5/3m) ½" to 2" thick. Base is marked by a ½" thick clay bed; top is marked by a 3" thick double-clay layer, prominent in photos. Strong vertical joints 6 to 12" apart.

310 Unit 310 – SILT- light brown (7.5 YR 6/3m), laminated and finely cross bedded, massive, very friable, non-sticky, non-plastic.

Station 290 ft.:

310d Unit 310d – SAND – brown (7.5 YR 5/3m) fine to coarse, silty, loose to very friable, non-sticky, non-plastic, weakly stratified.

310c Unit 310c – CLAY – brown (7.5 YR 5/4m, 5/4d), hard, laminated with this (≤1" thick) silt layers, sticky, plastic. Unit forms distinct dark strata in trench wall. Local greenish gray mineralization coating on ped faces, breaks into angular fragments (¼" – 1" diameter) along bedding planes and vertical joints.

310b Unit 310b – Clayey SILT – brown (7.5 YR 5/4m, 7/3d), moderately hard, very slightly sticky, slightly plastic, breaks into blocks along bedding planes and vertical joints, 1" – 4" in size.

310a Unit 310a – SILT – brown (7.5 YR 5/4m 7/3d), very friable, laminated, cross bedded, non-sticky, non-plastic, lacks the vertical jointing of Unit 315.

Feature Descriptions

A Fault, subvertical zone of fracturing up to 1 ft. wide, with down-to-the-east displacement of 0.5 ft.

B Fault, strike=159°, dip=63°W, with down-to-the-west displacement of 0.5 ft.

C Fault, strike=345°, dip=77°E, with down-to-the-east displacement of 1.7 ft.

D Fault, strike=338°, dip=64°E, with down-to-the-east displacement of 1.35 ft.

E Fault, dip ~75°E, with down-to-the-east displacement

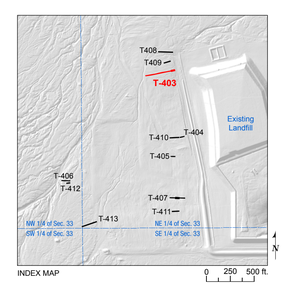
F Fault, dip ~70°E, with down-to-the-east displacement

G Vertical fracture, no displacement.

H Vertical fracture, no displacement.

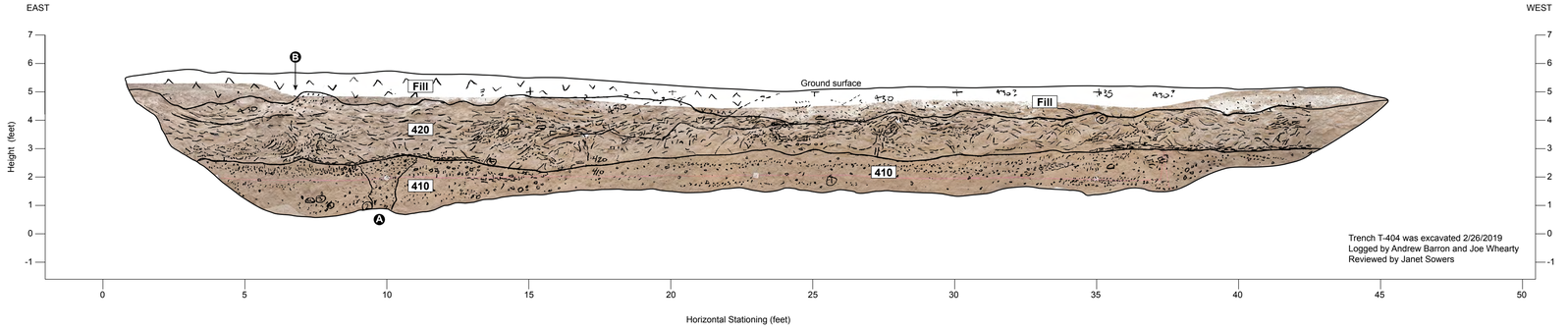
I Vertical fracture, no displacement.

J Vertical fracture, no displacement.



PHOTOGRAPHIC LOG OF TRENCH T-403

LOG OF TRENCH T-404
SOUTH WALL



Legend

Contact

Unit Descriptions

Station 17, 3.5

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

420 SAND with SILT - Light brown (7.5 YR 6/3 m) fine grained sand, well rounded, 55% sand 45% silt, poorly consolidated and indurated, localities of very hard, well indurated silt, wavy and clear contact with unit 410. Laminar and wavy bedding common. Widely spaced sub-vertical fractures with no infill or offset observed. Irregular and uncertain contact with overlying fill, rare-minor occurrences of clay rip-up clasts and sand dikes.

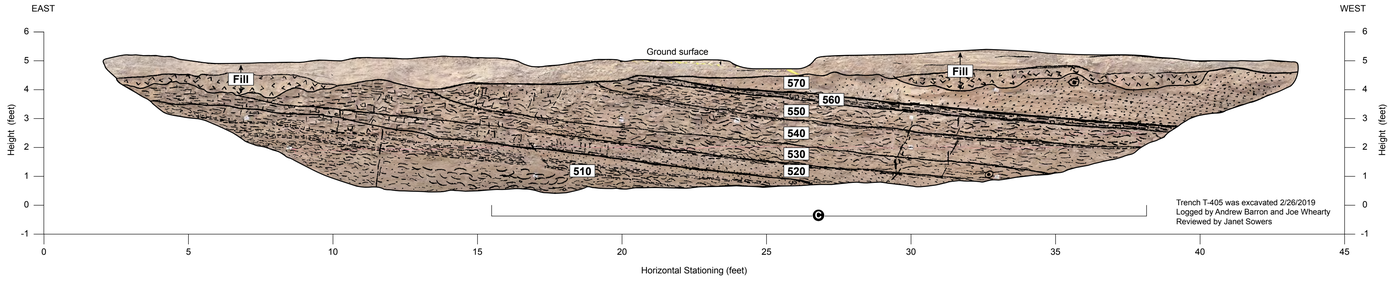
410 SAND with SILT and GRAVEL – brown (m) to light brown (d) (7.5 YR 4/4m, 6/3d), dry, fine – coarse grained sand, sub-rounded-angular clasts, 60% sand, 30% silt, 10% gravel, moderately consolidated, massive bedding, contact with unit 420 is wavy and clear. Sand dike features present.

Feature Descriptions

A Body of sand, 1-2 ft.-wide, cuts vertically through unit 410 and is truncated at the base of unit 420. Interpreted as a sand dike from seismically-inducted liquefaction.

B Bedding throughout unit 420 is highly disrupted and deformed. Interpreted as the result of seismically-induced liquefaction and soft sediment deformation.

LOG OF TRENCH T-405
SOUTH WALL



Legend

Contact

Unit Descriptions

Station 26

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

570 SAND – brown (m) to pink (d) (YR 5/6m, 7/3d). Loos to very friable. Distinct marker bed: CLAY and SILT with whitish carbonate coating on the top.

560 CLAY - brown (7.5YR 4/4d, 5/4m), very hard, breaks into angular blocks ¼ - ¾ inches, very sticky, very plastic, forms distinct horizon.

550 SAND – brown (m) to pink (d) (7.5 YR 5/4m, 7/3d), hard, fine to very fine grained, slightly clayey, slightly sticky, slightly plastic, laminated, breaks along bedding planes and joints to form slabs ½ - 2 inches thick.

540 SILT - brown (m) to pink (d) (7.5 YR 5/4m, 7/3d), moderately hard, thinly bedded, planar joints, very slightly sticky, slightly plastic, breaks into blocky slabs.

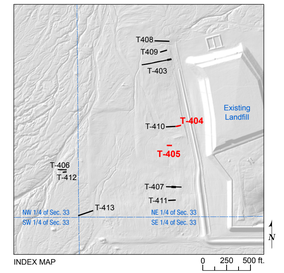
530 SAND – brown (m) to pink (d) (7.5 YR 5/4m, 7/3d), fine to very fine grained, slightly hard, non-sticky, non-plastic, laminated bedding with crossbedding.

520 SILT - brown (m) to pink (d) (7.5 YR 5/4m, 7/3d), slightly sticky, slightly plastic, blocky with planar joints. Unit grades to clean silt in lower half.

510 SILT - brown (m) to pink (d) (7.5 YR 5/4m, 7/3d), moderately hard, non-sticky, non-plastic, massive to laminated bedding, upper boundary is a ½" thick layer of clay.

Feature Descriptions

C Planar bedding dips 5-6˚ west in the plane of the trench wall. Dip decreases to the east.



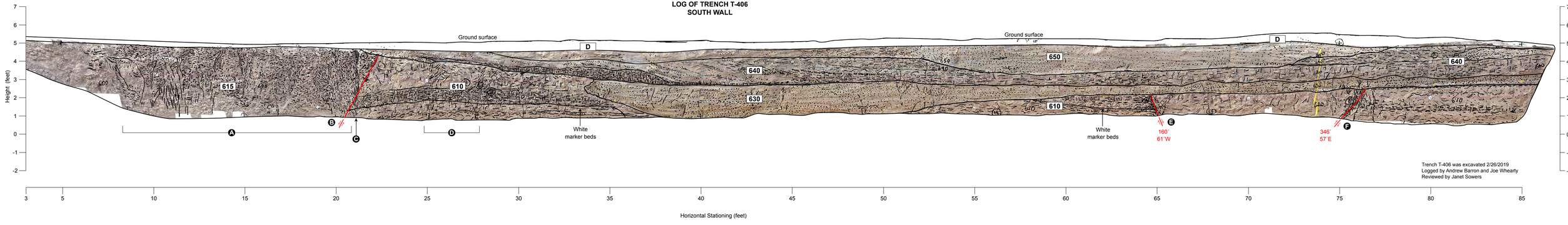
PHOTOGRAPHIC LOG OF TRENCHES T-404 AND T-405

PLATE 3

EAST

WEST

LOG OF TRENCH T-406
SOUTH WALL



Trench T-406 was excavated 2/26/2019
Logged by Andrew Barron and Joe Wheatry
Reviewed by Janet Sowers

Legend

Contact

Fault

Direction of displacement

Unit Descriptions

Station 74:

D Disturbed surface soils from trench excavation. Not logged.

650 SAND - brown (m) to light brown (d) (7.5 YR 5/4m, 6/3d) fine to coarse, stratified, soft to slightly hard, non-sticky, non-plastic, grains are quartz and other granitic minerals with traces of gastropod shells. Lower 0.3 feet is highly micaceous (biotite). Lacustrine deposits, coarse deltaic facies.

640 Silty CLAY - brown (m) to light brown (d) (7.5 YR 4/4m, 6/3d), hard, sticky, plastic, bedded and jointed, breaks into blocks. Thickens to the east to include cross bedded silts. Lacustrine deposits.

630 SAND brown (m) to light brown (d) (7.5 YR 5/4m, 7/3d), medium to fine grained, slightly hard to soft, non-sticky, non-plastic, planar bedding planes, grains dominantly quartz with other granitic minerals, larger grains rounded. Channel deposit inset into units 610 and 620, lacustrine origin, coarse deltaic facies,

620 Silty CLAY to Clayey SILT - brown (m) to light brown (d) (7.5 YR 4/4m, 6/3d), hard to slightly hard, sticky, plastic, bedded and jointed, breaks into blocky chunks. Silt increases at base of unit.

Station 10:

615 **Upper section:** SILT and CLAY with SAND – Tan to light brown (7.5 YR 7/1 6/3), fine grained, sub-rounded-rounded clasts, well indurated, massive to thinly bedded, bedding planes irregular, gradual transition to thin bedding, widely spaced sub-vertical fractures 1-2 cm wide, many filled with sand. Sand dikes present throughout.

Lower section: CLAY with SILT – brown (7.5YR 4/4d), fine grained, friable, thin bedding planes, heavily fractured, irregular bedding contacts, gradual contact with upper section, sand dikes present throughout.

Station 30:

610 SILT with SAND - brown (m) to light brown (d) (7.5 YR 5/4m, 6/3d), fine grained, friable, poorly indurated and loose, laminar bedding, crossbedding, sharp contacts with interbedded clay layers. Vertical joints about 2 feet apart filled with sand.

Interbedded CLAY layer - brown (7.5 YR 4/4 m), fine grained, 5-20 cm thick, closely spaced vertical joints and bedding plane joints, breaks into small angular blocks, sharp, planar lower contact. A thin (~0.3 inch) white clay marker bed follows the base from station 21 to 36, and station 60 to 65.

Feature Descriptions

A Twelve-foot-wide zone of closely spaced vertical fractures, 0.5 to 1.5 feet apart. Most are filled with sand. Possible sand dikes. The zone appears highly disturbed and original bedding is difficult to discern.

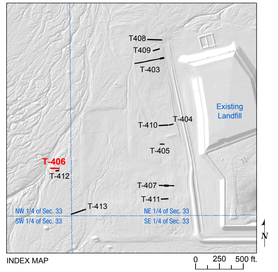
B Fault, juxtaposing units 610 and 615. Sense of vertical displacement is unclear from the exposure, but is assumed to be east-side-down similar to the fault in T-412.

C Prominent vertical fracture, open, filled with sand.

D Vertical fractures filled with sand

E Fault, strike=161°, dip 61°W, west-side-down. The thin white marker bed within unit 610 abruptly terminates against this fault. This fault truncates at the base of unit 630. Vertical displacement could not be determined.

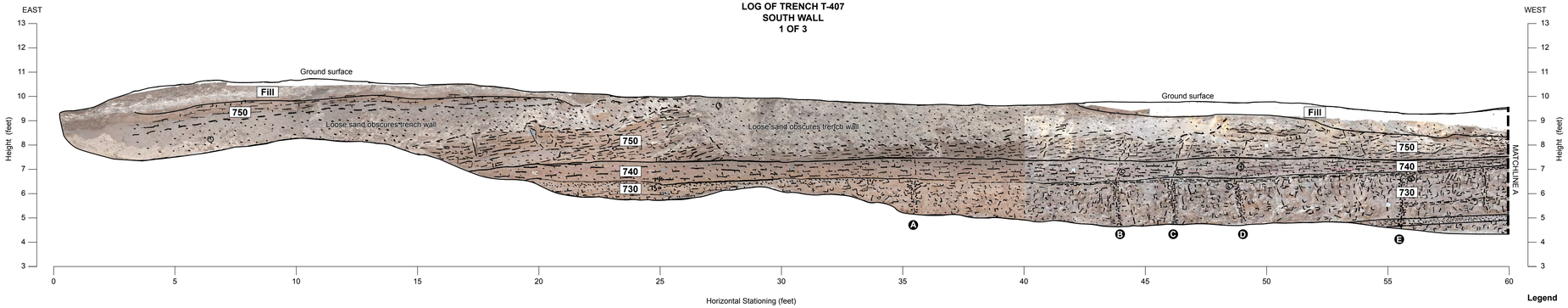
F Fault, strike=346° dip 57°E, east-side-down. This fault truncates at the base of unit 630. Vertical displacement could not be determined. Faults D and E form the boundaries of a small graben.



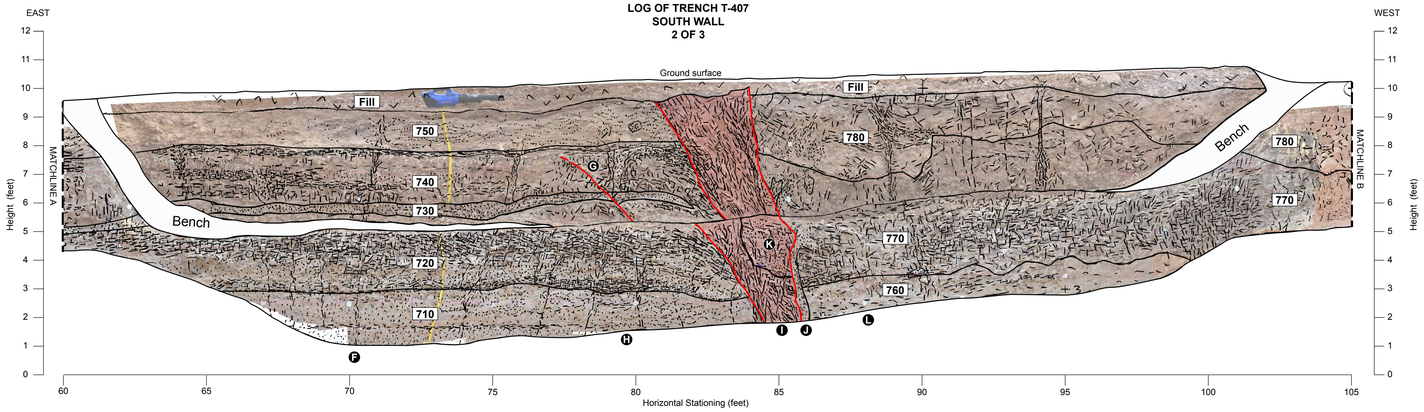
PHOTOGRAPHIC LOG OF TRENCH T-406

PLATE 4

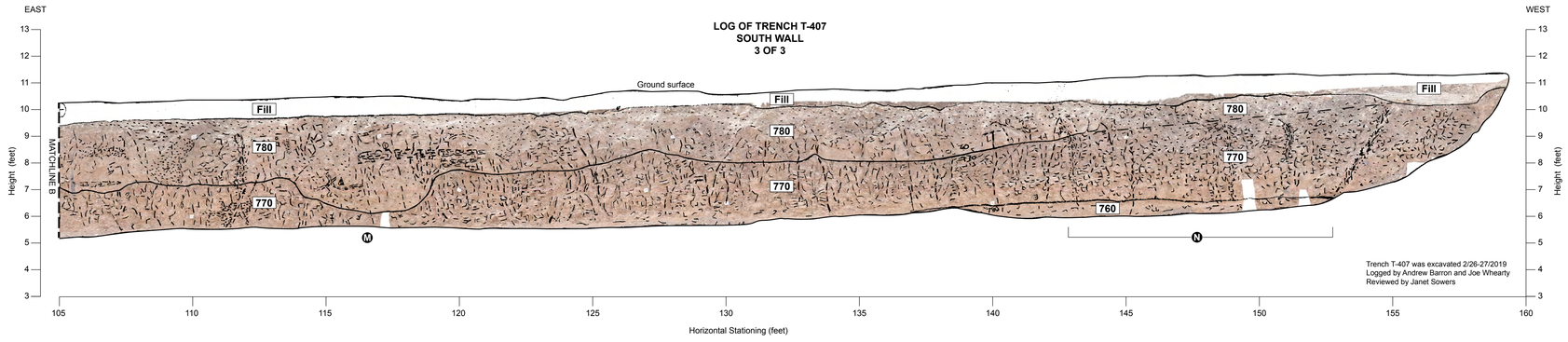
LOG OF TRENCH T-407
SOUTH WALL
1 OF 3



LOG OF TRENCH T-407
SOUTH WALL
2 OF 3



LOG OF TRENCH T-407
SOUTH WALL
3 OF 3



Trench T-407 was excavated 2/26-27/2019
Logged by Andrew Barron and Joe Whearty
Reviewed by Janet Sowers

Legend

Contact

Fault

Fault zone

Unit Descriptions

Station 73:

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

750 SAND - brown (m) to light brown (d) (7.5 YR 4/4m, 6/3d), soft, non-sticky, non-plastic, laminated, fine grained sand, well sorted, planar to crossbedded.

740 CLAY – reddish brown to light reddish brown (5 YR 5/3 m, 6/3 d), hard to very hard, very sticky, very plastic. Breaks into sharp angular blocks, some joints coated in shiny clay films. Unit includes a light brown silty clay bed.

730 SAND - brown (m) to light brown (d) (7.5 YR 5/3 m, 6/3 d), slightly hard to soft, fine to medium grained, non-sticky, non-plastic, stratified.

720 CLAY - brown (m,d) (7.5 YR 4/4 m, 5/4 d) with silty clay beds, hard to very hard, laminated, sticky, plastic, breaks along bedding planes and sub-vertical joints.

710 SILT – brown (m) to light brown (d) (7.5 YR 5/3 m, 6/3 d), slightly hard, massive to thinly bedded, non-sticky, non-plastic. Disseminated fine micaceous sand includes 1" thick laminated clay/silty clay bed.

Station 140:

760 SILT, brown (m) to pine (d) (7.5YR 5/4m, 7/3d), hard to slightly hard, stilghtly sticky, slightly plastic, somewhat clayey to clayey, massive.

770 CLAY, reddish brown (m) to light brown (d) (5YR 5/4m, 7.5YR 6/3d) hard, very sticky, very plastic, thinly bedded (0.5 t-15."), strong vertical joints 2-5" apart. Some vertical joints coated/filled with coarse to medium sand. Contact with overlying unit is irregular, probably due to erosion

780 Silty CLAY, brown (m) to pink (d) (7.5 YR 5/4m to 7/3d), hard, sticky, slightly plastic, thinly bedded, well jointed similar to unit 770. Vertical joints are typically continuous with those in units 760 and 770.

Feature Descriptions

A Vertical fracture filled with sand. No displacement.

B Vertical fracture filled with sand. No displacement.

C Vertical fracture filled with sand. No displacement.

D Vertical fracture filled with sand. No displacement.

E Vertical fracture filled with sand. No displacement.

F Vertical fracture filled with sand. No displacement.

G Sand dikes and minor secondary fault.

H Down-warping of strata within a 3-foot-wide zone west of the main fault zone.

I Fault, shear zone consisting of multiple sub-vertical shears separating contrasting slices of material and sand dikes within a 2- to 3-foot-wide zone. Strike = 187°, dip = 51°W. Total displacement cannot be measured but exceeds 9 feet as unit 750 is not observed in the wall west side of the fault zone.

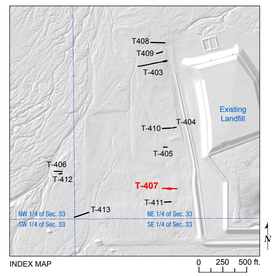
J Sand dike, 3 inches wide, with medium to coarse sand filling the fracture and coating joint faces.

K Body of laminated sand dipping 30°E, trapped within the fault zone at a height of 4-5 feet. Matches the laminated sand of unit 750 which located at a height of 8-9 feet, suggesting vertical displacement of this material about 4 feet down-to-the-west.

L Multiple small sand dikes and sand coating fractures within a 3-foot-wide zone east of the main fault, accompanied by up-warping of strata.

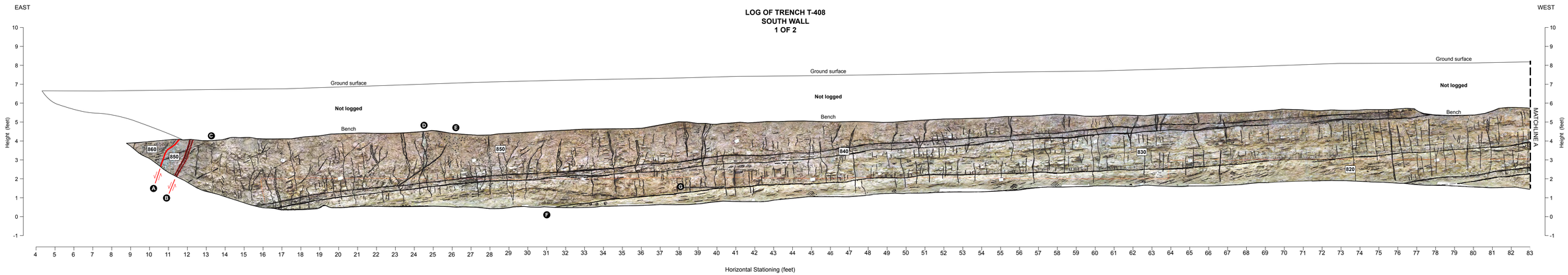
M Curved basal contact of unit 780 is interpreted as a channel feature eroded into the top of unit 770.

N Zone of vertical fractures, 2 to 3 feet apart, many filled with sand. No displacement.

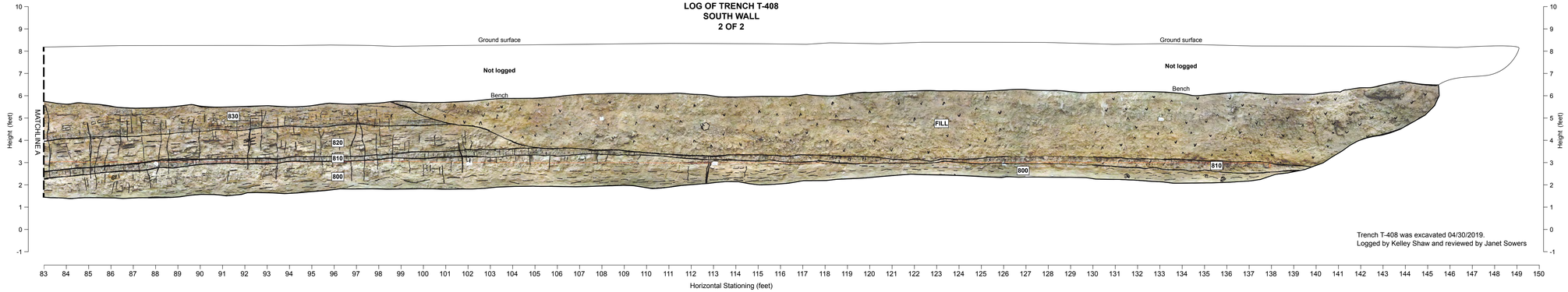


PHOTOGRAPHIC LOG OF TRENCH T-407

LOG OF TRENCH T-408
SOUTH WALL
1 OF 2



LOG OF TRENCH T-408
SOUTH WALL
2 OF 2



Trench T-408 was excavated 04/30/2019.
Logged by Kelley Shaw and reviewed by Janet Sowers

Legend

Unit Descriptions

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

860 SAND: fine-grained; thinly bedded

850 CLAY: pale brown (10YR 6/3 d), dark yellowish brown (10YR 4/4 m); hard, plastic, sticky; blocky; locally thinly bedded to laminated; sand coating along joints; slickensides on joint faces

840 CLAY with silt: brown (10YR 5/3 d), dark yellowish brown (10YR 4/4 m); plastic, sticky; pervasive sub-horizontal platy fractures.

830 Sandy CLAY: light brown (7.5YR 6/3d), brown (7.5YR 5/4m), hard, plastic, sticky; massive, locally occurring lenses of very fine sand/silt.

820 SILT: very pale brown (10YR 7/3 d), light brown (7.5YR 6/4 m); hard, non-sticky, slightly plastic; laminated to thinly bedded, trough crossbedding (2-4 cm max thickness).

810 CLAY with silt: very pale brown (10YR 7/3 d), light yellowish brown (10YR 6/4 m); very hard, plastic, sticky; laminated; moderately blocky vertical fracturing.

800 SILT: very pale brown (10YR 7/3 d), dark yellowish brown (10YR 4/4 m); weakly indurated, non- plastic, sticky; laminated trough cross-beds to thinly bedded, planar laminated toward upper contact; soft sediment deformation (flame structures) present.

Feature Descriptions

A Fault, strike=1°, dip=65°, down-to-the-east displacement. Fault juxtaposes unit 850 with fine- to medium-grained SAND unit 860. Total vertical displacement could not be determined.

B Shear zone, strike=4°, dip=76°. 5 cm wide zone of sheared fabric aligned with dip of the zone. Amount of vertical displacement could not be determined.

C Fracture, slickensides on face.

D Light greenish gray clay, ~1 inch thick, lines vertical joint.

E East-dipping fracture with slickensides, no displacement of 830/840 contact, possibly due to shrink-swell.

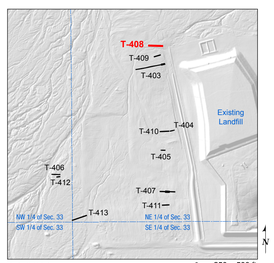
F Prominent joints east of this point vary in dip and orientation. Joints west of this point are consistently vertical. Many joints are fractures filled with sand.

G Black, hard, 1 mm thick coating on joint face, manganese staining (?),4 ft long, 0.5 inches wide.

Contact
Fault
Direction of displacement
Fault zone

Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.

View east of T-408



PHOTOGRAPHIC LOG OF TRENCH T-408

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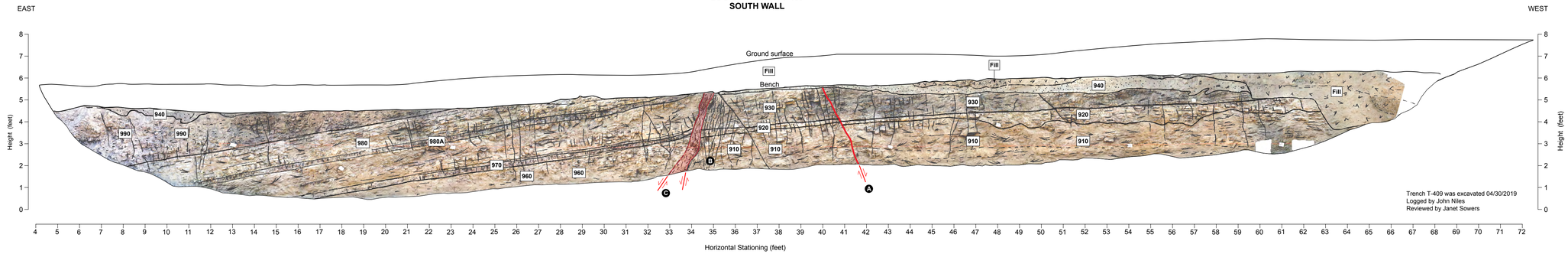
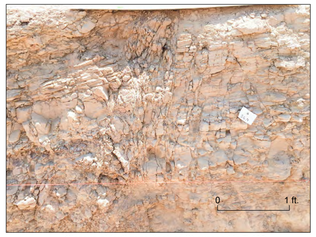
D-69
Fugro Document No. 04.72170065-PR-006

LOG OF TRENCH T-409
SOUTH WALL





Closeup of fault zone (feature C) exposed in T-409

Legend

Unit Descriptions

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

990 CLAY: pale brown (10YR 6/3 d), brown (10YR m); hard, sticky, plastic; intensely fractured; no observable sedimentary structure; exhibits blocky jointing; vertical fractures present.

980 Silty CLAY: light yellowish brown (10YR 6/3 d), yellowish brown (10YR 5/4 m); hard to friable, sticky; planar laminated to cross-laminated. Unit includes an ~2-inch-thick clay bed (980a).

970 CLAY: pale brown (10YR 6/3 d), light yellowish brown (10YR 6/4 m); very hard, sticky, plastic; to moderately bedded; light gray planar laminations, white to very light bluish banding.

960 SILT: very pale brown (10YR 7/3 m), brown (10YR 5/3 m); non- to slightly plastic, sticky; weakly indurated, friable; small-scale cross-laminations.

940 Silty SAND with fine GRAVEL; very pale brown (10YR 7/3d), dark yellowish brown (10YR 4/4m), loose; fine- to coarse-grained sand; non-plastic, non-sticky; sand and gravels consist of sub-angular to subrounded quartz and other granite-derived grains; matrix-supported; massive to indistinctly trough cross-bedded; fluvial

930 SILT with fine-grained SAND: light yellowish brown (10YR d), dark yellowish brown (10YR 4/6 m); weakly indurated to loose, sticky, laminated to thinly bedded; broad crossbedding; continuous thin, dark, laminated marker bed at basal contact.

920 SILTY CLAY: very pale brown (10YR 8/3 d), brown (10YR 5/3 m); moderately indurated, hard, sticky, plastic, massive to thinly bedded; laminated near basal contact; variable lateral thickness; inset into unit 910.

910 SILT with fine-grained sand: pale brown (10YR 6/3 d), light yellowish brown (10YR 6/4 m); includes a ~3-inch-thick, very light-colored interval ~1 foot from upper bounding contact.

Feature Descriptions

A Fault, strike=158°, dip=65°W, with ~0.2 ft of down-to-the-west displacement.

B Zone of closely spaced vertical fractures; no vertical displacement observed.

C Fault zone; strike measured from string line connecting fault exposures in facing trench walls=340°; approximate dip taken from fault exposure=70°E; with a minimum of 4 ft of down-to-the-east displacement; discrete fault planes bound an 0.4 to 1.0-ft-wide zone of intense, non-systematic fracturing.

Contact

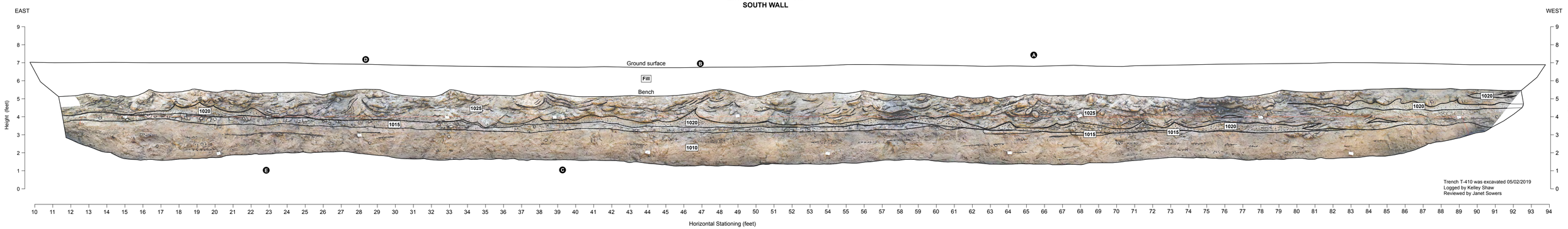
Fault

Direction of displacement

Fault zone

Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.

LOG OF TRENCH T-410
SOUTH WALL



View west of T-410

Legend

Unit Descriptions

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

1025 SAND with SILT and CLAY: pale brown (10YR 7/3 d), light yellowish brown (10YR 6/4 m), fine- to medium-grained; moderately indurated, localities of very hard, well indurated silt; irregular bedding; fractures into lenticular fin-shapes, soft sediment deformation (flame structures) common.

1020 SAND: very pale brown (10YR 8/3 d), light yellowish brown (10YR 6/4 m), well sorted fine-grained sand; loose; flame structures common, irregular upper contact.

1015 Clayey SAND: light gray (10YR 7/2 d), very pale brown (10YR 7/4 m); very hard, slightly sticky, low plasticity; blocky fracturing; variable thickness.

1010 SAND with SILT and GRAVEL: very pale brown (10YR 7/4d), brown to yellowish brown (10YR 5/3 5/4m); primarily fine-grained sand with medium- to coarse-grained lenses, weak stratification to massive; moderately consolidated to loose; slightly sticky, slightly plastic; granular to cobble, sub-rounded to sub-angular gravel; matrix supported; contact with overlying unit is planar and locally undulatory. Debris flow deposit?

Feature Descriptions

A Hard rounded blocks of gravely silty sandy, bedding flows around.

B Large flame structure in unit 1020

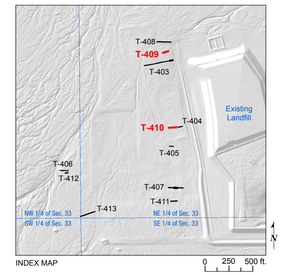
C Charcoal in the base of unit 1015 and unit 1010, 2 pieces, 1.0 - 0.5 inches in size.

D Large flame structure in unit 1025

E Planar bedding of more indurated materials.

Contact

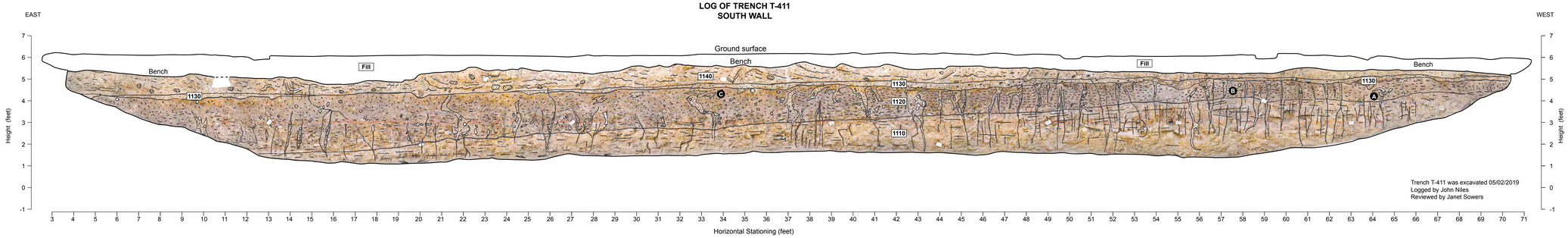
Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.

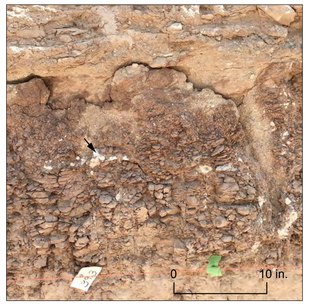


PHOTOGRAPHIC LOG OF TRENCHES T-409 AND T-410

PLATE 7

LOG OF TRENCH T-411
SOUTH WALL





Closeup of Unit 1120 in T-411 showing clasts of white lapilli tuff (arrow).

Legend

Unit Descriptions

Fill Fill from historical grading activities and disturbed surface soils from trench excavation. Not logged.

1130 Clayey SAND with GRAVEL: poorly sorted; pale brown matrix (10YR 6/4 d), dark yellowish brown (10YR 4/4 m); moderately indurated, moderately hard; no-sedimentary structure or grading observed; sub-angular to sub-rounded; trace lapilli tuff nodules.

1120 CLAY: light yellowish brown on fresh surfaces (10YR 6/4 d), yellowish brown (10YR 5/4 m); closely spaced, blocky, vertical and bedding plane joints, vertically and along bedding planes; scattered white lapilli throughout, 0.2 to 4 inches in diameter concentrated along fractures; lapilli are hard, subrounded clasts composed of very fine-grained, altered ash with biotite flakes. friable; pervasive, upward-widening fractures infilled with poorly-sorted sand and white lapilli.

1110 Clayey SILT: pale brown (10YR 6/3 d), light yellowish brown (10YR 6/4 m); plastic, sticky, hard, friable; massive to laminated; soft-sediment deformation of laminated strata; wavy upper bounding contact, blocky fracturing.

Feature Descriptions

A Clastic dikes or fractures filled with poorly sorted sand, tephra lapilli, and gastropod shells; fractures exhibit a generally upward opening, extensional geometry, though are anastomosing and / or lensoid in three dimensions. Vertical fractures are abundant in unit 1120, and terminate downward within unit 1110. Vertical displacement was not observed. Anastomosing sand bodies are interpreted as small-scale soft-sediment deformation structures.

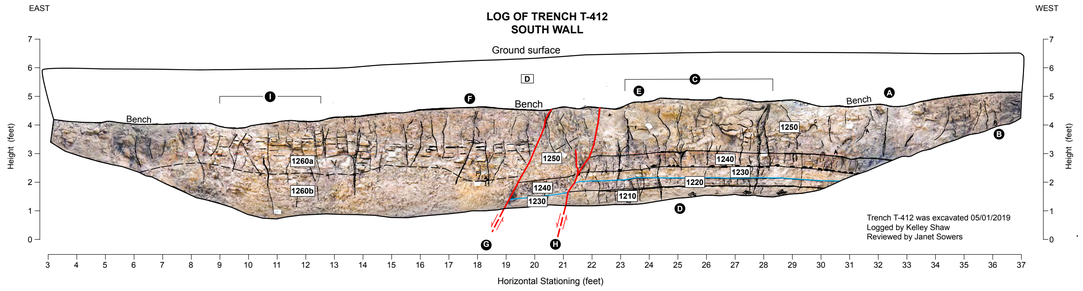
B Concave upward jointing of Unit 1120 between infilled fissures.

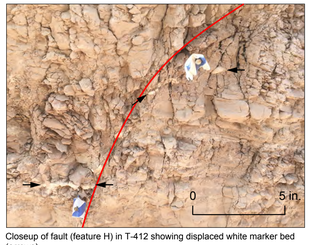
C Pervasive, blocky, non-systematic jointing of unit 1120.

Contact

Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.

LOG OF TRENCH T-412
SOUTH WALL





Closeup of fault (feature H) in T-412 showing displaced white marker bed (arrows).

Legend

Unit Descriptions

D Surface soils disturbed during excavation. Not logged.

1260a **Upper section:** Silty CLAY with sand: very pale brown (10 YR 7/3d), yellowish brown (10YR 5/4 m; fine grained, sub-rounded-rounded sand grains, hard, massive to thinly bedded, gradual transition to thin bedding, widely spaced sub-vertical fractures 1-2 cm wide, many filled with sand. breaks into angular platy blocks.

1260b **Lower section:** Clayey SILT: very pale brown (10 YR 8/3d), yellowish brown (10YR 5/4 m); friable; thinly bedded, locally massive to strongly jointed; irregular bedding contacts; gradational with upper section.

1250 SILT with sand: very pale brown (10YR 7/4d), brown to light yellowish brown (10YR 5/3 5/4m); friable; massive; irregular or convolute bedding; breaks into large (5–30 cm) ellipsoidal blocks with sandy silt-filled fissures wrapping around blocks, possibly a result of soft sediment deformation.

1240 CLAY: pink (7.5YR 7/3 d), brown (7.5YR 5/3 m); breaks into angular elongate. Base of unit is a marker bed composed of semi-continuous subrounded to rounded white clasts, possibly tephra.

1230 SILT with sand: very pale brown (10YR 7/4 d), brown to light yellowish brown (10YR 5/3 5/4 m); more massive than unit 1210; blocky fractures common.

1220 CLAY: pink (7.5YR 7/3 d), brown (7.5YR 5/3 m), hard, breaks into angular elongate blocks, thin planar bedding with light colored laminae.

1210 SILT: very pale brown (10YR 7/4 d), brown to light yellowish brown (10YR 5/3 5/4 m); friable; thinly bedded, fine trough cross-bedding; sharp, planar upper contact.

Feature Descriptions

A Vertical Fissure <3cm wide filled with coarse- to fine-grained SAND

B Surficial coating on joint face of fine- to medium-grained SAND with shells 3 mm in size.

C Ellipsoid fracture pattern in unit 1250, fractures filled with sandy silt, soft sed deformation.

D Funnel shaped fissure in unit 1240, filled with sand.

E Orange staining in unit 1250, oxidation?

F Crystallization on surface of blocks, 2 mm in size. Gypsum?

G Fault, strike=025˚, dip 65˚, east side down. Thin white marker bed along the base of unit 1240 abruptly terminates against this fault, cannot correlate units across the feature. Total vertical displacement could not be determined; minimum displacement is 0.8 feet.

H Fault, strike=007˚E, dip 61˚E, east side down, 0.6 ft vertical displacement measured along unit 1240 basal contact/marker bed.

I Zone of 0.5 cm wide vertical fractures

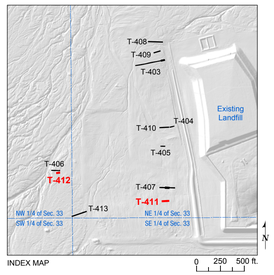
White marker beds

Contact, location approximate where dashed

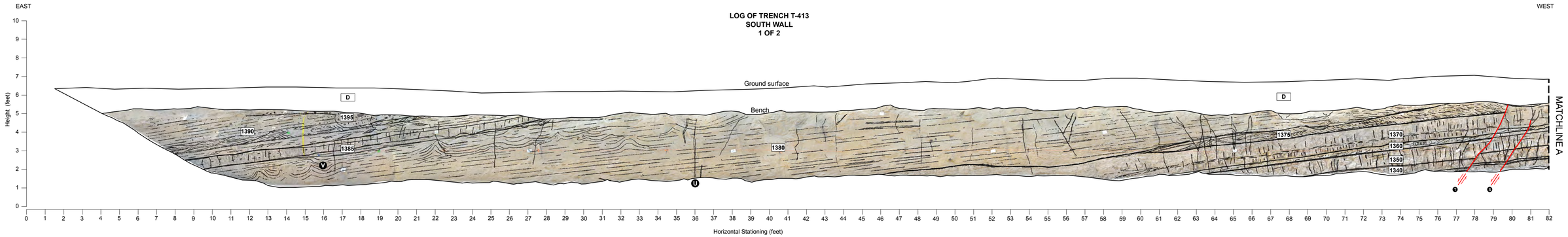
Fault

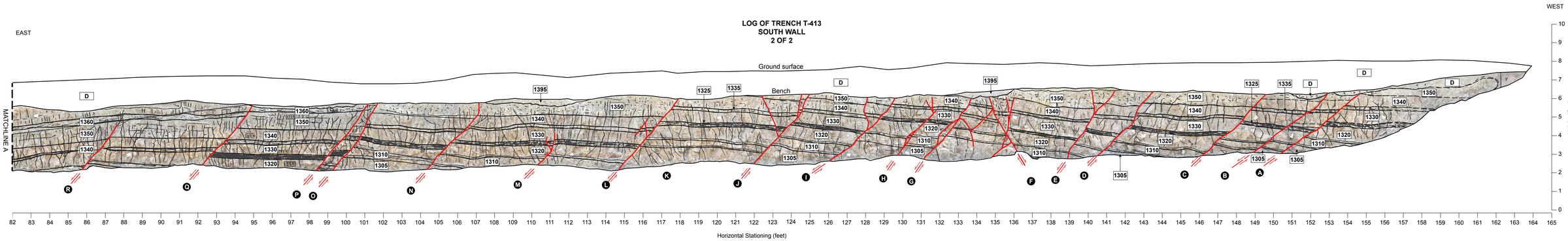
Direction of displacement

Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.



PHOTOGRAPHIC LOG OF TRENCHES T-411 AND T-412





View of T-413 looking west

Legend

Unit Descriptions

D	Disturbed surface soils from trench excavation. Not logged.
1395	SAND with GRAVEL: poorly sorted, fine- to coarse-grained; pale brown to gray; weakly indurated to loose; dominantly quartz; surficial fluvial / marginal lacustrine deposits; inset into unit 1390.
1390	Silty SAND: very fine- to fine-grained; pale brown to light brown (d); brown (m); weakly indurated to loose (m); laminated to cross-laminated.
1385	Silty CLAY: pale brown (10YR 7/3 d); brown (10YR 5/3m); sticky, low plasticity (m); no sedimentary structure observed; 1-2 cm-scale fracturing
1380	SAND: very fine- to fine-grained; brownish yellow (10YR 6/6 d), dark yellowish brown (10YR 4/4 m); weakly indurated to loose; laterally interfingered / interbedded with silt and clayey silt; abundant tabular cross-laminations and planar laminations; calcic horizon at basal contact.
1375	SILT: brownish yellow (10YR 6/6 d), dark yellowish brown (10YR 4/4 m); abundant tabular and trough cross-laminations.
1370	Clayey SILT: very pale brown (10YR 7/3 d), dark yellowish brown (10YR 5/4 m); massive with cross-laminations at 0.3 ft and 0.9 ft from basal contact; 5-mm-thick calcic horizon at basal contact
1360	SAND: very fine-grained; very pale brown (10YR 7/3 d), brown (10YR 5/3 m); non-plastic (m); loose (d); planar laminated to lenticular cross-laminated
1350	Clayey SILT: very pale brown (10YR 7/3 d), brown (10YR 5/3 m); low stickiness, non-plastic (m), hard (d); massive; blocky, dominantly vertically fracturing; faintly banded.
1340	CLAY: pale brown (10YR 6/2 d), brown (10YR 4/3 m); hard (d), sticky and plastic (m); massive with faint, varicolored, 1- to 4-cm-scale banding; exhibits blocky fracturing.
1335	Silty CLAY: very pale brown (10YR 7/3 d), dark yellowish brown (10YR 4/4 m); laminated.
1330	CLAY: pale brown (10YR 6/2 d), brown (10YR 4/3 m); hard (d), sticky and plastic (m); massive.
1325	Silty CLAY: very pale brown (10YR 7/3 d), dark yellowish brown (10YR 4/4 m); massive to weakly bedded.
1320	CLAY: pale brown (10YR 6/2 d), brown (10YR 4/3 m); hard (d), sticky and plastic (m); massive; ~2-inch-thick laminated silty clay at basal contact.
1310	CLAY: pale brown (10YR 6/2 d), brown (10YR 4/3 m); hard (d), sticky and plastic (m); massive; ~2-inch-thick laminated silty clay at basal contact.
1305	CLAY: pale brown (10YR 6/2 d), brown (10YR 4/3 m); hard (d), sticky and plastic (m); massive.

Feature Descriptions

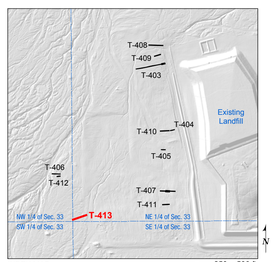
A	Fault, strike=353°, dip=50°E, with down-to-the-east displacement of 0.3 ft.
B	Fault, strike=015°, dip=40°E, with down-to-the-east displacement of 0.2 ft.
C	Fault, strike= 345°, dip=35°E, rake=~90°E with down-to-the-east displacement of 0.5 ft; curviplanar; ~90° rake angle of striations on fault surface
D	Fault, strike=005°, dip=45°E, with down-to-the-east displacement of 0.5 ft.
E	Fault, strike=310°, dip=57°E, with down-to-the-east displacement of 0.3 ft; subvertical slickensides on fault surface.
F	Fault, strike=155°, dip=60°W, with down-to-the-west displacement of 0.6 ft; fault bifurcates upwards forming intensely fractured graben geometry.
G	Fault, strike=320°, dip=47°E, rake=~80°E, with down-to-the-east displacement of 0.5 ft; anastomosing geometry.
H	Minor fault with ~4 cm down-to-the-east displacement; discontinuous upwards
I	Fault, strike=340°, dip=45°E, with down-to-the-east displacement of 0.7 ft.
J	Fault, strike=025°, dip=62°E, rake=~80°E, with down-to-the-east displacement of ~0.5 ft.
K	Orange oxidation and calcite on fracture surfaces.
L	Fault, strike=000°, dip=49°E, with down-to-the-east displacement of 1.4 ft.
M	Minor fault; discontinuous upwards; steepens into fracture zone.
N	Fault, strike=350°, dip=50°E, with down-to-the-east displacement of 0.4 ft., curviplanar.
O	Fault, strike=342°, dip=53°E, with down-to-the-east displacement of cumulative 0.9 ft with feature N.
P	Fault, strike=002°, dip=50°E, see feature N for displacement.
Q	Fault, strike=008°, dip=50°E, with down-to-the-east displacement of 0.5 ft.
R	Fault, strike=020°, dip=56°E, with down-to-the-east displacement of 0.2 ft.; steepens upwards into fracture zone.
S	Minor fault; steepens upwards into fracture zone.
T	Fault, strike=025°, dip=53°E, with down-to-the-east displacement of 0.2 ft.; curviplanar.
U	Vertical, ~1-cm-wide calcite-filled fractures.
V	Broad (~1.5 foot wavelength) soft sediment deformation features.

Contact

Fault

Direction of displacement

Note: This log documents the south wall of the trench, therefore **east** is to the left and **west** is to the right.



PHOTOGRAPHIC LOG OF TRENCH T-413

I:\wla-wc-file1\Projects\Projects\72_000\72_170065_CalEnergy_DVC_Cal\405_Graphics\PR-006_Fault_Trenching_Investigation\Trench_Logs\01_Fault_Trenching_Report\Phase_2\ PLATE_9_T-413.ai Friday, June 14 2019 14:46:47

APPENDIX A
BIOLOGICAL MONITORING REPORT

BIOLOGICAL MONITORING REPORT FOR TRENCH WORK AT THE DESERT VALLEY COMPANY (DVC) NON-MUNICIPAL SOLID WASTE LANDFILL CELL 4

IMPERIAL COUNTY, CALIFORNIA

Prepared at the Direction of:

Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 92596

Prepared for:

CalEnergy
3301 West Highway 86
Brawley, California 92227

Prepared by:

Juan J. Hernandez
Hernandez Environmental Services
c/o Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064

April 9, 2019

Hernandez Environmental Services

Memorandum

Date: April 09, 2019

To: Janet M. Sowers, Ph.D, P.G. Principal Geologist

Fugro USA Land, Inc.

From: Juan J. Hernandez, Principal Biologist

Subject: Biological Monitoring Report for Trench Work at the Desert Valley Company (DVC) Non-Municipal Solid Waste Landfill Cell 4 February 5-7, 2019 and February 26, 2019.

This memorandum summarizes the biological monitoring completed by Hernandez Environmental Services (HES) for the trenching activities associated with the Desert Valley Company Solid Waste Landfill Cell 4 on February 5-7 and February 26, 2019.

Our biological monitors cleared the trenching areas and a buffer area of 500 feet around the trenching areas prior to the initiation of trenching activities. HES monitors observed the trenching activities that occurred during the work period to ensure that the trenching activity did not remove native vegetation, impact state or federal jurisdictional streams, or take any sensitive animal or plant species or their habitats.

Location

Two trench locations (T 401 and T402) were located in the south portion of Section 27 and five trench locations (T 403, T404, T405, T406, and T407) were located in the central portion of Section 33. The work areas are located southwest of Highway 86 and the Salton Sea and northwest of the cities of Westmoreland and Brawley, within Imperial County, California. Refer to Figures 1, 2, and 3.

Methodology

HES met the work crew at the trenching locations in Section 27 on February 5 and February 26, 2019. Sensitive habitats present on the site and avoidance of impacts to these habitats were discussed. The monitor then proceeded to evaluate the trench areas and a 500-foot buffer around the trench areas for any sensitive resources that were to be avoided.

Monitors were present to observe trenching activities during the duration of trenching operations. Monitors ensured that no vehicles or crews worked outside of the designated work areas. Monitors also ensured that no work occurred in state or federal streams. Trenching activities that had the potential to result in impacts to sensitive biological resources ceased on February 26, 2019.

Results

Evaluations of the trench areas and associated buffers found no sensitive species. Section 27 and 33 trench locations did contain state and federal streams within the buffer areas. The crew was made aware of these resources and instructed to avoid them.

All sensitive areas, vegetation, and animal species were avoided by the trenching crews and no impacts to any sensitive areas, vegetation, or species occurred.

If you have any questions regarding our responsibilities as biological monitors during the drilling work, please feel free to contact me Juan Hernandez at (909) 772-9009.

Attachments

Figure 1-3

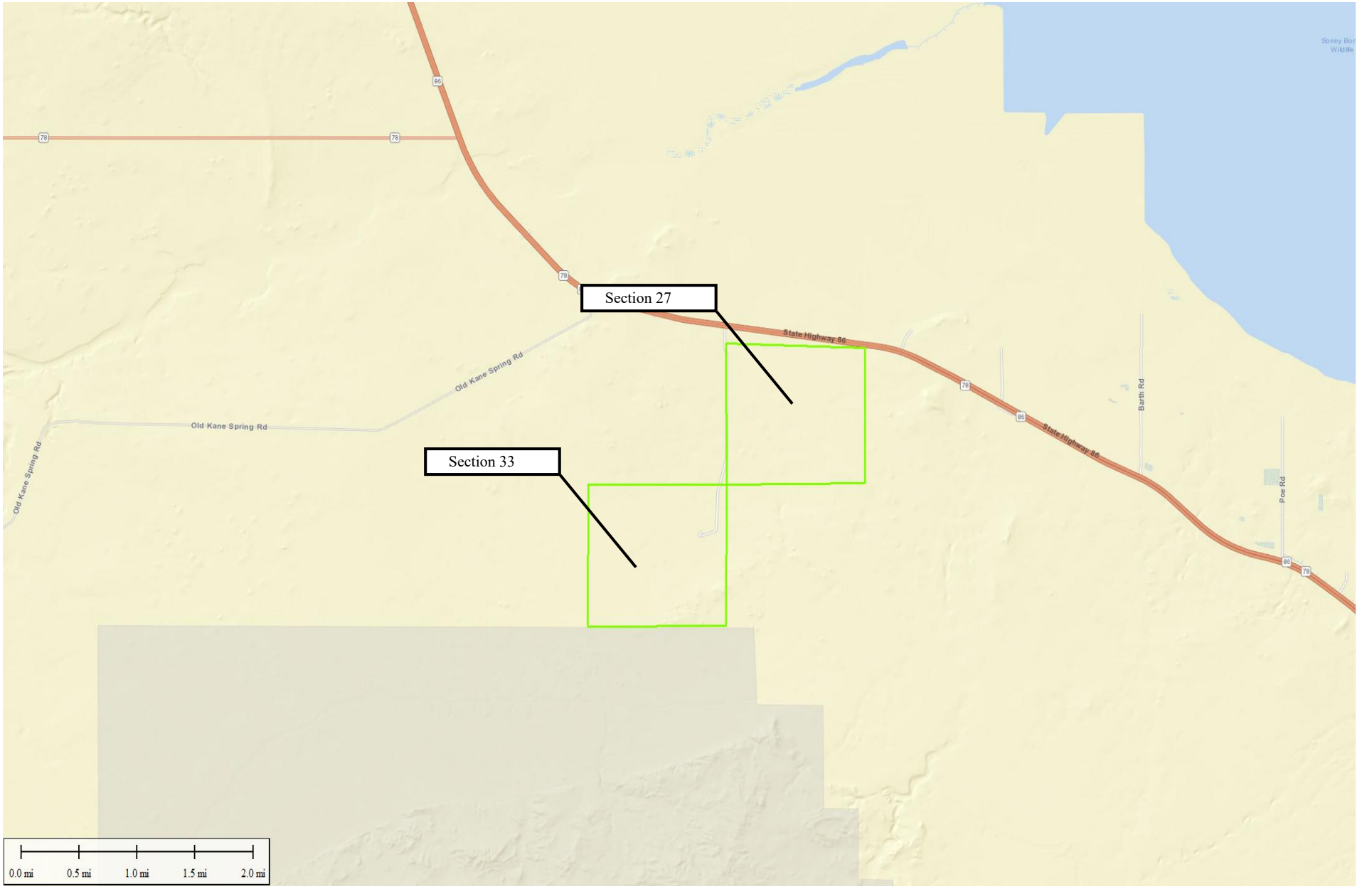


Figure 1 - Location Map

Biological Monitoring Report
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services

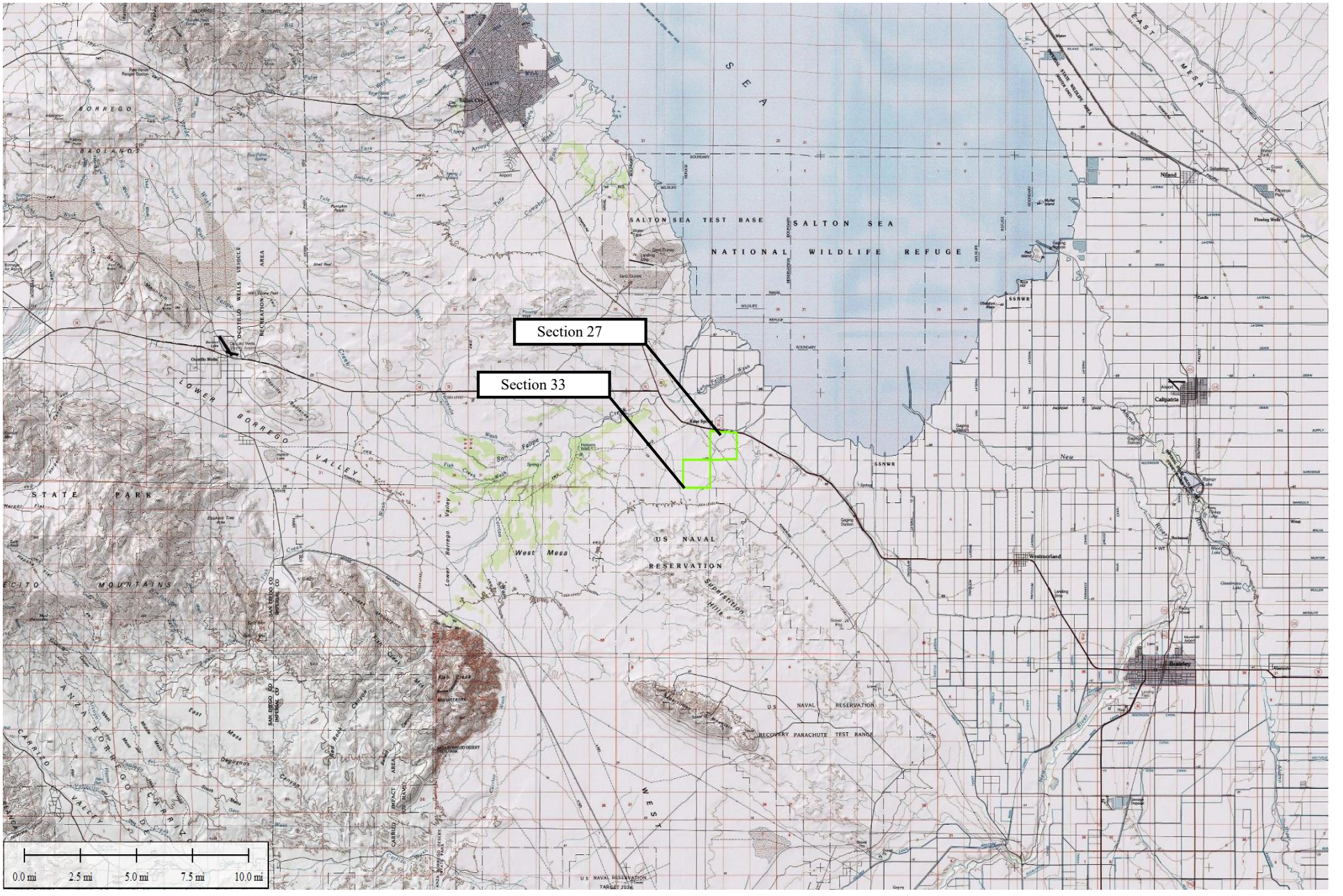


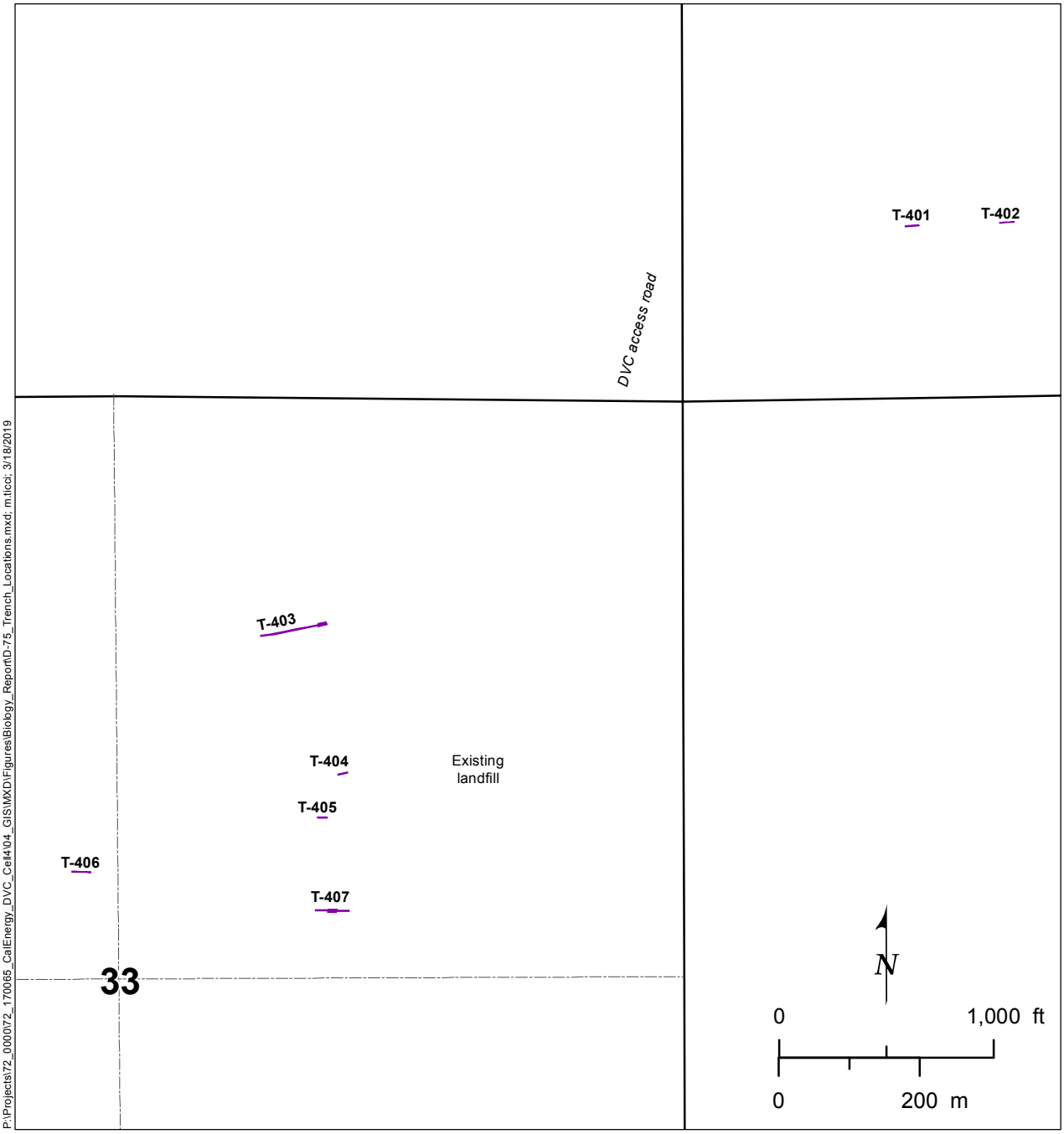
Figure 2 - Vicinity Map

Biological Monitoring Report
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Sections 27 and 33

Hernandez Environmental Services



Imagery base from Fugro 2018

Legend

33 — Sections 27 and 33, with quadrants

T-403 — As-built trench (Fugro, 2019)

TRENCH LOCATIONS FIGURE D-75

APPENDIX B
ARCHEOLOGICAL MONITORING REPORT

June 4, 2019

Janet Sowers
Fugro USA Land, Inc.
1777 Botelho Drive, Suite 262
Walnut Creek, California 94596

Re: Results of cultural resource monitoring of the CalEnergy DVC Cell 4 Project geotechnical fault trenching investigation, Imperial County, California

Dear Ms. Sowers:

This letter describes the results of archaeological monitoring of the geotechnical fault trenching investigation conducted as part of the siting efforts for the CalEnergy Desert Valley Company (DVC) Cell 4 Project. The DVC facility is a private Class II monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). Currently, DVC Cell 1 and Cell 2 are closed, and Cell 3 is projected to reach its capacity in 2025. Before Cell 3 can be closed, a new cell (Cell 4) with a capacity of at least 1,300,000 cubic yards must be fully operational.

The DVC Cell 4 Project is located northwest of the city of Brawley, in the Imperial Valley within northwestern Imperial County. Specifically, the project is located within the northeast quarter of Section 33 and the southwest quarter of Section 27, Township 12 South, Range 11 East, San Bernardino Base and Meridian (Attachment 1 and 2). The fault trenching investigation for the CalEnergy DVC Cell 4 Project consisted of the excavation of seven trenches. Two trench locations (T401 and T402) were located in the south portion of Section 27 and five trench locations (T403, T404, T405, T406, and T407) were located in the central portion of Section 33 (Attachment 3). The general area contains a high sensitivity for prehistoric cultural resources as over 35 previously recorded resources are located in proximity to the potential DVC 4 site locations.

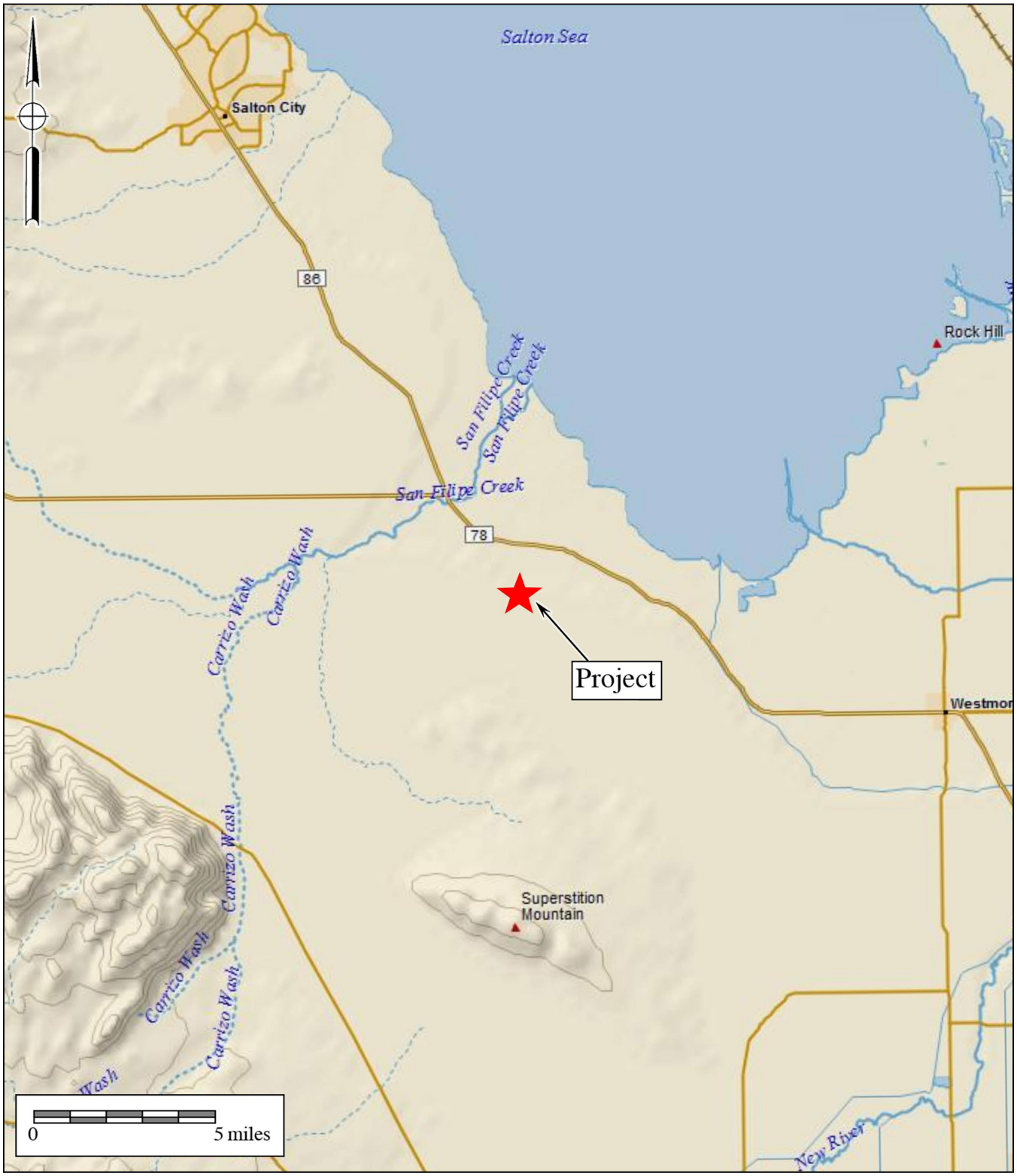
Due to the cultural resource sensitivity of the area, archaeological monitoring took place during the fault trenching investigation. Archaeological monitor Michael Tyberg conducted monitoring of all trenching activities as necessary between February 5 and May 2, 2019. Mr. Tyberg closely inspected all trench locations, access routes utilized by project personnel to and from the study area, and all excavated soil for the presence of any potential resources. Despite the presence

of multiple archaeological sites located within proximity of the study area, no cultural resources were encountered during archaeological monitoring. Based upon this investigation, no cultural resources were adversely affected by CalEnergy DVC Cell 4 Project geotechnical fault trenching investigation.

Sincerely,

Brian F. Smith
BFS:ajg

Attachments: General Location Map, Project Location Map, Trench Location Map

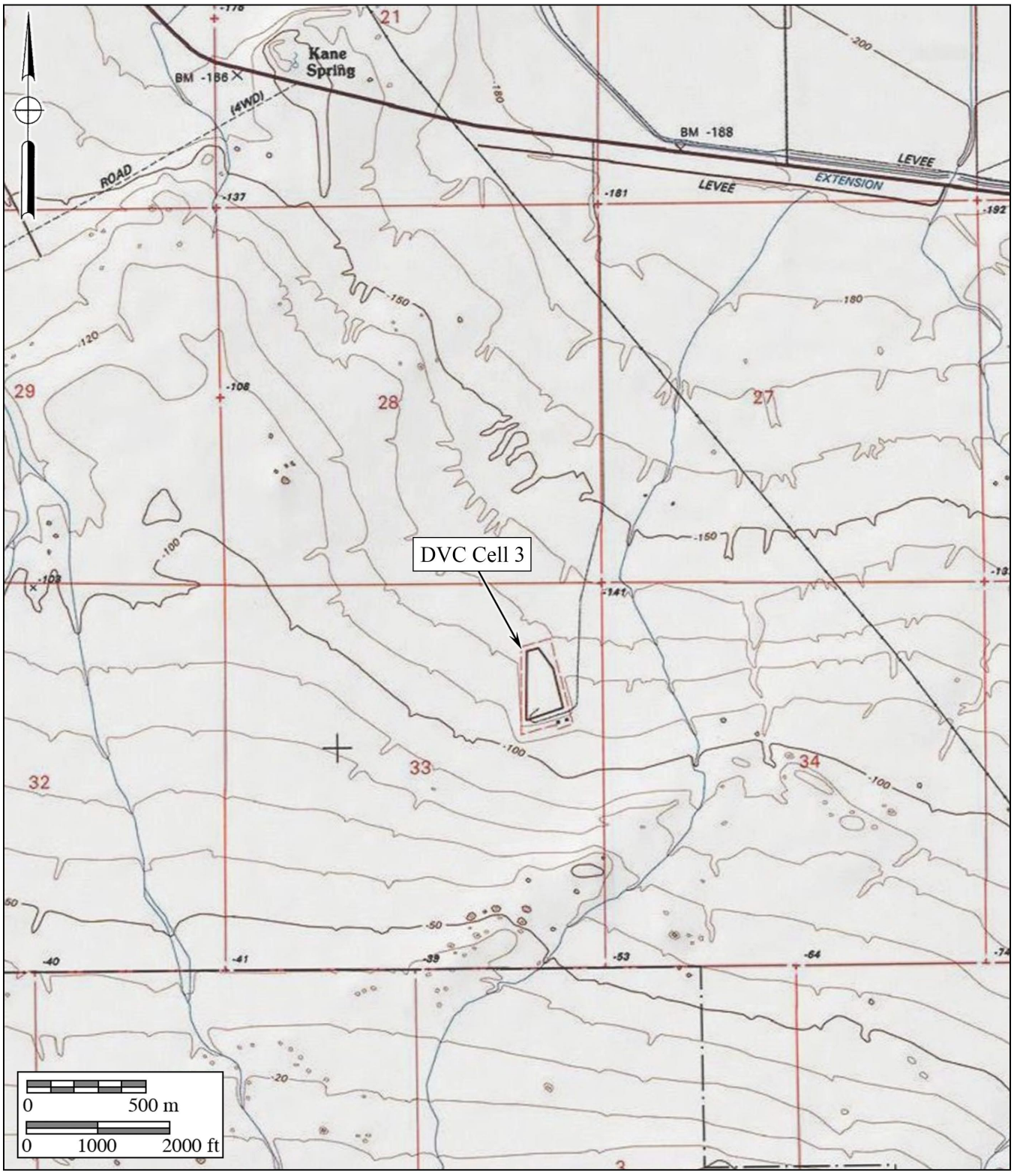


Attachment 1

General Location Map

The CalEnergy DVC Cell 4 Geotechnical Fault Trenching Project

DeLorme (1:250,000)

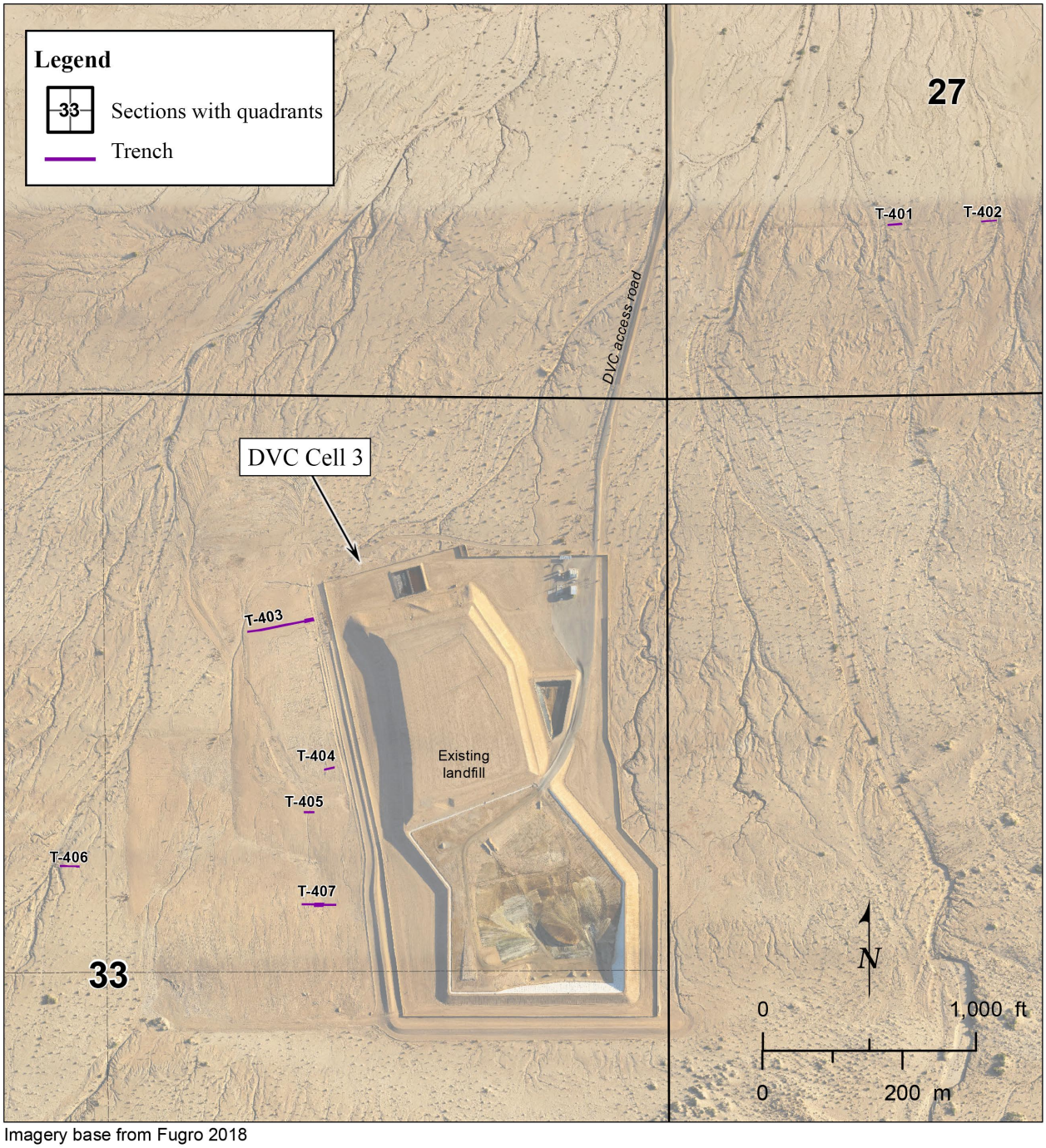


Attachment 2

Project Location Map

The CalEnergy DVC Cell 4 Geotechnical Fault Trenching Project

USGS *Kane Spring* Quadrangle (7.5-minute series)



Imagery base from Fugro 2018

Attachment 3

Trench Location Map

The CalEnergy DVC Cell 4 Geotechnical Fault Trenching Project

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I-5

Draft Site Geologic Review and 3D Model

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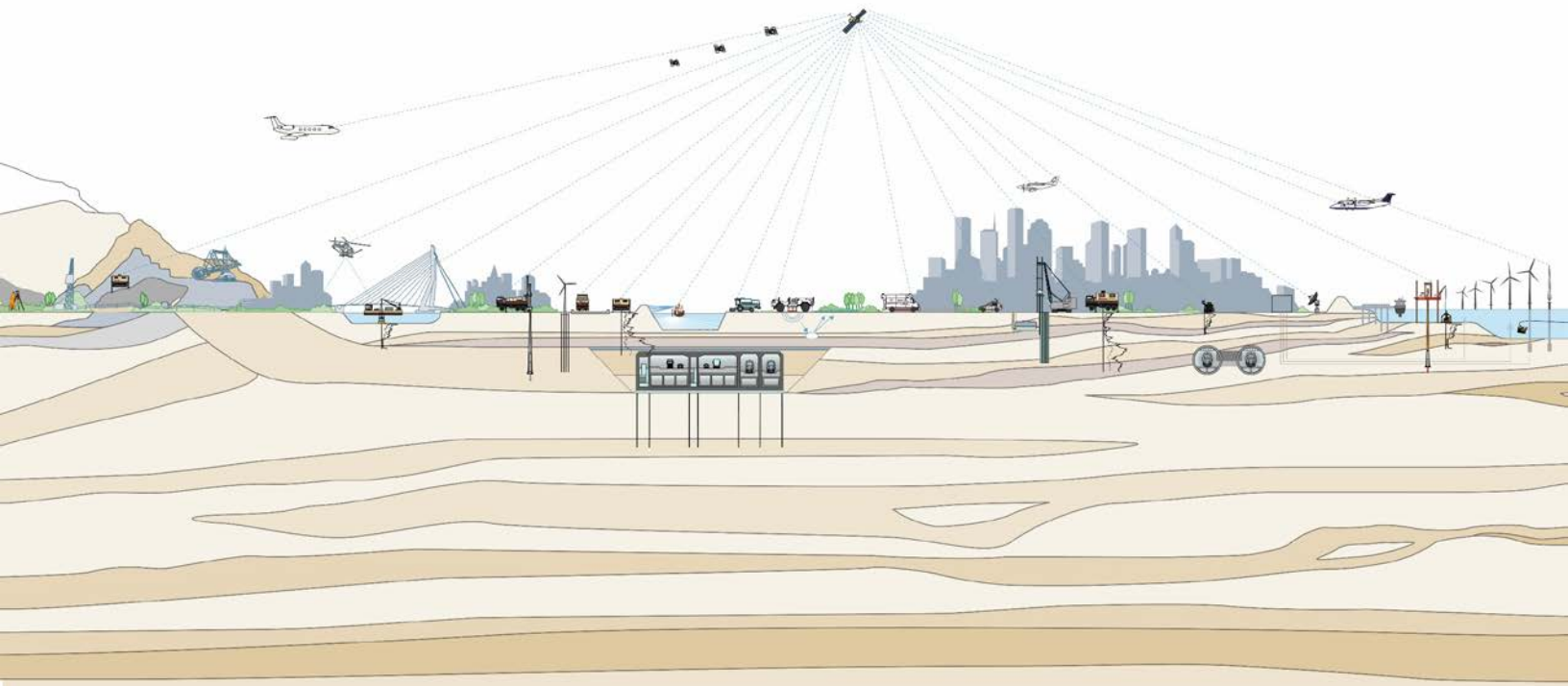
FUGRO

Phase 2: Site Geologic Data Review and 3D Model
Desert Valley Company Monofill
DVC Cell 4 Project
Brawley, California

August 15, 2018
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-003(Rev.A)

CalEnergy Operating Corporation

DRAFT



FUGRO

Phase 2: Site Geologic Data Review and 3D Model
DVC Cell 4 Project
Desert Valley Company Monofill
Brawley, California

August 15, 2018
Fugro Project No. 04.72170065
Document No. 04.72170065-PR-003(Rev.A)

DRAFT

Prepared for:

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

A	Draft	JMS, KAS, JHN	PH	JMS	August 15, 2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

Fugro Project No. 04.72170065
Document No. 04.72170065-PR-003(Rev.A)
August 15, 2018

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CalEnergy Operating Corporation
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Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Phase 2: Site Geologic Data Review and 3D Model
Desert Valley Company (DVC) Monofill, DVC Cell 4 Project
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present this draft review of site geologic data for the proposed Desert Valley Company (DVC) Monofill DVC Cell 4 solid waste facility. This report is one of several Phase 2 siting studies designed to facilitate selection of a viable site for Cell 4. This report details the results of Tasks 6c and 7, field geologic mapping, site geologic data review, and preparation of a site 3D geologic model. The work was authorized under a general services contract between CalEnergy Operating Corporation and Fugro USA Land, Inc., effective October 18, 2017, Change orders 2 and 3, under Purchase Agreement #245885.

The report provides an introduction, a summary of the major findings of the site data review, geologic mapping, and 3D modeling, and recommendations for the next steps toward collecting the geologic data needed for selection of a Cell 4 site footprint.

It has been our pleasure to perform this study for CalEnergy on Phase 2 of the DVC Cell 4 project. We look forward to continuing to serve CalEnergy in future phases of this project. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

Janet Sowers, Ph.D., P.G.
Principal Geologist

Kelley A. Shaw, M.S.
Project Geologist

John H. Niles, M.S.
Senior Staff Geologist

Distribution: One electronic copy to Ms. Yanqiu Wu

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APPENDIX A - GEOLOGIC FIELD MAPPING REPORT

1. INTRODUCTION

CalEnergy owns and operates the DVC Class II Monofill facility located in Imperial County (Solid Waste Facility Number 13-AA-0022). It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South, SBBM. Three cells have thus far been constructed, beginning with Cell 1 in 1990. Cells 1 and 2 have been filled and closed and Cell 3, completed in 2004, is projected to reach its capacity in the year 2025. Proposed Cell 4, with a capacity of at least 1,300,000 cu yd. (same as Cell 3), would need to be operational before Cell 3 can be closed. Cell 3 occupies approximately 20 acres including the surrounding berm, thus a similar acreage is targeted for Cell 4.

CalEnergy owns Section 33 and diagonally adjacent Section 27 (Figure 1), herein referred to as the DVC property. The purpose of the Phase 2 siting studies is to identify a suitable 20-acre site within the DVC property for the construction of Cell 4. Multiple factors are considered in the site selection process, including access, biological and cultural resource impacts, groundwater, water supply, cost, and public acceptance. This report focusses on geologic constraints.

The purpose of this report is to review site-specific existing and newly collected geologic data, compile and interpret these data, and use this understanding to inform site selection for Cell 4. Site geologic data consist of previous geologic investigation reports for Cells 1, 2, and 3 dating from 1988 to 2005, and newly acquired geologic, topographic, and drainage data collected by Fugro in 2018.

1.1 Background

Two primary geologic factors are considered in selecting a site for the proposed Cell 4. These are: (1) the absence of active faulting, and (2) the presence of low permeability strata (e.g., clay layer) beneath the landfill. California State Water Resources Control Board (SWRCB) regulations require that a Class II landfill be set back at least 200-foot from any known Holocene fault. The presence of an active fault within the landfill footprint would constitute a fatal flaw.

The presence of a low permeability strata beneath the landfill reduces the likelihood that leachate from the landfill could contaminate underlying groundwater resources. SWRCB regulations require that a Class II landfill have substantial isolation from ground water. A clay liner with a hydraulic conductivity of no more than $1x10^{-6}$ cm/sec is specified as follows (SWRCB/CIWMB Regulations, Division 2, Title 27):

> *"New and existing Class II landfills or waste piles shall be immediately underlain by natural geologic materials which have a hydraulic conductivity of not more than $1x10^{-6}$ cm/sec (i.e., 1 foot/year) and which are of sufficient thickness to prevent vertical movement of fluid, including waste and leachate, from Units to waters of the state for as long as wastes in such units pose a threat to water quality."*

DVC Cells 1, 2, and 3 were sited over natural clay layers within the Brawley Formation. The presence of similar clay layers is desired for Cell 4. However, a suitable clay liner may be engineered using compacted

clay borrow and synthetic materials. Thus, the lack of a thick clay bed beneath the footprint does not constitute a fatal flaw.

The Phase 1 report (Fugro, 2018a), summarized biologic, cultural, and geologic constraints of the site based on published regional literature, a field cultural resources survey, interpretation of available aerial imagery and topographic data, and review of the environmental impact report for Cells 1 and 2 (ERC, 1990). A summary of the findings of the Phase 1 geologic constraints assessment is provided below, to provide context for the site-specific geologic information that follows.

1.2 Summary of the Phase 1 Geologic Constraints Study

The Phase 1 geological constraints study included a review of the geologic setting based on literature review, an assessment of the presence of Holocene surface faulting based on literature review and desktop mapping of potential fault-related features from aerial imagery and available topographic data.

The DVC property is underlain by the almost flat-lying fine-grained lacustrine sediments of the late Pleistocene to early Holocene Lake Cahuilla deposits, which were deposited on gently folded alluvial and lacustrine sediments of the Pliocene to middle Pleistocene Brawley Formation (Dibblee, 1954, 2008). Both the Brawley Formation and Lake Cahuilla deposits are weakly consolidated and are eroded to form barren to scrub-covered low-relief hills at the site. Tectonic deformation has faulted and gently folded the Brawley Formation, and is expressed as structural domes and ridges that protrude through the Lake Cahuilla deposits to form low hills (Figure 2).

Lake Cahuilla deposits are overlain by a discontinuous cover of gravelly and coarse-grained beach ridge deposits, formed as waves reworked the incoming stream alluvium along the shore of the lake. Parallel bands of beach ridges record the gradual change in the position of the shoreline as early Lake Cahuilla gradually receded. At present, a network of generally north- to northeast-trending washes dissect the landscape, carrying water and sediment northward to the Salton Sea.

Previous workers have documented evidence for active folding and faulting associated with strike-slip motion along the San Jacinto fault, the Superstition Hills fault, and other major plate-boundary faults (Figure 3). Proximal to the DVC property, Hudnut et al. (1989) documented surface ruptures associated with the 1987 Superstition Hills earthquake sequence on both the East Kane Spring and the West Elmore Ranch faults. These faults are northeast-trending, left-lateral cross-faults that likely link major northwest-trending right-lateral faults (Figure 3). The mapped 1987 surface rupture traces are shown in red on Figure 1 along with traces of faults that did not rupture in that earthquake, but were identified by observation of shear zones or stratigraphic displacement.

It is not known whether the scarcity of identified faults in the DVC property is due to the absence of faulting or the or the absence of evidence for faulting due to the lack of adequate exposure. In the site area, faults have been mapped either where 1987 earthquake sequence-related surface ruptures were documented, or where the strata of the Brawley Formation is exposed at the surface and faulting can be observed directly. As most of the DVC property is covered with Holocene alluvium, or Pleistocene to Holocene lake and beach

deposits, evidence for faulting is difficult to establish. In the immediate vicinity of the monofill, the presence of faults was addressed via a fault trenching program conducted for Cells 1, 2, and 3. A number of faults were observed displacing strata of the lake beds, thus were presumed to be active. This information is reviewed and compiled in Section 3.2

1.3 Purpose of the Phase 2 Site Geologic Assessment

This Phase 2 geologic report builds on the context provided by the Phase 1 report, focusing on the compilation and analysis of site-specific data. Some of these data were collected during the geologic and geotechnical investigations conducted for Cells 1, 2, and 3 (e.g., Balderman, 1988, 1989, 2002), and others are new data collected by Fugro in 2018. The new data include LiDAR topographic data, high resolution aerial imagery, drainage delineation, and field geologic mapping observations.

The Phase 2 geologic review focus on potential Cell 4 site areas located near the existing facility as follows: portions of Section 33 immediately north, west, and south of the existing monofill, and southwest quadrant of Section 27 (Figure 1).

2. METHODS

This section details the historical data reviewed, the data collected by Fugro in 2018, and methods of data compilation and analysis applied to obtain the results presented in Section 3.

2.1 Data Review and Compilation

The purpose of the data review was to compile and analyze available historical geologic and geotechnical data collected during the investigations for Cells 1, 2, and 3. A request was made to CalEnergy for these data, and a number documents were provided. Table 1 lists the documents available and reviewed in the preparation of this report. Additional documents may become available in the future. The review consists of a narrative description of the types of data collected and the conclusions presented in the cited reports, with reproductions of key figures.

Table 1. Historical Site Geologic Reports Reviewed

Cell	Citation	Notes
1, 2	Balderman, M. A., 1988, Report of Site Selection and Geologic Exploration, Monofill Project Imperial County, California, prepared for Targhee, Incorporated, Long Beach, CA, 113 pages including figures and oversized plates.	Provided by CalEnergy
1, 2	Balderman, M. A., 1989, Report of geologic investigations, Desert Valley Company Monofill project, Imperial County, California: prepared for Targhee, Incorporated, Long Beach, CA, 257+ pages including appendices of test pit logs, soil tests, boring logs, trench logs, CPT, Well records, water quality analyses.	Provided by CalEnergy
2, 3	Balderman, M. A., 2000, Borrow Area Investigation, Draft Report prepared for Desert Valley Company, 49 pages including map, logs, and cross sections.	Provided by CalEnergy
3	Balderman Consulting, Inc., 2002, Geologic Investigations, proposed Cell 3 area, Desert Valley Company Monofill, Imperial County, California, September 2002, prepared for McDowell & Associates, Midland, Michigan.	Provided by CalEnergy
3	Desert Valley Company, 2015, Joint Technical Document Desert Valley Monofill, Cell III, Revision 2.4, 190 pages, 40 appendices, prepared by RTP Environmental Associates of La Jolla.	Main text was obtained online. The 40 appendices were not available.
1,2	ERC Environmental and Energy Services Co. (ERC), 1990, Desert Valley Company's Monofill Facility Final Environmental Impact Report, Project report No. 89032206.	Previously provided and reviewed in Phase 1 report. Geologic information was summarized from Balderman 1999.

Key geologic data types presented in the historical reports were digitized by Fugro as listed in Table 2. The historical reports employed a facilities grid and reported all locations in coordinates with reference to that grid. Fugro georeferenced a map of this grid from the historical reports to re-create the facilities grid in ArcGIS format. Exploration locations, were then plotted in GIS. The plotted locations corresponded reasonably well with the locations shown on the exploration plan illustrations in the historical reports, such as those shown on Figures 4 and 5. Where locations were slightly different, we assumed the locations plotted from coordinates were more precise.

Table 2. Historical Data Digitized by Fugro

Data Type	Digital Format	Notes
Locations of fault trenches	GIS line shapefile attributed with trench number.	Locations based on reported plant-grid coordinates on plant grid, except the Trench 1 location was digitized based on the disturbed zone visible on the 2018 imagery
Locations of test pits	GIS point shapefile attributed with report citation and test pit number	Locations based on reported plant-grid coordinates
Locations of faults interpreted from trench investigations	GIS line shapefile attributed with report citation. These were traced from Figure 25 of Balderman (2002) (Figure 6)	Faults shown in Balderman, (1989) and ERC (1990) were superseded by the updated faults in Fig 25 of Balderman (2002) (Figure 6)
Locations of boreholes	GIS point shapefile attributed with hole number	Locations based on reported coordinates on borehole logs, or from report figures if coordinates not provided
Locations of wells (monitoring, water, etc.)	GIS point shapefile attributed with well number and type	Locations based on reported coordinates on well logs
Borehole and well stratigraphy	Digital log in gINT format summarizing the major stratigraphic layers and depths	Information was selectively transferred from printed borehole and well logs. Final gINT data were QA checked
Cone penetrometer tests	GIS point shapefile attributed with CPT number	Digitized from Fig 3 of Balderman 2002

2.2 Collection of New Data

Fugro collected several new datasets in the spring and summer of 2018 that provide additional information for siting studies. These datasets include LiDAR and high-resolution aerial imagery for a five square-mile area surrounding the DVC site, delineation of jurisdictional drainages, geophysical survey of line GL-1 in the SW quadrant of Section 27, and field geologic mapping. These datasets are briefly described below.

2.2.1 High Resolution Aerial Imagery and LiDAR Topographic Data

LiDAR topographic data and high-resolution aerial imagery were collected in June of 2018. A hillshade DEM developed from the LiDAR topographic data and showing the aerial extent of the dataset is presented in Figure 7. The topographic data and aerial imagery were added to Fugro's ArcGIS database for use in geologic analyses. Fugro transmitted the LiDAR data, imagery, and associated documentation files to CalEnergy on July 3, 2018 (Fugro, 2018c).

2.2.2 Jurisdictional Delineation

State and Federal regulations protect certain drainages and waterways, termed "jurisdictional drainages," from impacts that affect stream function and habitat. Any alteration of a jurisdictional drainage, including fault trenching, must go through a permitting process before they may be done.

To identify and delineate these jurisdictional drainages, a survey was conducted of Sections 27 and 33. The survey consisted of a combination of field traverses to identify jurisdictional drainages, and mapping of those

drainages in detail in ArcGIS through interpretation of the LiDAR topographic data and high-resolution imagery.

Documentation of the methods and results of the jurisdictional drainage delineation are provided in a separate transmittal. The jurisdictional drainages are shown for a portion of Section 27 in Figure 8.

2.2.3 Geophysical Survey

Geophysical survey was conducted along line GL-1, an east-west oriented line that extended across the SW ¼ of Section 27 (Figure 8), to screen the area for faults, and focus upcoming fault trenching investigations in this potential Cell 4 site area. Shallow seismic reflection imaging along line GL-1shows generally unbroken planar stratigraphy in the imaged depths of approximately 10 to 100 meters. Three locations were identified where the reflectors appear to be displaced on the order of 1-2 meters. Plans are underway to excavate fault trenches across these features to determine whether they are an expression of an active fault. The geophysical survey is documented in Fugro report No. 04.72170065-PR-002, dated April 25, 2018.

2.2.4 Field Geologic Mapping

Prior to field activities, a draft geologic map was prepared in the office by interpreting the 2018 LiDAR and imagery data in ArcGIS. Two Fugro geologists then spent two days in the field checking the map, looking for evidence of active faulting, and documenting the characteristics of the Brawley Formation and Lake Cahuilla deposits where they are exposed in drainage channels. A full report of geologic mapping field activities and findings is provided in Appendix A.

2.3 Compilation of Geologic Map and 3D Model

Historical and new geologic data were compiled in an ArcGIS database for analysis and interpretation. Specific compilations prepared include a geologic map of the DVC area including known or potentially active faults, a contour map of the top of the Qb5 clay layer, and a 3D model of the Cell 1, 2, and 3 area. The methods of preparation are described below.

2.3.1 Preparation of the Surficial Geologic Map of the DVC Area

The surficial geologic map, shown in Figure 9, was compiled at a scale of 1:15,000 In ArcGIS Ver. 10.4.1. The description of geologic units is provided in Table 3. The map is based on the available data at the time of preparation, so should be considered a work-in-progress. As additional data are collected through the life of the project, the map will be updated.

2.3.2 Preparation of the 3D Model of Subsurface Stratigraphy

Eighty-nine logs of borehole, wells and test pits surrounding the DVC Monofill site from previous reports (Balderman 1988, 1989, 2000, 2002) were digitized into gINT (v8i). Information pertaining to the location, elevation, material, consistency, color, and moisture for each layer were added into the program. In addition, top and bottom elevation of each stratigraphic unit (Fill, Qb2-Qb8) was input into gINT, based on cross

sections in the Balderman (2002) report. A quality control check was performed on the digitization process to confirm that the information was entered correctly.

Next, the gINT database was imported into ArcGIS and two shapefiles were created, one for lithology and one for stratigraphy. The lithology shapefile contains material information for each layer (e.g.,clay, silt, sand) and was symbolized based on general material types (e.g., blues for clay, greens for silts, browns for sands). The stratigraphy shapefile contained multiple points per borehole stacked on top of each other, placed at the top elevation of each unit within the Brawley Formation. Five 3D surfaces (tops of Qb2 through Qb7) were created by interpolation between borehole points using the kriging method. These surfaces were projected to the historic ground surface (i.e., pre-landfill) based on the unit contacts found on Balderman's (2002) surficial geologic map. Lastly, the initial interpolated rectangular surfaces were then clipped to where they are constrained with data points.

The final product is a 3D model in ArcGIS format, showing of a set of five north dipping surfaces, each defining the top of a stratigraphic unit, a 3D depiction of the borehole logs showing composition of the units, and a 3D depiction of the present-day ground surface. The model is presented and discussed in Section 3.2.1.

3. RESULTS OF DATA COMPILATION AND ANALYSIS

The results include the review and compilation of the 1988-2002 siting studies and exploration data from the geologic investigations conducted for Cells 1, 2, and 3, permits currently in place for these cells, and the geologic model of the site prepared using the historical data and data collected in 2018. The geologic model consists of the geologic map, a description of the status of fault mapping and assessment, and a 3D stratigraphic model.

3.1 Historical Data Review

This section summarizes and reviews the historical geologic and geotechnical data presented in the reports listed in Table 1. These reports detail the site selection process, the field exploration for DVC cells 1 and 2, the field exploration for Cell 3, and reviews current state and county permits held for the monofill.

3.1.1 The 1988 Site Selection Process for Cells 1 and 2

The 1988 geologic investigation report (Balderman, 1988) was authored by Morris Balderman of Balderman Consulting, Inc. Mr. Balderman was a California Registered Geologist and Certified Engineering Geologist. The report describes the site selection process and the geologic exploration of the preferred site location. It details the two long trenches that were excavated in Section 33. The locations of faults exposed in these trenches helped inform the choice between two candidate sites for Cells 1 and 2 within Section 33.

The work began with identifying site selection criteria (Balderman, 1988). These criteria included the requirements of the State of California as well as considerations of the availability and access to candidate properties, and whether the site could be developed in a timely manner and could be operated economically. California Code of Regulations, Title 23, Section 2530 lists siting criteria for Class I and II landfills. They are:

1. Unit must be underlain by natural geologic materials having permeability of 10^{-6} cm/sec or less (e.g., clay), or an equivalent liner system. Clay is present in large quantities in the lake beds of the Imperial Valley, thus areas underlain by lake beds were targeted in the search.
2. Units must be located outside the area of the 100-year flood.
3. Units must have a 200-foot setback from any known Holocene fault. (Holocene faults were addressed at every step in the siting process.
4. Units must be designed, constructed and maintained to preclude failure from tidal waves. Tidal waves are unlikely, except along the shore of the Salton Sea, an area which would also be eliminated by the groundwater depth requirement in item 5 below.
5. Waste shall be a minimum of 5 feet above the highest anticipated ground water level. With the exception of areas near the shore of the Salton Sea, groundwater levels are deeper than 5 feet throughout the Imperial Valley)
6. Site must not be subject to rapid geological change.
7. No impact to significant cultural features, rare and endangered species, sensitive or unique habitats. (Candidate sites were generally similar in these characteristics).

A number of practical and economic siting criteria were also applied, as follows:

1. Relatively short haul distance from the waste source,
2. Areas of vacant land so as to avoid conflicting land use,
3. Privately owned property that can be purchased,
4. Minimal length of new road required,
5. Minimal number and size of washes to be crossed, and
6. Minimal need for right-of-way agreements.

Holocene faulting was addressed at the outset of the site-selection process. The initial screening identified faults that had been previously recognized in Imperial County, and specifically in the area between the Salton Sea and the Superstition Hills. In this area, five privately-owned parcels, one square mile each were identified, and field geologic mapping of these parcels was conducted. Studies soon focused on the square mile that comprised Section 33. Figure 10 shows the pre-development appearance of the Section 33 area in a 1950 aerial photograph.

In Section 33, Two long trenches were excavated to screen for Holocene faults. Trench 1 was 1,590 feet long and located in the far northern part of Section 33; Trench 2 was 1,110 feet long and located in the northeastern part of Section 33 (Figure 4). The trenches were sited in areas where clay deposits were observed close to the surface in surface exposures, test pits and bucket auger holes. Trench 1 encountered several faults and many fractures; thus, this area was rejected in favor of the area near Trench 2, which encountered faulting only in the far western end of the trench. Additional trenches were excavated to determine the extent of these faults.

The northeast quarter of Section 33 was chosen as the preferred location. It was found to best meet all requirement for site selection, including the lack of active faults. In addition, this area had the following positive attributes:

1. It is closest to the highway and existing roads, reducing cost and environmental impact.
2. It is well removed from the Area of Critical Environmental Concern at San Sebastian Marsh (along San Felipe Creek, currently designated critical pupfish habitat).
3. The productive habitat in Section 33 is confined to the hill area in the southeast quadrant.
4. The hill area in the southeast quadrant diverts the natural drainage thus minimizes runoff potential at the monofill.

Cells 1 and 2 were sited so as to avoid an active fault that had been identified through fault trenching (See Section 3.1.3), and to overlie a thick clay bed later designated as Qb2 (Balderman, 2002).

3.1.2 Siting of Cell 3

The Cell 3 site was identified through exploration activities that took place in 1997, focused on the area immediately south of Cells 1 and 2 (Balderman, 2002). The Cell 3 area was chosen mainly by the presence of the thick clay bed (Qb5) and the absence of Holocene faults. The western boundary represents the

required 200-foot setback from an active fault identified through fault trench investigations. The eastern boundary represents the eastern extent of the thick clay facies of unit Qb5. The northern boundary abuts Cells 1 and 2, and the southern boundary appears to be arbitrary and set to provide the desired acreage for the disposal area.

3.1.3 Geologic Investigations for Cells 1, 2, and 3

Detailed geologic investigations were conducted for Cells 1, 2, and 3 by Morris Balderman. The results were presented in several reports, listed in Table 1. The report for Cell 3 (Balderman, 2002) incorporates much of the data from the Cell 1 and 2 investigations into the discussion and analysis of the Cell 3 data (Balderman, 1988 1989, and 2000). The results of the combined exploration program for all three cells is presented in this section.

The exploration program consisted of borings, monitoring wells, neutron tubes, cone penetrometer tests, test pits, and fault trenches as listed in Table 3 and shown on Figure 11. Explorations conducted in support of Cells 1 and 2 are documented in Balderman reports dated 1988 and 1989; those conducted in support of Cell 3 are documented in reports dated 2000 and 2002.

Table 3. Geotechnical Exploration for Cells 1, 2, and 3

Type	Count	Designations	Completed in	Reported in
Boreholes	12	B1 through B12	1988	Balderman, 1988
	4	DV2, DV3	1989	Balderman, 1989
	6	DV126 through DV131	1999	Balderman, 2000
	30	DV101 through DV125	1997-2002	Balderman, 2002
Monitoring wells and piezometers	4	W01 through W04	1989	Balderman, 1989
	6	W06, W08 through W12	1991	Balderman, 2002
	6	W301 through W306	1999	Balderman, 2002
Water supply well	1	Monofill water well	1991	Balderman, 2002
Neutron tube	6	Z1 through Z6	1991	Balderman, 2002
CPT	24?	CPT1 through CPT22 FC 28, FC29? (missing data)	1989	Balderman, 1989
Test pits	9	T1 through T9	1988	Balderman, 1988
	4	T10 through T13	1989	Balderman, 1989
	6	R-1 through R-6*	1989	Balderman, 1989
	7	T106 through T112	1993	Balderman, 2000
Fault trenches	2	TR1, TR2	1988	Balderman, 1988
	3	TR3, TR4, TR5	1989	Balderman, 1989
	7	TR8, TR106, TR107, TR108, TR112, TR113, TR114	1988-1993	Balderman, 2002
	19	TR201 through TR219	1997-2002	Balderman, 2002
*Located along access road				

3.1.3.1 Fault trenching

As described in the previous section, Trenches TR1 and TR2 were excavated in 1988 as part of the initial screening study for Cell 1 and 2 site selection (Figure 11, Figure 12). The site was selected in large part

based on fault features observed in these two trenches. Several faults and many fractures were identified in TR1, whereas TR2 showed a lack of faulting in the central and eastern portions. Thus the site for Cells 1 and 2 was placed in the TR2 area.

Additional investigation was done to delineate the fault exposed in the west end of TR2. In 1989, three additional trenches, TR3, TR4, and TR5, were excavated to trace the fault north and south of the exposure in TR2, and to define fault length. Balderman (1989) reports that the fault on the west end of TR2 "can be recognized by subtle surface features where the Brawley Formation is exposed between Trenches 3 and 4…" "The fault is a disturbed zone several feet across that appears to be nearly vertical and has an average strike of N10°E." Comparisons between borings B-1 and B-3 indicate that the beds on the west side of the fault are about 20 feet lower than their equivalents on the east (Balderman, 1988).

In addition, the presence of a fault on the east side of the site was suggested by a lack of correlation in CPT profiles. A trench was excavated and a series of small breaks identified that together were interpreted as a fault zone with east-side-down displacement and a strike of N12°W. Cells 1 and 2 were sited to accommodate a 200-foot setback from the faults on the east and west sides (Figure 12).

Siting studies for Cell 3 included an extensive program of fault trenching, as shown on Figures 5 and 11 (Balderman 2002, Figure 4). The west-side faults that had been identified in the Cells 1 and 2 area were tracked to the south and additional faults were identified (Figure 6; Balderman, 2002, Figure 25). the western margin of Cell 3 was defined by a 200-foot setback from faults identified in these trenches. The main area of Cell 3 was cleared of active faulting.

3.1.3.2 Boreholes

The borehole program for Cells 1, 2, and 3 enabled geologists to establish a site stratigraphy and interpret geologic structure, to determine foundation and groundwater conditions, and to delineate the thickness and depth of clay layers. Clay layers were significant for use as borrow material for the clay liner, and to leave in-place as a natural barrier between the base of the landfill and the groundwater. Cone penetrometer tests were employed as a rapid and cost-efficient way to track stratigraphic layers between boreholes.

Cells 1 and 2 were sited over clay layer Qb2, a 10- to 28-foot-thick layer of silty clay classified as CH. This unit is exposed at the surface west of Cells1 and 2, and dips northeastward to underlie the cell footprints. The exposed area of unit Qb2 was excavated for borrow material to create the compacted clay liner for these cells.

Cell 3 was sited over unit Qb5, a massive clay classified as CH, which occurs as a layer 10 to 14 feet thick under the Cell 3 footprint. This unit is exposed at the surface to the west of Cell 3, and was excavated as borrow material for construction of this cell.

The position of the eastern margin of Cell 3 was constrained by a lateral facies change in unit Qb5 from the thick clay found beneath the cell, to a fine to medium sand east of the cell. A cross section drawn from SW to NE through boreholes illustrates this facies change (Figure 13). Balderman (2002) interprets the

relationship between the clay and the sand as reflection of the paleoenvironment during the deposition of unit Qb5. The thickening of the clay toward the northeast indicates that the clay was deposited in a lagoon or small embayment within the much larger lake. The body of eolian sand, likely a sand dune, apparently bounded the northeastern side of the lagoon or embayment. The interfingering of the sand and clay near the facies change represents variations through time in the boundary between the lagoon or embayment and the dune.

3.1.4 Current Permitted Areas

DVC currently holds three permits for the current monofill facility (Table 4). The conditional use permit (CUP) covers water use in all of Section 33. The solid waste facility permit (SWP) and the Board Order cover a total of 181.5 acres, which includes the NE quarter of Section 33 plus a small area of the SE quarter of Section 33 currently used by Cell 3 (Figure 14). This area includes the entirety of the current facility and the disturbed area on the west side. The permitted area for disposal, 28.9 acres, consists of the footprint of Cells 1, 2, and 3 within their perimeter berms.

Table 4. Current Permits Held by DVC

Permitting Agency	Permit Type	Permittee and date	Acreage, Description
Imperial County Planning and Development Services Department	Conditional Use Permit for a Class II solid waste monofill facility #CUP 05-0020	Desert Valley Company December 2005	640 acres, or all of Section 33
Imperial County Public Health Department	Solid Waste Facility Permit #13-AA-0022	Desert Valley Company September 2015	181.5 acres total 28.9 acres disposal
California Regional Water Quality Control Board, Colorado River Basin	Board Order #R7-2016-0016	Desert Valley Company June 2016	181.5 acres total 28.9 acres disposal

3.2 Geologic Model of the Cells 1, 2, and 3 Area

To have a clearer view of potential siting constraints for proposed Cell 4, the existing data generated during siting and exploration studies for Cells 1, 2, and 3 were compiled to create a geologic model. The model consists of (1) a geologic map of Sections 27, 28, 33, and 34, (2) a 3D depiction of borehole stratigraphy and (3) a 2D depiction of known faults. The process for development of the 3D stratigraphic model is described in preceding section 2.3.2. The model depicts the stratigraphic boundaries between sedimentary layers in the Brawley Formation that were defined by Balderman (2002) and identified in boreholes and surface geologic mapping. In addition to the 3D stratigraphic model, a 2D depiction of known active faults is presented along with a discussion of known active faults.

3.2.1 Geologic Map

The geologic map, presented in Figure 9, provides a plan view of the distribution of geologic units at the surface and known faults at a scale of 1:15,000. The extent includes the DVC property plus adjoining sections 28 and 34. This map illustrates the stratigraphic and geomorphic relationships among the mapped units, including the Brawley Formation, Lake Cahuilla deposits, Holocene alluvial deposits, and eolian

deposits. The mapped geologic units are described in Appendix A. The detailed scale of this map provides a higher resolution delineation of units relative to earlier mapping by Dibblee (2009) (Figure 2), and Balderman (1988) (Figure 4). The map also includes confirmed locations of known faults based on review of the published literature, geologic investigations for Cells 1, 2, and 3, and 2018 field mapping.

3.2.2 3D Stratigraphic Model

The purpose of the 3D stratigraphic model is to help visualize the geometry of stratigraphic units at depth in the current monofill area where they are delineated in detail in borehole logs. Then, utilize the geologic understanding and visualization to assess the likelihood that clay layers similar to those that underlie Cells 1, 2, and 3 may underlie potential sites for Cell 4. This section describes the stratigraphy and geometry of the clay beds beneath the site, and refers to three views of the 3D model, presented in Figures 15, 16, and 17. Note that the model exaggerates the true dip angle of the beds by applying a 5X vertical exaggeration. Actual bedding dips are less than 10 degrees.

The 3D model depicts the planar surfaces at the contact between units on a framework of simplified borehole logs. Thus the colored surfaces separate the individual geologic units. Clay unit Qb2 occurs between the teal and green surfaces and clay unit Qb5 occurs between the blue and purple surfaces. Note that the borehole logs within these units are colored dark blue to indicate the borehole encountered clay in this interval.

The stratigraphic units of the Brawley Formation defined by Balderman (2002) at the current monofill site include two thick clay layers, Qb2 and Qb5, which are interbedded with relatively coarser deposits comprising units Qb1, Qb3, Qb4, Qb6, and Qb7. The characteristics of the beds reflect alternating changes in depositional environments through the time of deposition. Conditions alternated between lacustrine, fluvial, and aeolian environments. The thick clay units indicate deposition in very still water of a lagoon or embayment isolated from significant coarse alluvial deposition.

Unit Qb5 exhibits an important change in composition from clay to sand at the eastern edge of the monofill. View B (Figure 16). The clay of Qb5 seen in the boreholes under Cell 3, transitions to sand in boreholes to the east. As discussed in section 3.1.3.2, a body of eolian sand, likely a sand dune or ramp, apparently bounded the northeastern side of the lagoon or embayment. View B of the 3D model clearly shows this facies change.

At the monofill site, the beds of the Brawley Formation generally dip to the north with gentle undulations resulting from tectonic deformation. Unit Qb2 is the younger clay layer and underlies Cells 1 and 2. Unit Qb5 is a somewhat older clay unit and underlies Cell 3. Both outcrop to the west of the monofill where they were quarried for borrow to construct the clay liner of each cell. Additional borrow was used for the cap of Cells 1 and 2. The disturbed area shown on the geologic map (Figure 9) reflects the excavation, backfill and grading from these activities.

Based on the 3D model, some idea of the likelihood of the occurrence of clay layer Qb2 or Qb5 can be made. The model provides good evidence of the presence of a clay layer in the subsurface in potential Cell

4 sites immediately north or west of the existing monofill. Either Qb2 or Qb5 should be present. The area south of the monofill, however, is underlain by stratigraphically older units that were not characterized by the previous investigations. The presence of a clay layer beneath this area is not yet known. In the southwest quadrant of Section 27, the model does not indicate with adequate precision whether either the Qb2 or the Qb5 may occur beneath the surface at appropriate depths. The Section 27 area is some distance from the area of known exploration and the underlying geologic structure is unclear. Based on the dip of beds in outcrops in Section 34, both Qb2 and Qb5 likely underlie this area, but may occur at depths below the groundwater table. No data have yet been collected on the stratigraphic units younger than Qb2 that may occur at more shallow depth.

3.2.3 Model of Active Faulting

As reviewed in Section 1.2, the site is located in a tectonically active area, and a number of faults have been identified at the site on the basis of fault trenching, geologic mapping, and most recently, geophysical survey. Major active faults located to the northwest and southeast of Sections 27 and 33 experienced surface rupture in the 1987 Superstition Hills earthquake (Figure 1). No 1987 surface rupture was documented in either Section 27 or 33. Faults discovered at the site were judged active on the basis of their displacement of Late Pleistocene to Holocene sediments. In general, the faults thus far documented in trenches and washes are considered to be minor faults with small displacements and do not constitute major tectonic elements of the Superstition Hills fault system.

During the data review, the evidence for each fault was reviewed. The map in Figure 12 shows the location of all faults in Section 33 whose presence and extent were well supported by field observations of trenches or wash exposures. Faults are numbered on the map and described below.

Faults 1 through 5 were documented in Trench 1, excavated for the initial site selection study (Balderman, 1988). The faults are described as steeply dipping to vertical with displacement of bedding of less than two feet. Also present in Trench 1 were a number of fractures and disturbed zones that did not show displacement of beds consistent with faulting. These may have formed as a result of strong ground shaking. The presence of these faults and fractures led to the elimination of this area as a potential site for the monofill (Balderman, 1988).

Fault 6 was documented in Trench 2, also excavated for the initial site selection study. It was the only fault identified in this trench at the time (Balderman, 1988). In 1989, additional trenches constrained the lateral extent of this fault and identified a second parallel fault, Fault 7 (Balderman, 1989). A 200-foot setback from Fault 7 established the western margin of Cells 1 and 2.

Faults 8 and 9 were identified during the fault trenching investigations conducted for the siting of Cell 3 (Balderman, 2002). The presence of Fault 9 constrained the western margin of Cell 3. The southern extent of Fault 8 was not investigated.

Fault 10 was identified in an incised wash draining northward along the east side of Section 33 (Balderman, 2002). The fault trends N 30W. It was not observed in Trench 219 which was located about 250 feet south of the wash exposure. Trenches on the east side of the monofill did not encounter other faults.

Fault 11 was identified in an incised wash to the southwest of the monofill, during the initial siting investigations (Balderman, 1988). The northern and southern extensions of this fault were not visible due to soil cover.

Fault 12 was identified in an incised wash during Fugro's 2018 field mapping. This fault is described as a one-foot wide zone with several parallel traces, having a 1.4-foot cumulative displacement of the Lake Cahuilla beds (Appendix A, Photo 6A). The fault could be traced a short distance across the surface to the south, but could not be traced north of the wash due to soil cover.

A fault that had been shown on early published maps and adopted for the 1988 Geologic map of Section 33 (Figure 4) has been subsequently reevaluated and removed. This fault is shown in a dashed line on Figure 4, trending northeast and marked "(FAULT FROM U.S.G.S.)." Balderman (2002) did not encounter this fault in the trenching investigation for Cell 3, therefore did not show it on the geologic structure map for Cell 3 (Figure 6). The most recent map published by the U. S. Geological Survey and the California Geological Survey (SGS/CGS, 2006) does not include it. Based on the work of Balderman (2002) and the USGS/CGS (2006), this presence of this fault is not supported by current data, thus the fault is not included on geologic maps for this project (Figure 12).

In summary, all faults that have been identified in Section 33 were documented in trench exposures or incised washes. They were recognized on the basis of vertically displaced bedding of generally less than one meter. Evidence to quantify lateral displacement was not present. Some faults could be traced across the ground surface for a limited distance, but generally faults could not be recognized across the surface in Section 33, possibly due to soil cover. In areas trenched extensively for the monofill, individual faults were laterally discontinuous. Insufficient data exist to establish whether they may continue in an enechelon pattern.

The relatively small displacements and lack of surficial expression suggest the faults thus far identified are minor faults and do not constitute major tectonic elements of the larger fault system. None were observed to have ruptured in the 1987 Superstition Hills earthquake. Nonetheless, they should be presumed capable of future surface rupture.

4. DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

This review of geologic information gathered by previous site investigations of 1988 through 2002 and data gathered in 2018 focuses on the potential for surface faulting, and on the subsurface location and extent of major clay beds.

Surface faults were identified based primarily on fault trenching investigations conducted for Cells 1, 2, and 3, are potentially present elsewhere within the CalEnergy property (Sections 27 and 33) based on the presence of active faults nearby, and the lack of good geologic exposures on the site (Figure 1). Siting studies for Cell 4 are tasked with identifying and delineating active faults so that the cell can be sited to maintain the required 200-foot setback from any active fault.

Previous studies provide useful background information on geologic conditions and a framework for understanding geologic issues for evaluating potential sites for Cell 4. However, they do not provide specific information with which to evaluate the presence of active faults in the potential Cell 4 sites. The lack of good exposure of stratigraphic units by which fault displacement can be evaluated results in a lack of information except where a fault trench has been excavated to expose these contacts, or where a drainage has eroded to reveal them. In Section 4.2 below, we recommend a screening level geophysical survey to identify potential fault locations within the area under study for the siting of Cell 4, followed by a targeted fault trenching investigation.

The presence of a thick clay bed to serve as a groundwater barrier at depth beneath the cell and as borrow material at the surface, is an important consideration in Cell 4 siting. The geologic model shows that the geometry of clay beds Qb2 and Qb5 is well documented beneath Cells 1, 2, and 3, and most likely can be reliably traced to the immediate west and northwest of the monofill along the strike of the bedding.

To the south of Cell 3, the strata of the Brawley Formation are older than Qb5 and their composition is not known, except for a single borehole located on the southern margin of Cell 3. Based on field description of Brawley Formation strata in Section 34 to the east (Appendix A, Figures A-1 and A-2) clay may be present similar to the clay observed at Field Stop 1, however subsurface exploration would be required to determine the depth and thickness of this or any other clay layers in a site located to the south of Cell 3.

In the southwest quadrant of Section 27, clay layer Qb2 would likely be too deep (i.e. below the groundwater table), based on the northward dip of the bedding. The composition of the strata overlying Qb2 is not known. Again, subsurface exploration would be required to determine the depth and thickness of clay layers in Section 27.

4.2 Recommendations for Completing the Geologic Siting Assessment

Due to the time required for permitting fault trenches that cross jurisdictional drainages, and the time and expense required to conduct screening-level fault trenching (i.e. many long trenches), we propose to rely on geophysical survey as the initial screening tool to identify areas of potential active faults. Based on the

results of Fugro's 2018 seismic reflection survey of line GL-1 in Section 27, the method is capable of imaging planar reflectors in the subsurface with a resolution of 0.5 meters. Reflectors represent stratigraphic contacts observed in the geophysical profile, and they may be interpreted as continuous (un-faulted) or displaced (faulted).

Geophysical surveys would be followed closely by fault trenching studies to evaluate specific areas where potential faults have been identified in the geophysical profiles. By limiting trenches to specific targets, trench length may be constrained to minimize the need for excavations that impact jurisdictional drainages. For example, the geophysical results for line GL-1 showed continuous planar reflectors over most of the line. Three locations show displaced reflectors (displacements of 1-2 meters) that indicate potential faulting. Two fault trenches have been marked in the field to investigate these features and determine whether they represent active faults. Neither crosses a jurisdictional drainage.

A geophysical survey can also provide excellent information on geologic structure, and can help track specific beds in the subsurface across the property. This can be especially helpful in correlating clay beds from one area to another.

A proposed layout for a screening-level geophysical campaign is presented in Figure 18. The campaign consists of seven lines comprising a total of 5,594 meters (18,353 feet) of survey line, focusing on the areas north, west, and south of the existing monofill in Section 33, and the southwest quadrant of Section 27.

To summarize, the following field investigations and analyses are recommended:

1. Conduct a screening-level geophysical campaign to identify potential faults and establish the depth and location of subsurface clay beds within potential Cell 4 site areas.
2. Based on interpretation of the geophysical data, identify possible fault trench locations, avoiding jurisdictional drainages where possible.
3. Conduct fault trenching investigations in three phases.
    a. The first phase will consist of the two trenches currently identified in Section 27 from geophysical line GL-1 (Figure 19). These trench investigations may be conducted concurrently with or in advance of the geophysical campaign. The results of from these trenches will help understand how faults imaged at depth in a geophysical profile may appear in a trench exposure.
    b. The second phase will consist of trenches identified on the basis of interpretation of the additional geophysical lines, and will include only those trenches that can be sited to avoid jurisdictional drainages.
    c. The third phase, if needed, will consist of trenches that cross jurisdictional drainages thus require additional lead time to allow for permitting.
4. Drill two boreholes, each approximately 150 feet deep, as shown on Figure 18. The boreholes will be logged to note the presence and thickness of clay layers, correlate lithologic units to the stratigraphic sequence established by Balderman (2002), and document groundwater levels. Collect samples of clay for conductivity testing. A geophysical log will also be run in the borehole to determine the seismic

velocity profile of the subsurface materials. Seismic velocities will enable the seismic reflection profiles to be adjusted to correctly indicate the depths of the reflectors.

5. Use the borehole and geophysical data to define the 3D geologic model to show key bedding contacts (e.g., tops of clay layers) as they occur beneath the candidate Cell 4 sites.

Once completed, the above program will provide key geologic information needed to select a site footprint for Cell 4.

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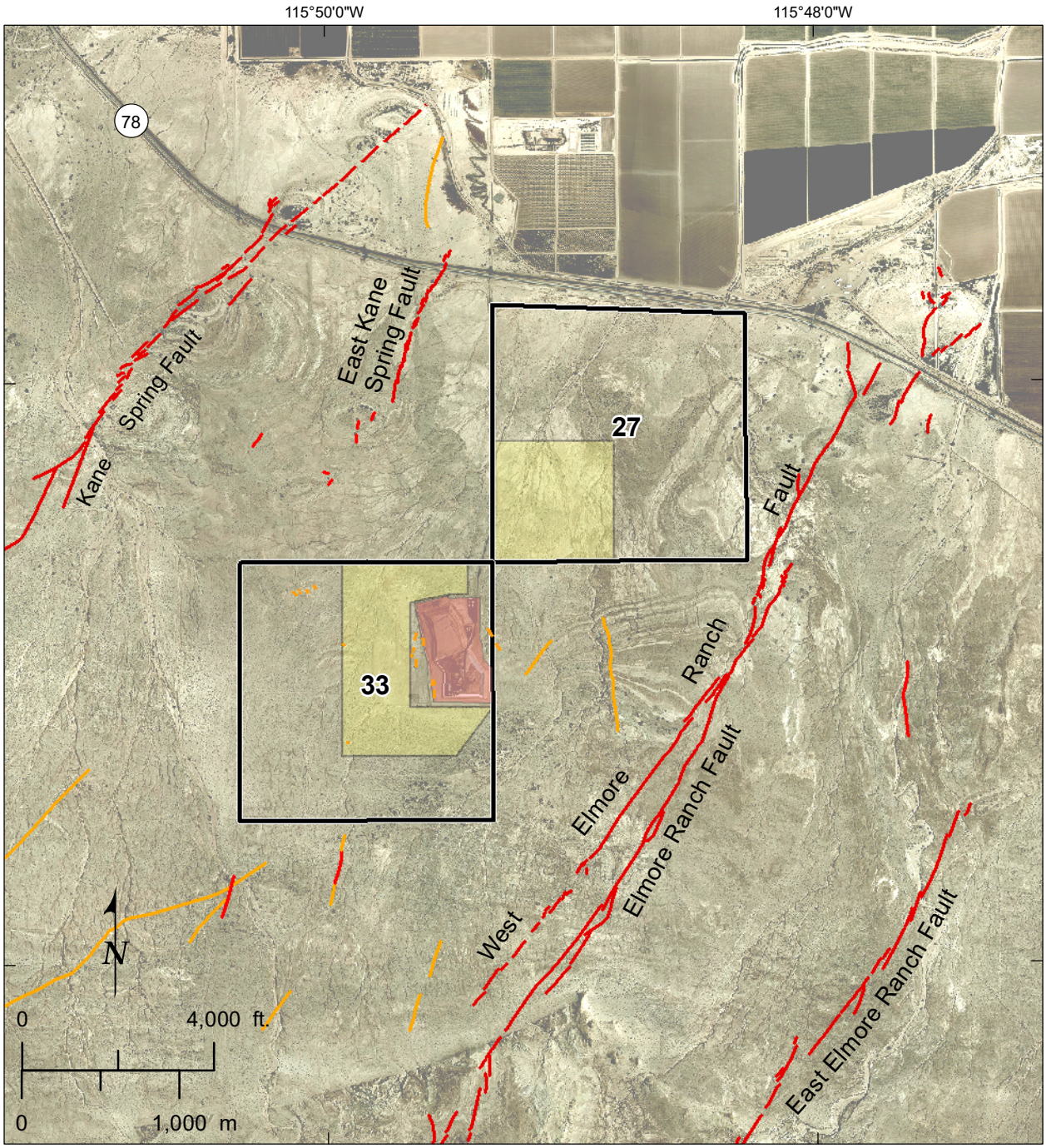
FIGURES



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

Existing monofill

DVC Property showing section numbers

Primary areas under study for siting of Cell 4

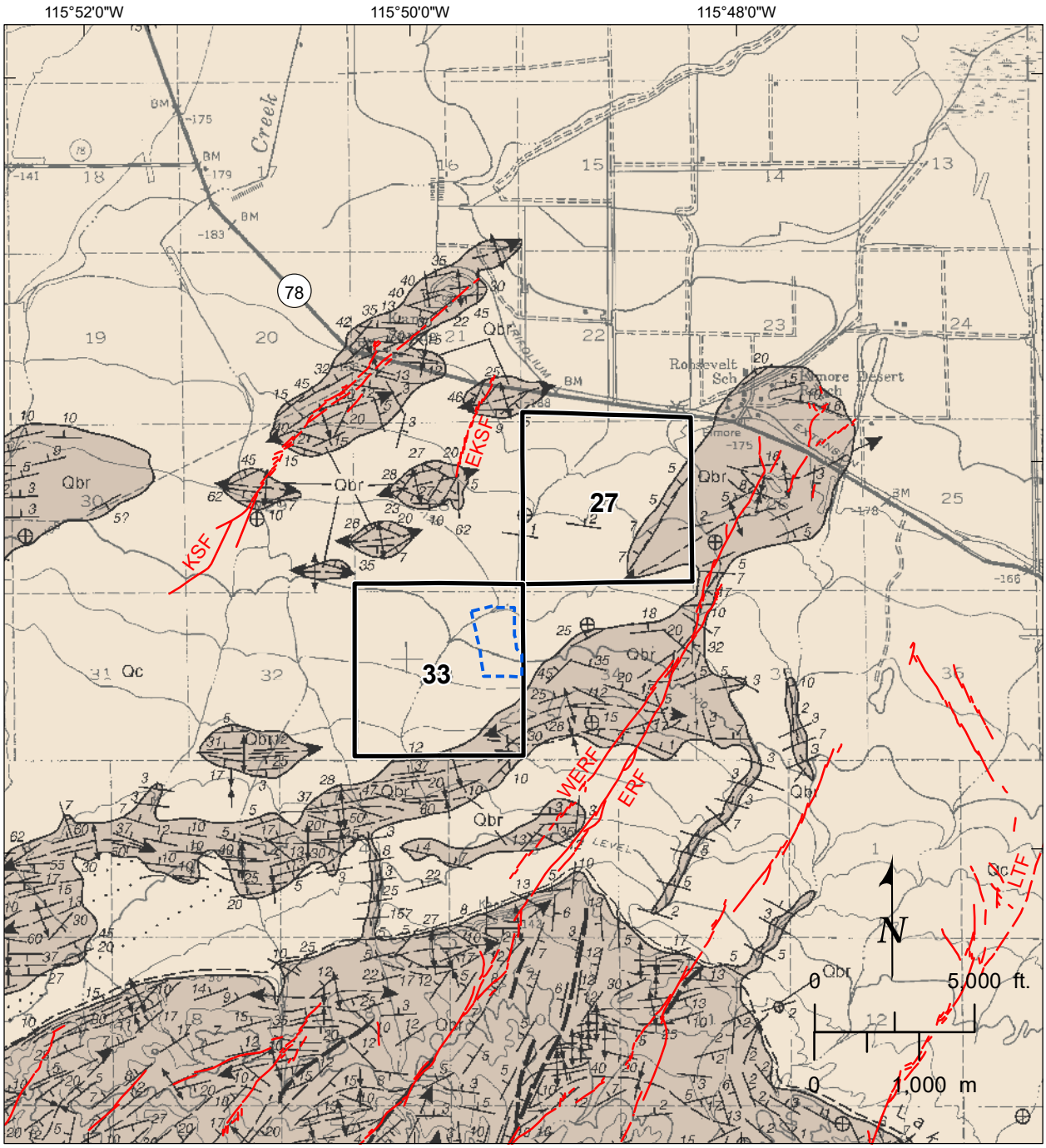
Faults

Historical fault, 1987 rupture (USGS/CGS, 2006; Treimen, 1989)

Late Quaternary fault without 1987 rupture (Sharp et al., 1989, Balderman, 2002.)

SITE LOCATION SHOWING KNOWN FAULTS FIGURE 1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\01_D-25_FaultMap.mxd; j.holmberg; 8/16/2018



Legend

Faults (USGS/CGS, 2006)

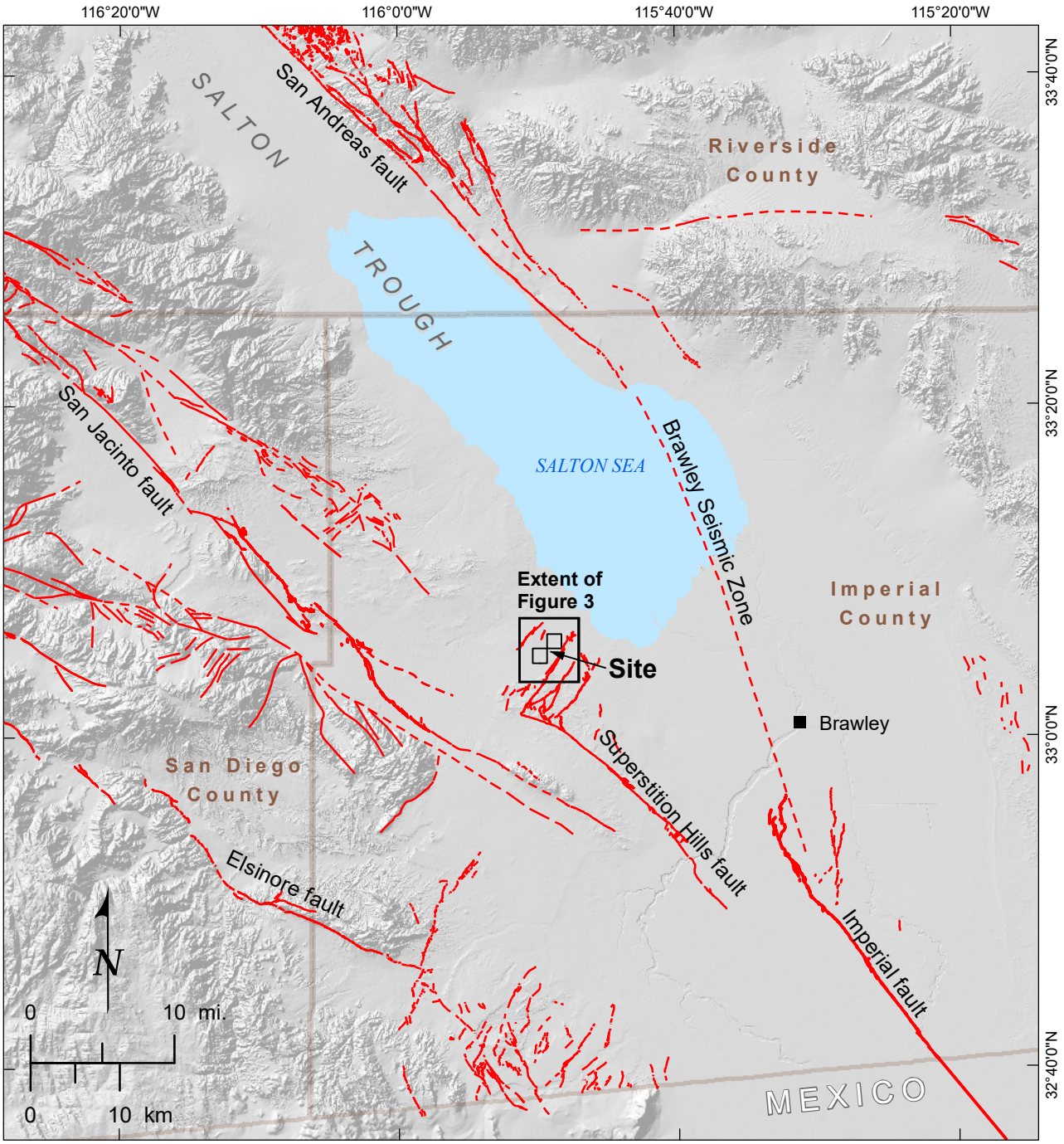
- Well Constrained
- Moderately Constrained
- Inferred
- KSF — Kane Springs Fault
- EKSF — East Kane Springs Fault
- WERF — West Elmore Ranch Fault
- ERF — Elmore Ranch Fault
- LTF — Line Tree Fault

Geologic Units (Dibblee, 1954, 2008)

- Qc — Cahuilla Beds; thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla, fossiliferous.
- Qbr — Brawley Formation; Lacustrine facies of Ocotillo Conglomerate, up to 2000 feet thick.
- Existing monofill
- Sections 27 and 33

GEOLOGIC MAP OF VICINITY FIGURE 2

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\02_D-24_GeologicMap_Dibblee.mxd; j.holmberg; 8/16/2018



Base map: hillshade from NED 30 m.

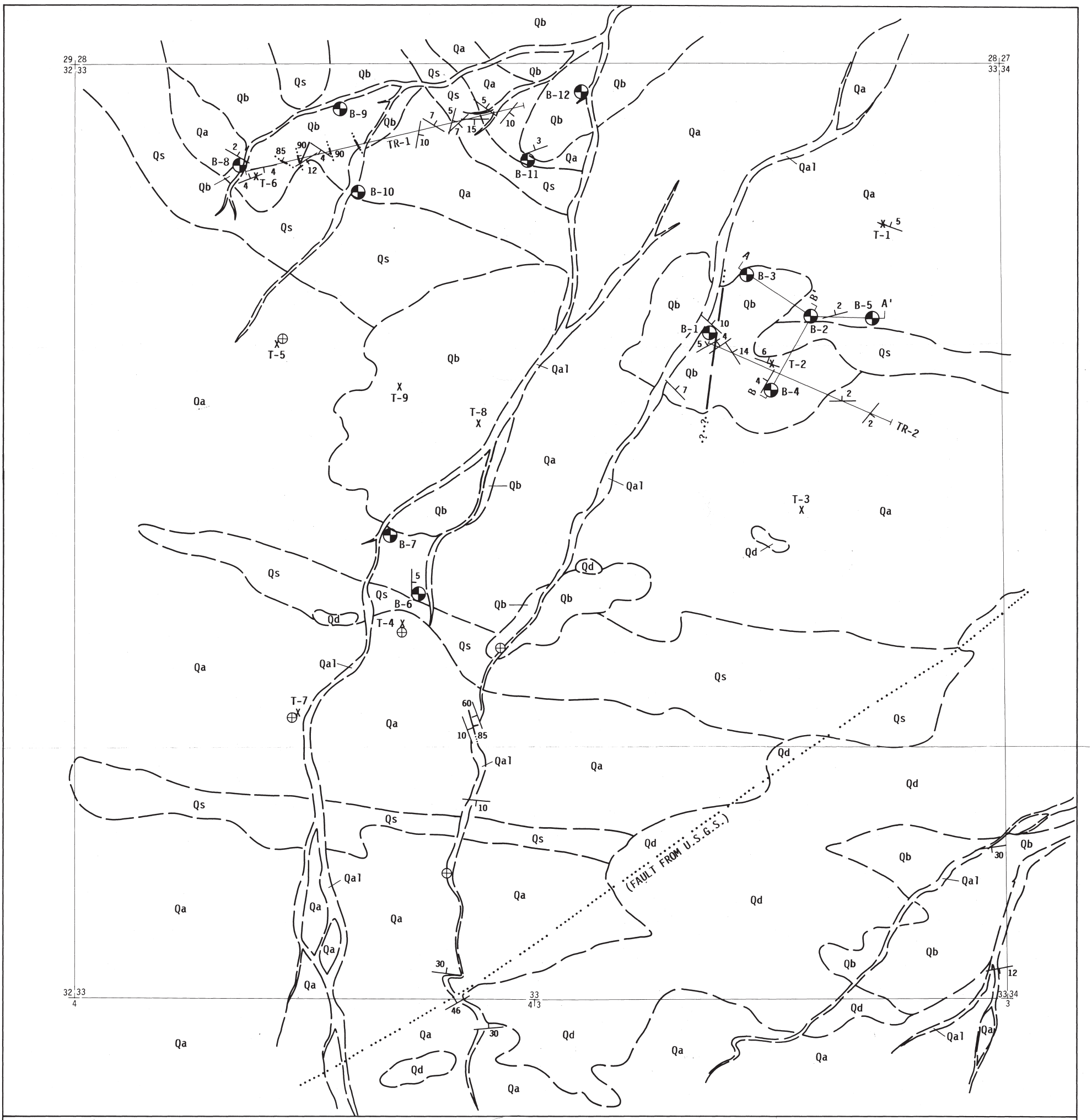
Legend

Faults (USGS/CGS, 2006)

- Well Constrained
- Moderately Constrained
- Inferred

TECTONIC SETTING MAP FIGURE 3

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\03_D-23_TectonicSetting.mxd; j.holmberg; 8/16/2018



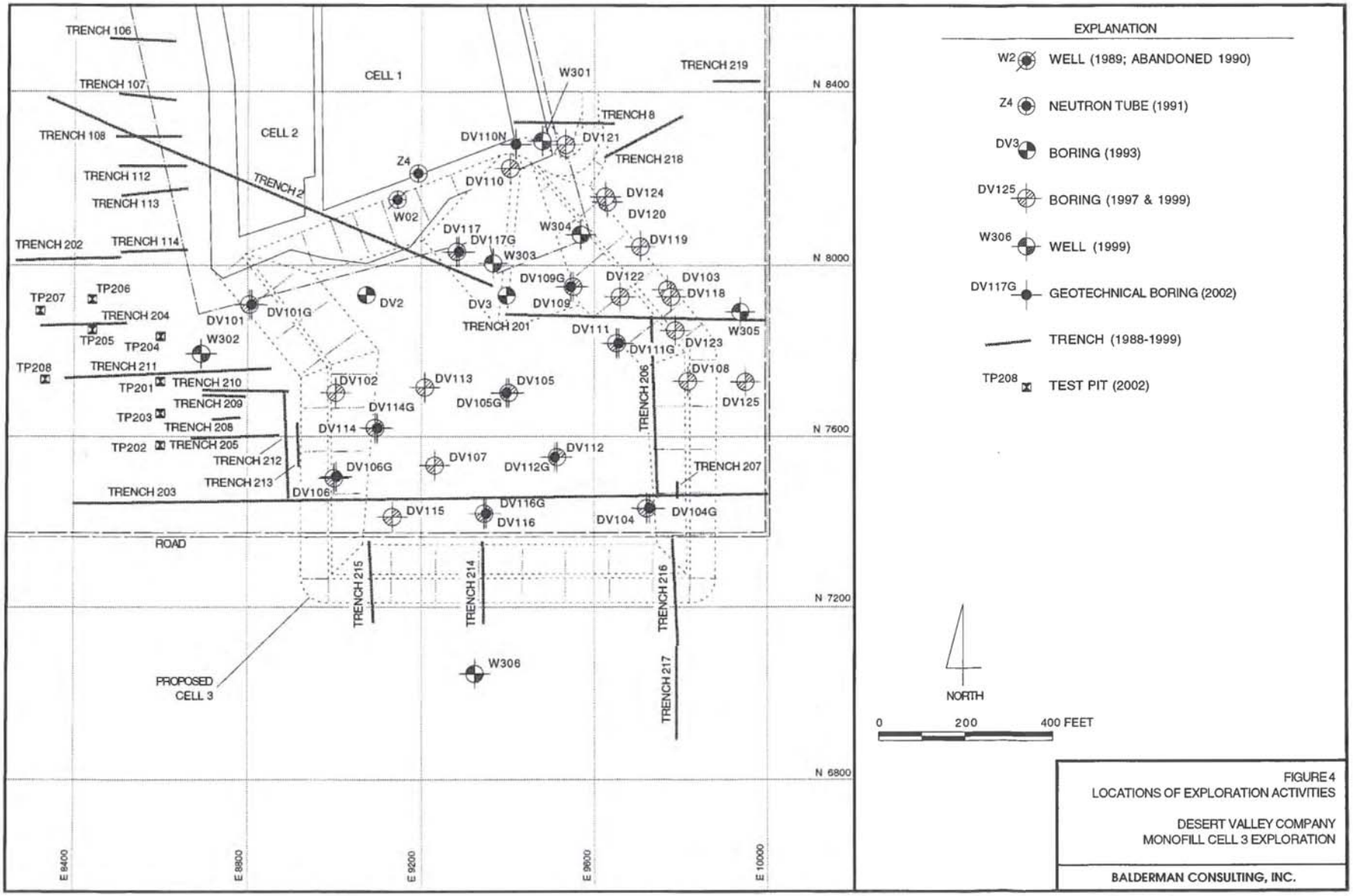
TARGHEE, INC.
Environmental Consulting and Management
Air • Water • Hazardous Waste
(213) 435-8080
110 Pine Avenue, Suite 925
Long Beach, California 90802

GEOLOGIC MAP
SECTION 33, T12S/R11E

PROJECT NAME: MONOFILL
PROJECT NO.: TI88-100
DATE: OCTOBER 1988 | FIGURE 8

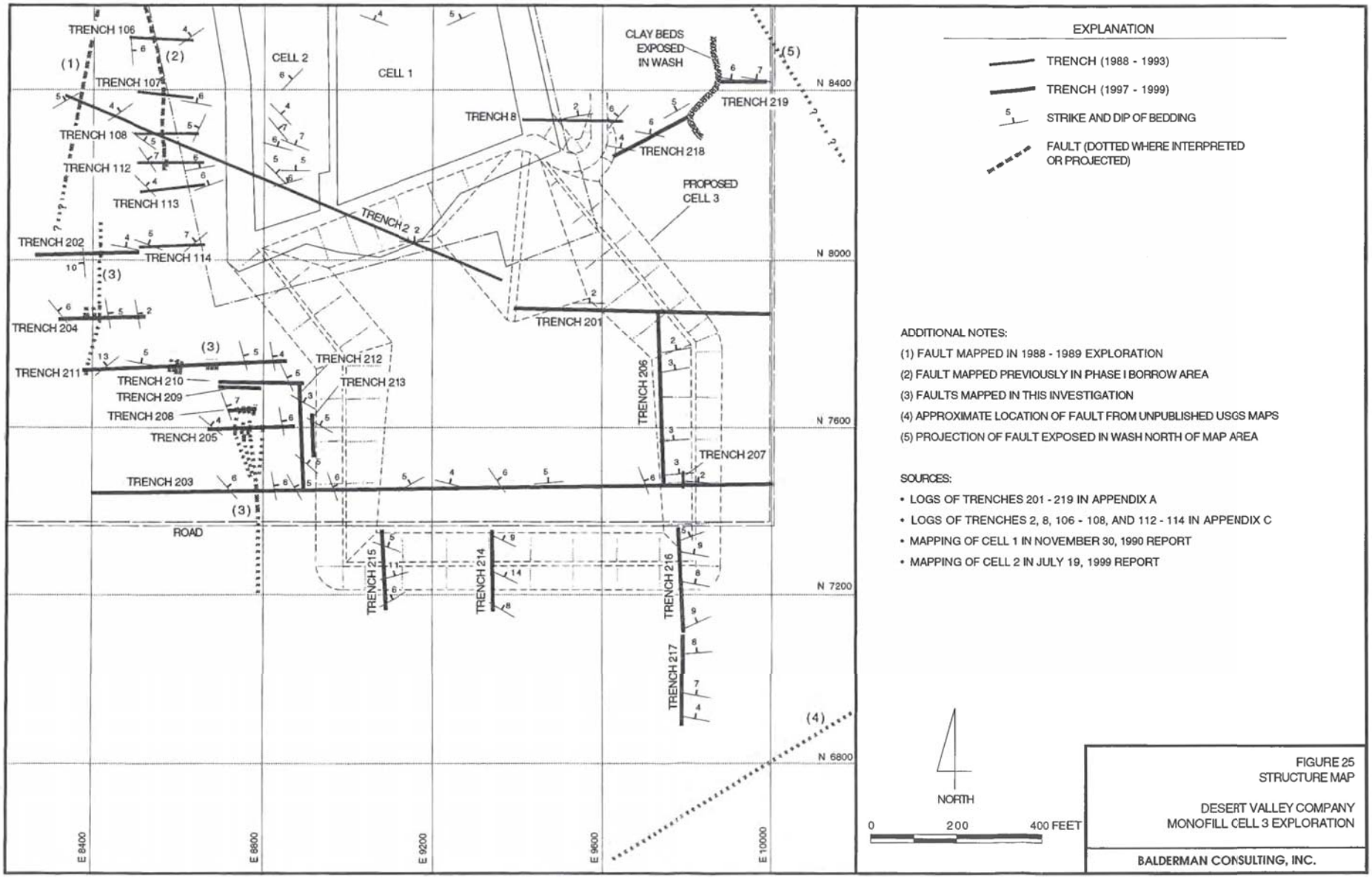
Source: Balderman, 1988.

1988 GEOLOGIC MAP OF SECTION 33 FIGURE 4



Source: Balderman, 2002.

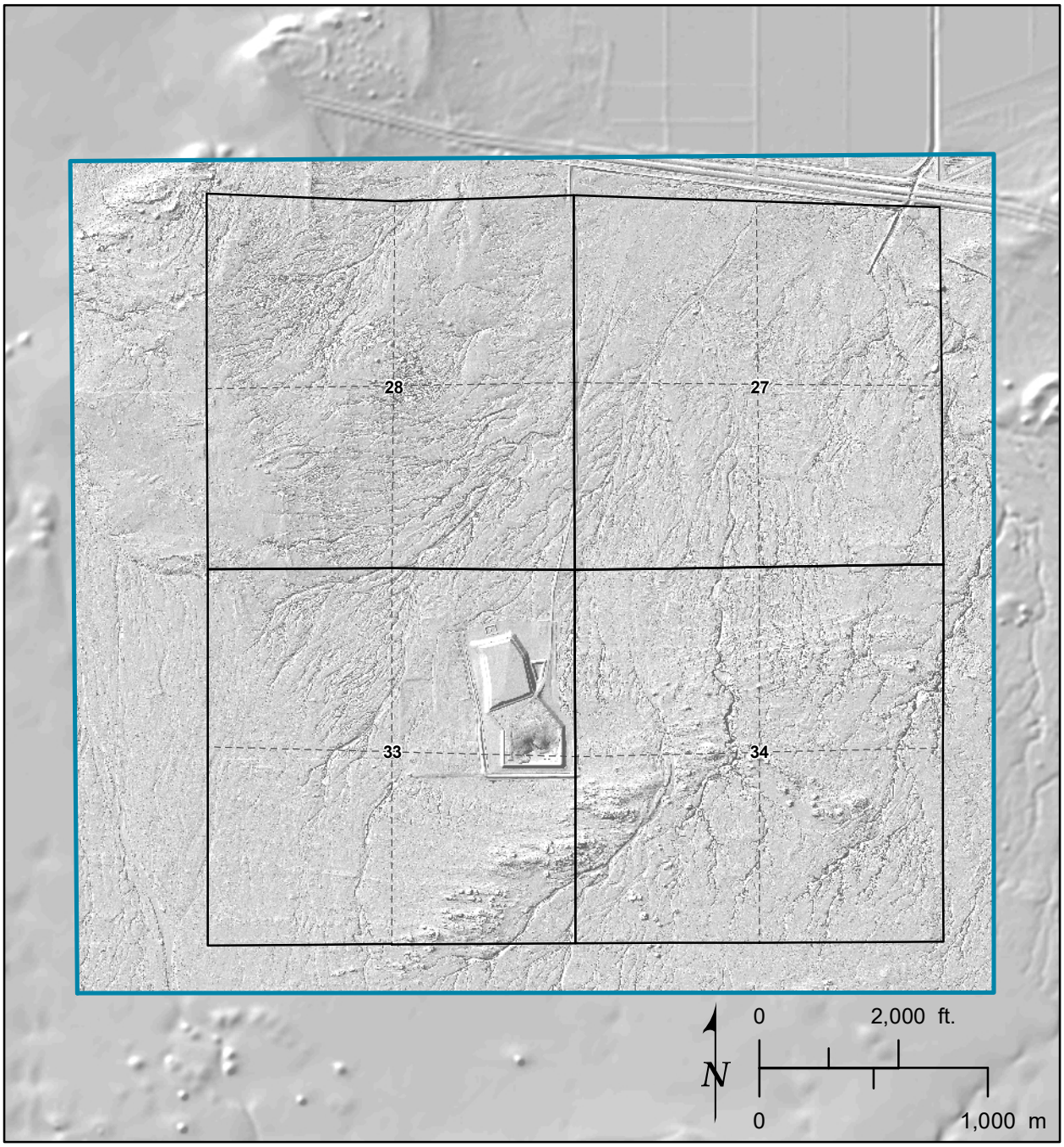
GEOLOGIC EXPLORATION FOR CELL 3, 1993-1999 FIGURE 5



Source: Balderman, 2002.

GEOLOGIC STRUCTURE OF THE CELL 3 SITE FIGURE 6

fwla-wc-file1/Project/Projects/72_0000/72_170065_CalEnergy_DVC_Cell4/05_Graphics/Site_Geology_Review/ 06(D-40)_Structure_Cell_3.ai Wednesday, August 15 2018 16:08:57



Legend

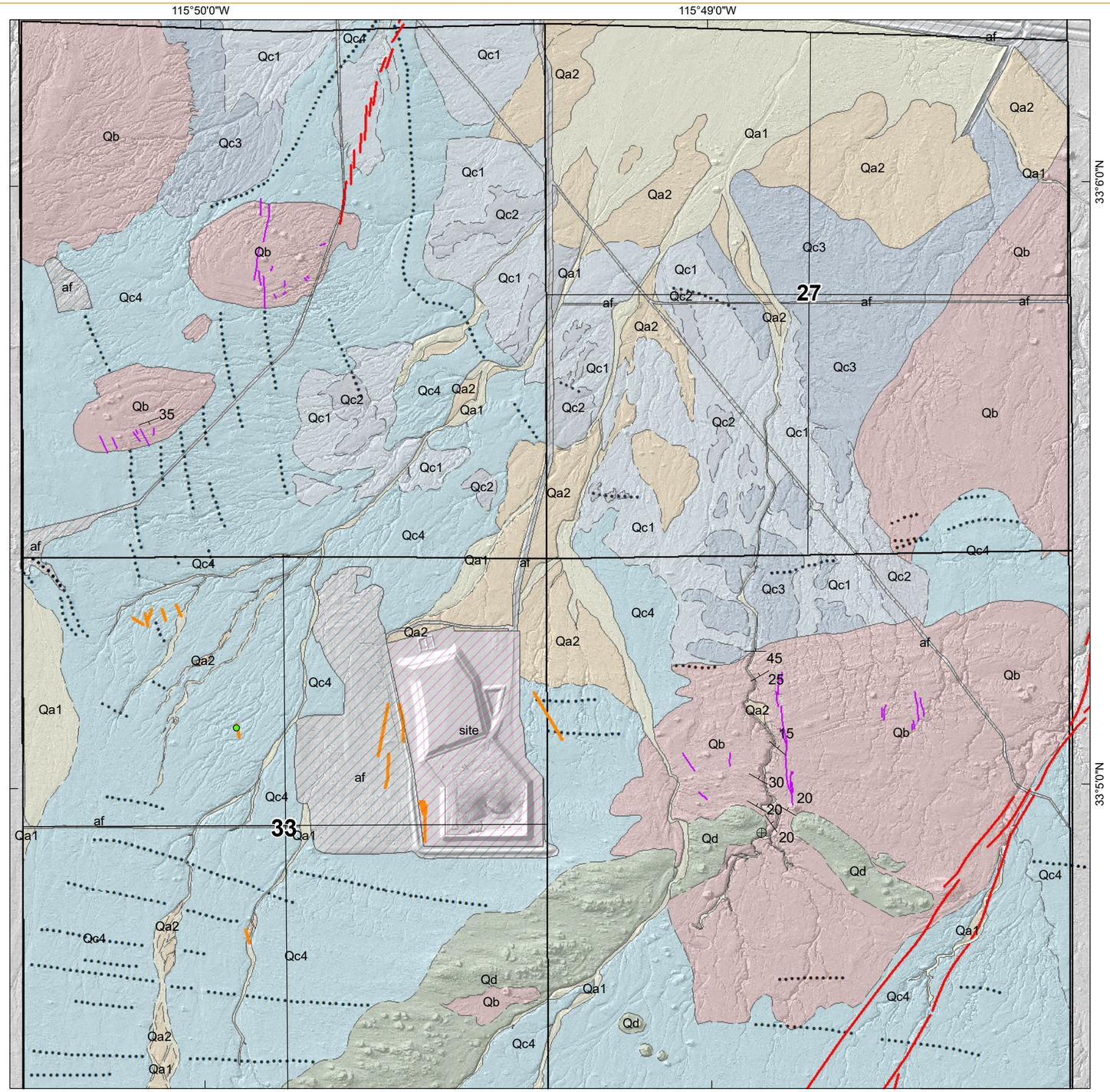
Section, with quadrants

Extent of Fugro (2018c) LiDAR and imagery data.
Hillshade image shown is a representation of LiDAR data.

EXTENT OF 2018 LIDAR AND IMAGERY DATA FIGURE 7

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\07_D-19_LiDAR_Extent.mxd; j.holmberg; 8/15/2018

Figure 8: Geophysical Line GL-1 Showing Proposed Fault Trenches contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.



Legend

Geologic Units

- DVC Cell 1, 2, 3
- af — Disturbed ground
- Qa1 — Active channel and alluvial fan deposits
- Qa2 — Inactive alluvial fan and terrace deposits
- Qc1 — Lake Cahuilla Deposits - light gray silt
- Qc2 — Lake Cahuilla Deposits - sand
- Qc3 — Lake Cahuilla Deposits - tan silt
- Qc4 — Lake Cahuilla Deposits - silt and sands with beach ridges
- Qd — Aeolian deposits
- Qb — Brawley Formation

Bedding Attitude

- ⊕ Horizontal
- 25 Inclined (labeled with dip)

Faults

- Late Quaternary (this study)
- Active, historic rupture (Treiman, 1989 and USGS/CGS, 2006)
- F3 — Active (Balderman, 2002, and this study)

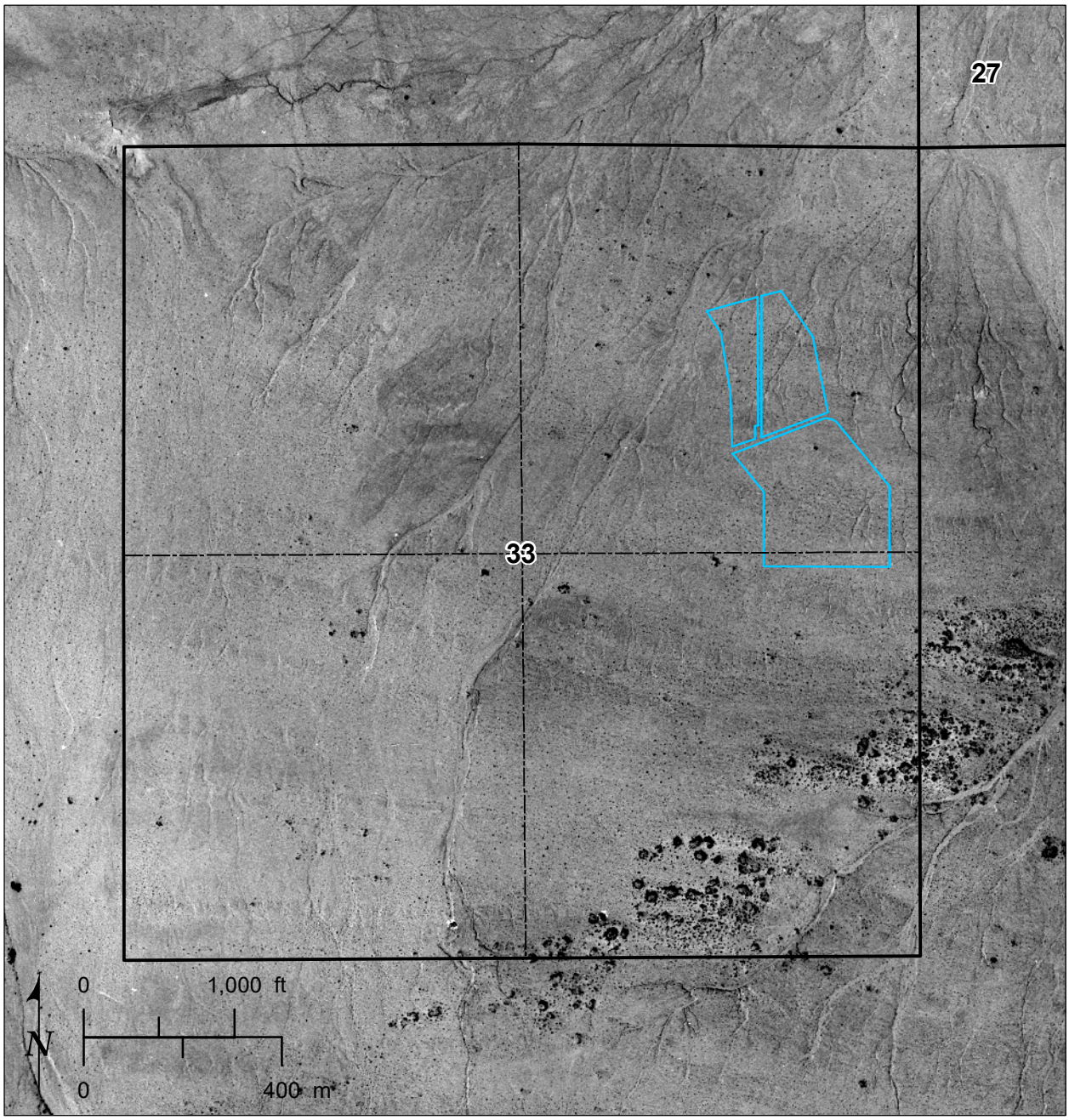
- Beach ridges, Lake Cahuilla
- 5-ft. topographic contour (Fugro 2018, LiDAR)
- Sections 27 and 33, with quadrants

0 2,000 ft.
0 500 m
N

SURFICIAL GEOLOGIC MAP

FIGURE 9

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\09_D-22_Surficial Geologic Map.mxd; j.holmberg; 8/16/2018



Imagery from University of California, Santa Barbara (C-15152 5-26).

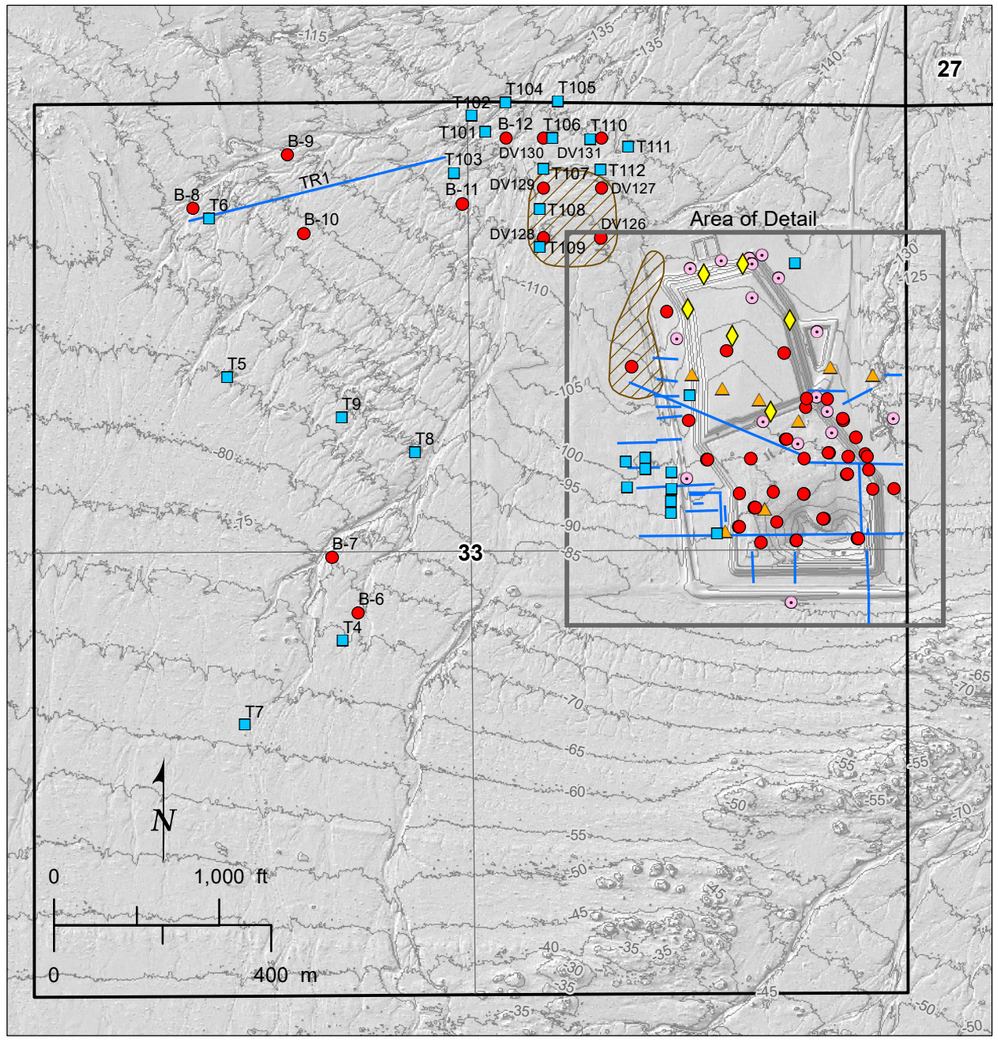
Legend

Section owned by CalEnergy, with quadrants

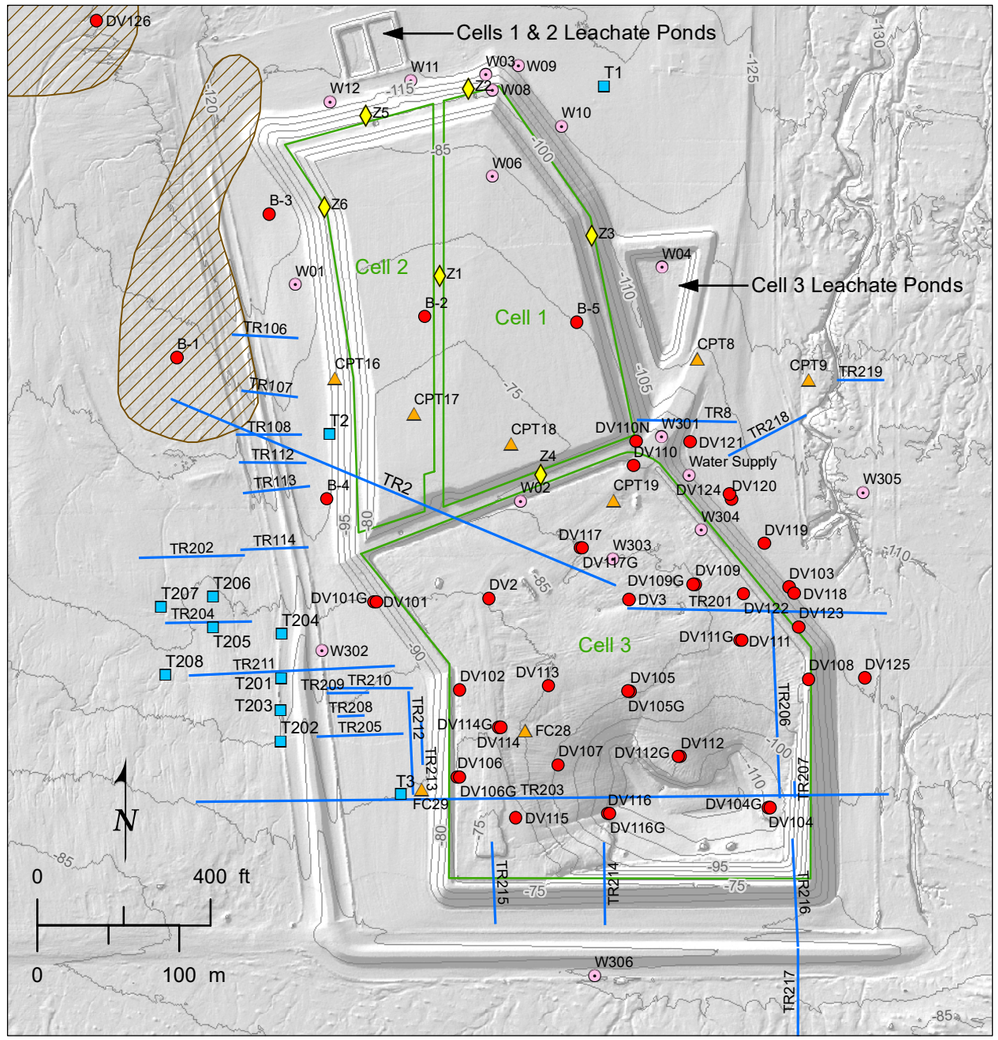
DVC monofill facility

HISTORICAL AERIAL IMAGERY OF SECTION 33, 1950 FIGURE 10

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\10_D-35_Historical_Aerial.mxd; j.holmberg; 8/15/2018



A. Overview of Site Exploration



B. Detail of Monofill Area

Legend

Approximate borrow areas for Cells 1 and 2

Section owned by CalEnergy, with quadrants

5-foot interval topographic contour (Fugro, 2018 LiDAR)

Past Explorations, 1988-2002

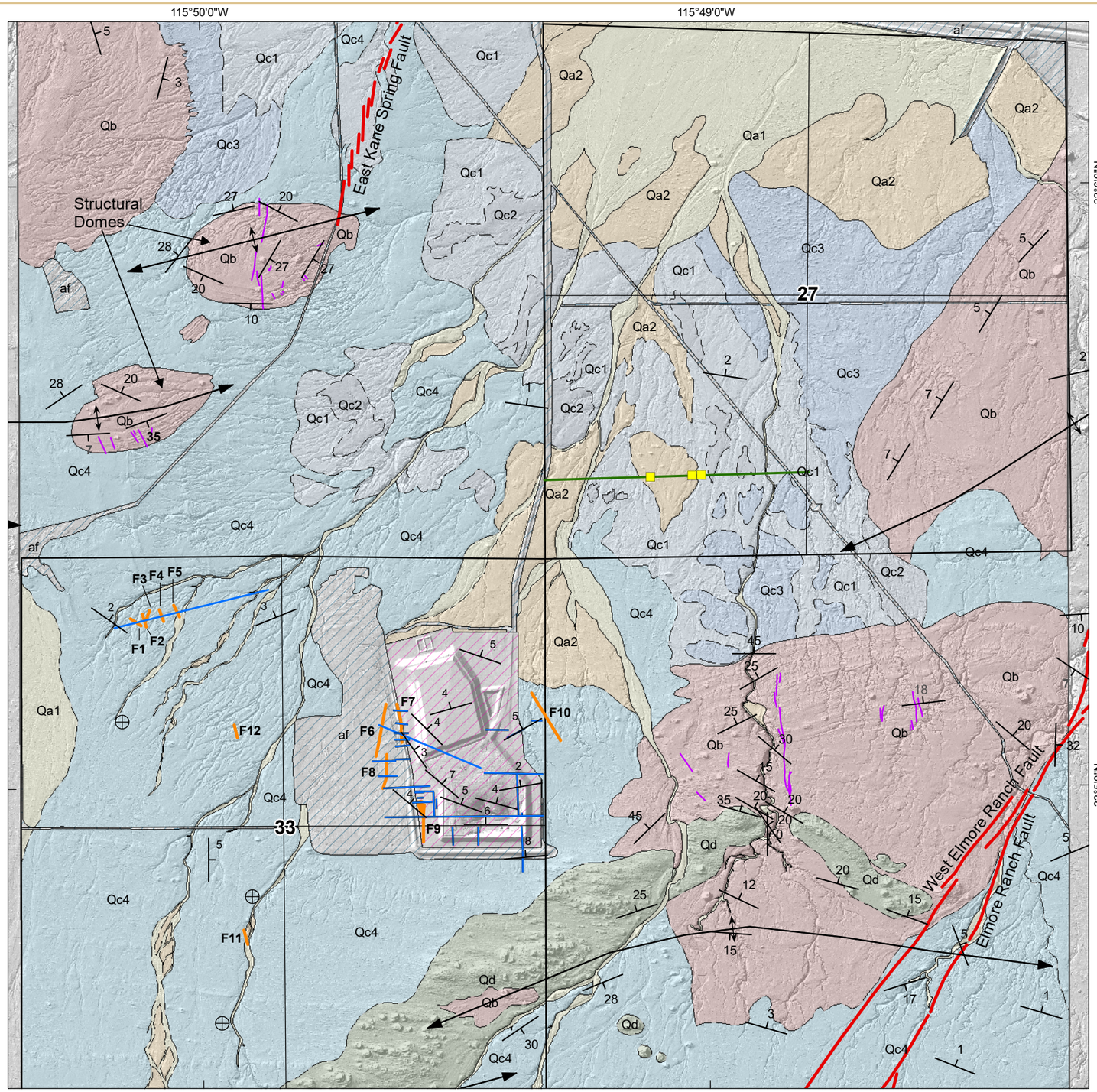
- Test pit
- Boring
- Neutron tube
- Well
- CPT
- Trench

Hillshade base from Fugro 2018 LiDAR.
See Table 4 for source information.

HISTORICAL SITE DATA AND INVESTIGATIONS

FIGURE 11

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\11_D-33 Historical Site Data and Investigations.mxd; j.holmberg; 8/16/2018



Legend

- Seismic lineament projection
- Horizontal bedding (Balderman, 2002)
- 27 — Strike/dip measurement (Balderman, 2002; Dibblee, 2008; this study)
- Anticline showing directions of plunge (Dibblee, 2008)
- Trench (Balderman, 1988 and 2002)
- Geophysical line (Fugro, 2018b)

Faults

- Historical fault, 1987 rupture (USGS/CGS, 2006; Treimen, 1989)
- F3 — Active fault, number keyed to text (Balderman, 2002 and this study)
- Quaternary fault (this study)

- DVC Cells 1, 2, 3

Geologic Units (this study)

- af — Disturbed ground
- Qa1 — Active channel and alluvial fan deposits
- Qa2 — Inactive alluvial fan and terrace deposits

Lake Cahuilla Deposits

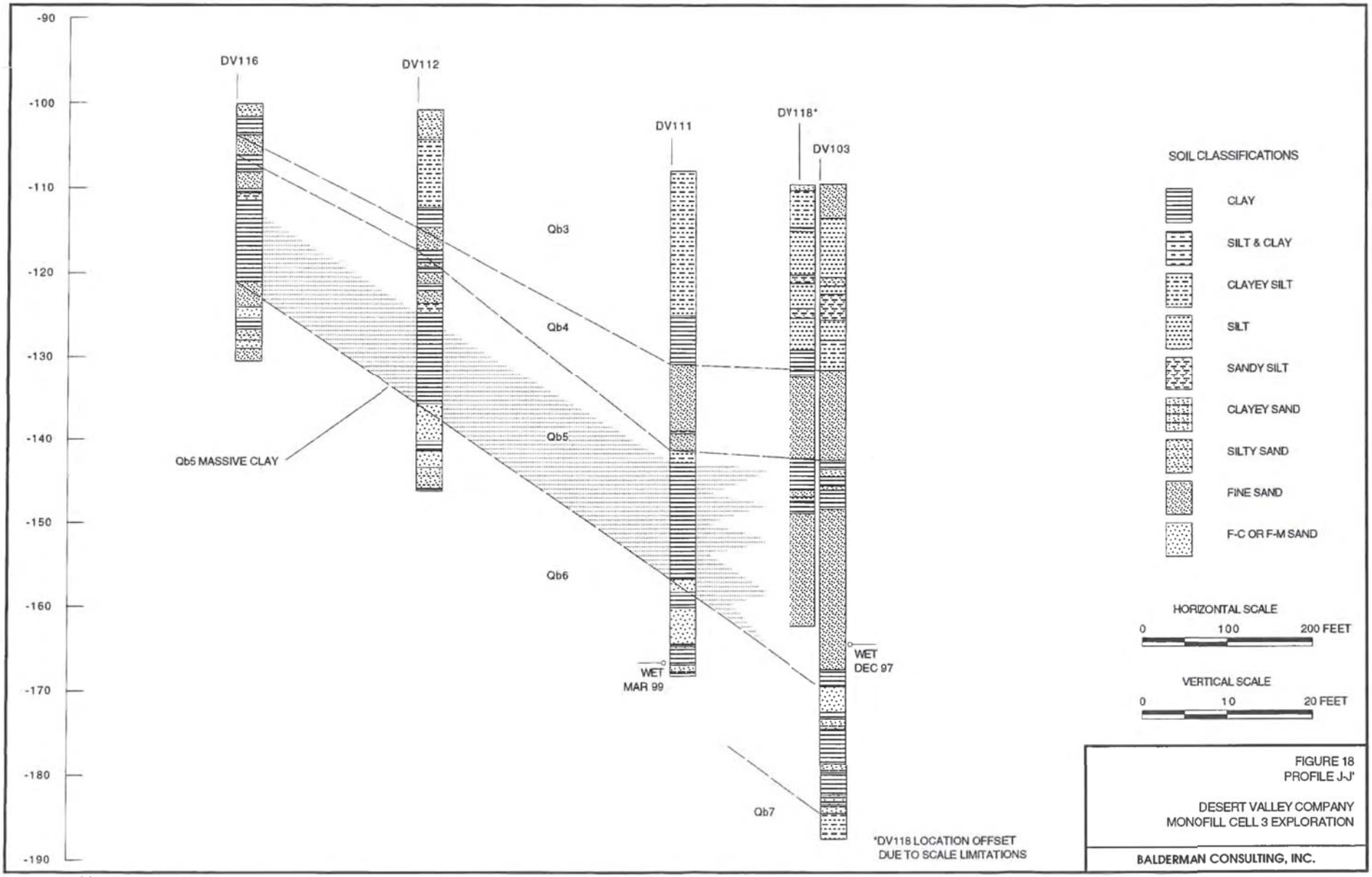
- Qc1 — Light gray silt
- Qc2 — Sand
- Qc3 — Tan silt
- Qc4 — Silt and sands with beach ridges
- Qd — Aeolian deposits
- Qb — Brawley Formation

0 1,000 ft.
0 400 m
N

GEOLOGIC STRUCTURE AND FAULTS

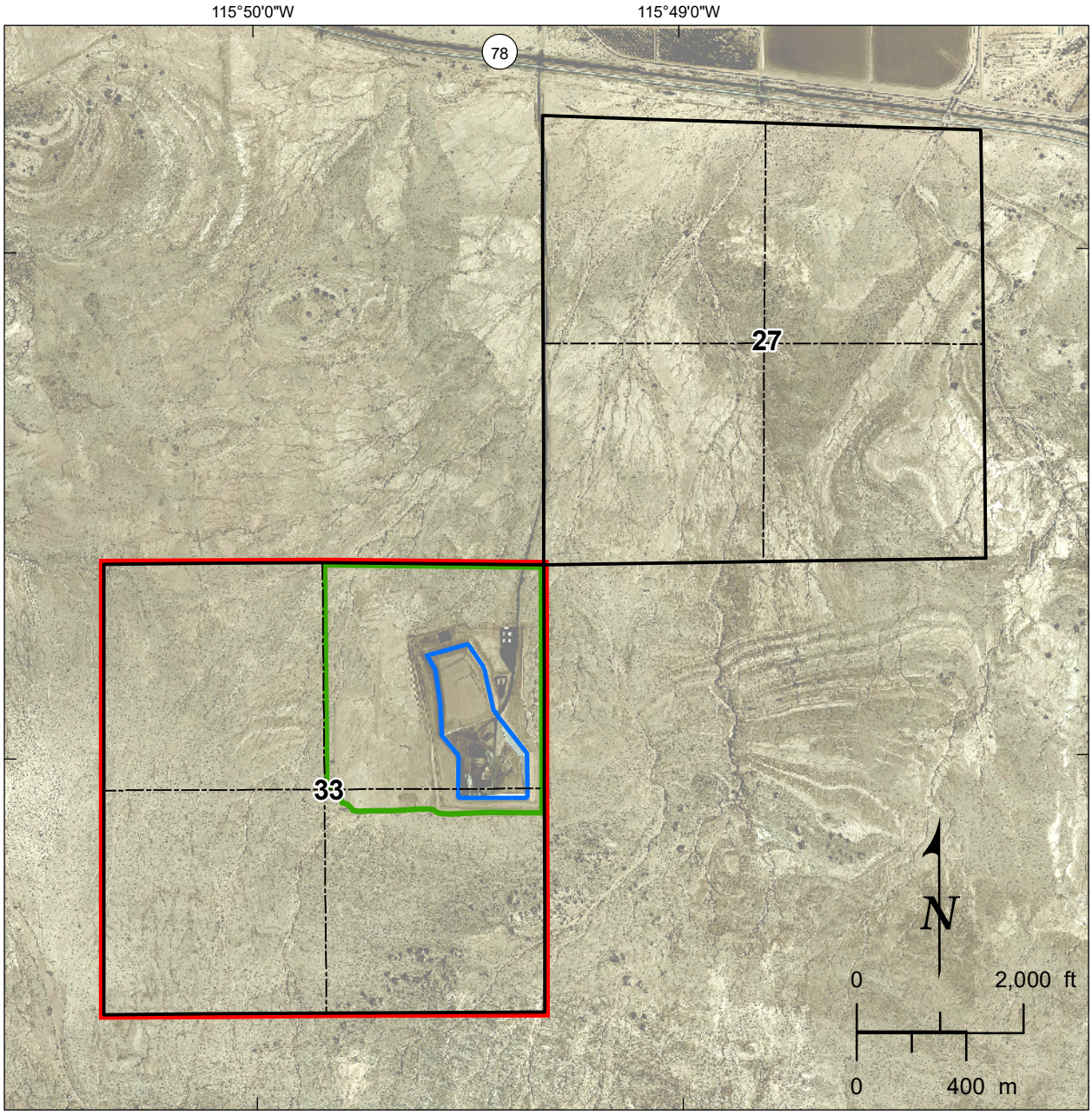
FIGURE 12

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\12_D-34_Geologic Structure and Faults.mxd; j.holmberg; 8/15/2018



Source: Balderman, 2002.

CROSS-SECTION J-J' SHOWING FACIES CHANGE IN UNIT QB5 FIGURE 13



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

Sections owned by CalEnergy, with quadrants

Conditional Use Permit, 2005 (640 acres)

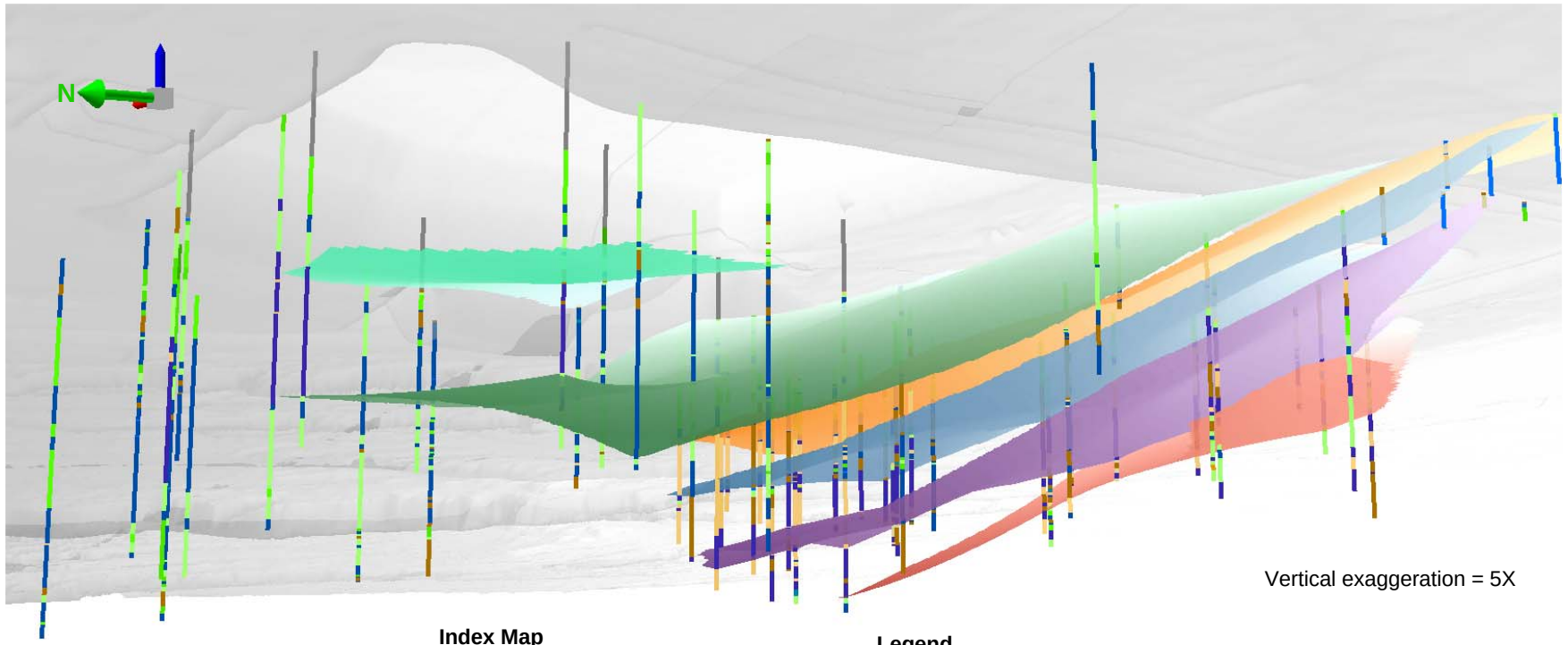
Solid Waste Facility Permit, 2015

Total (181.5 acres)

Disposal (28.9 acres)

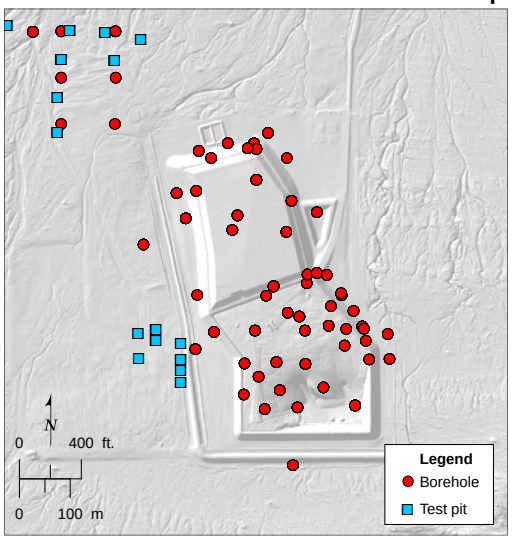
CURRENT DVC PERMITS FIGURE 14

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\14_D-37_Current_DVC_Permits.mxd; j.holmberg; 8/15/2018



Index Map

VIEW A



Legend

Stratigraphic Contacts

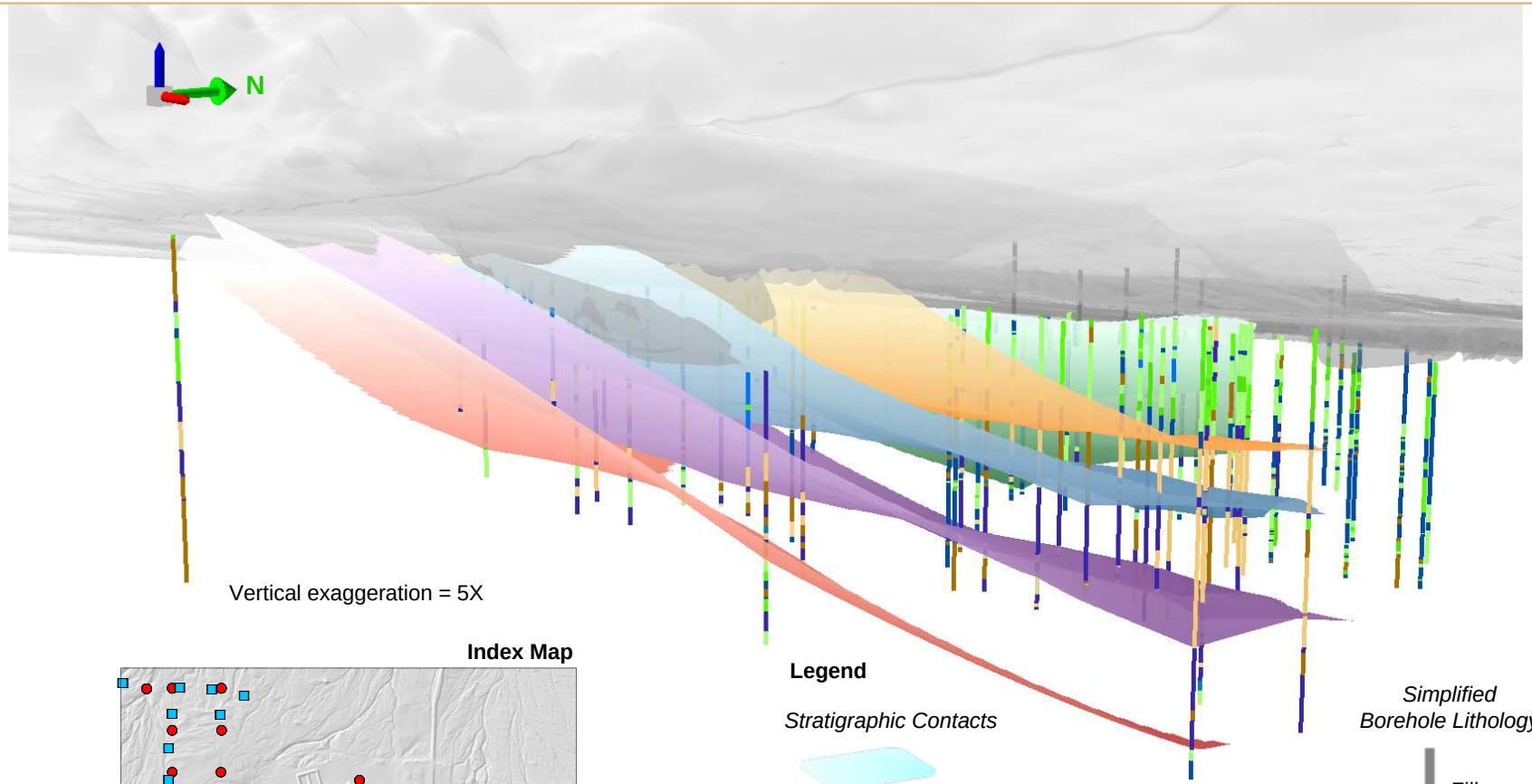
Qb2
Qb3
Qb4
Qb5
Qb6
Qb7

Simplified Borehole Lithology

Fill
Silt
Sand
Clay

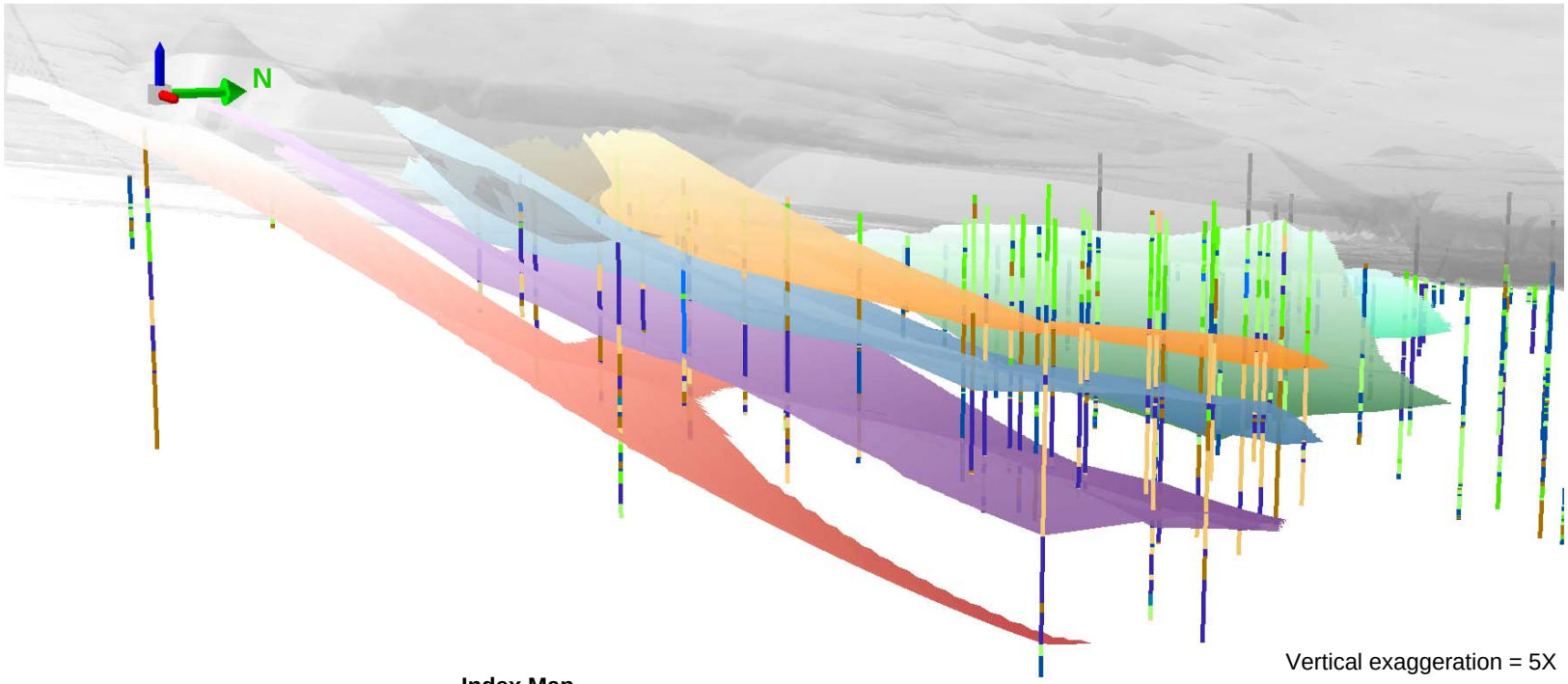
3D MODEL, VIEW A

FIGURE 15



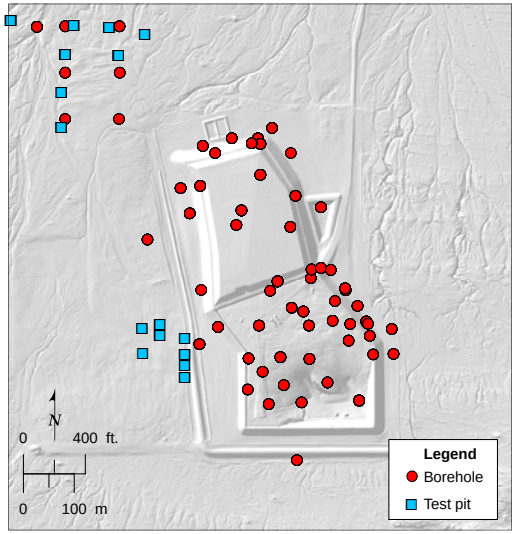
3D MODEL, VIEW B

FIGURE 16



Vertical exaggeration = 5X

Index Map



VIEW C

Legend

Stratigraphic Contacts

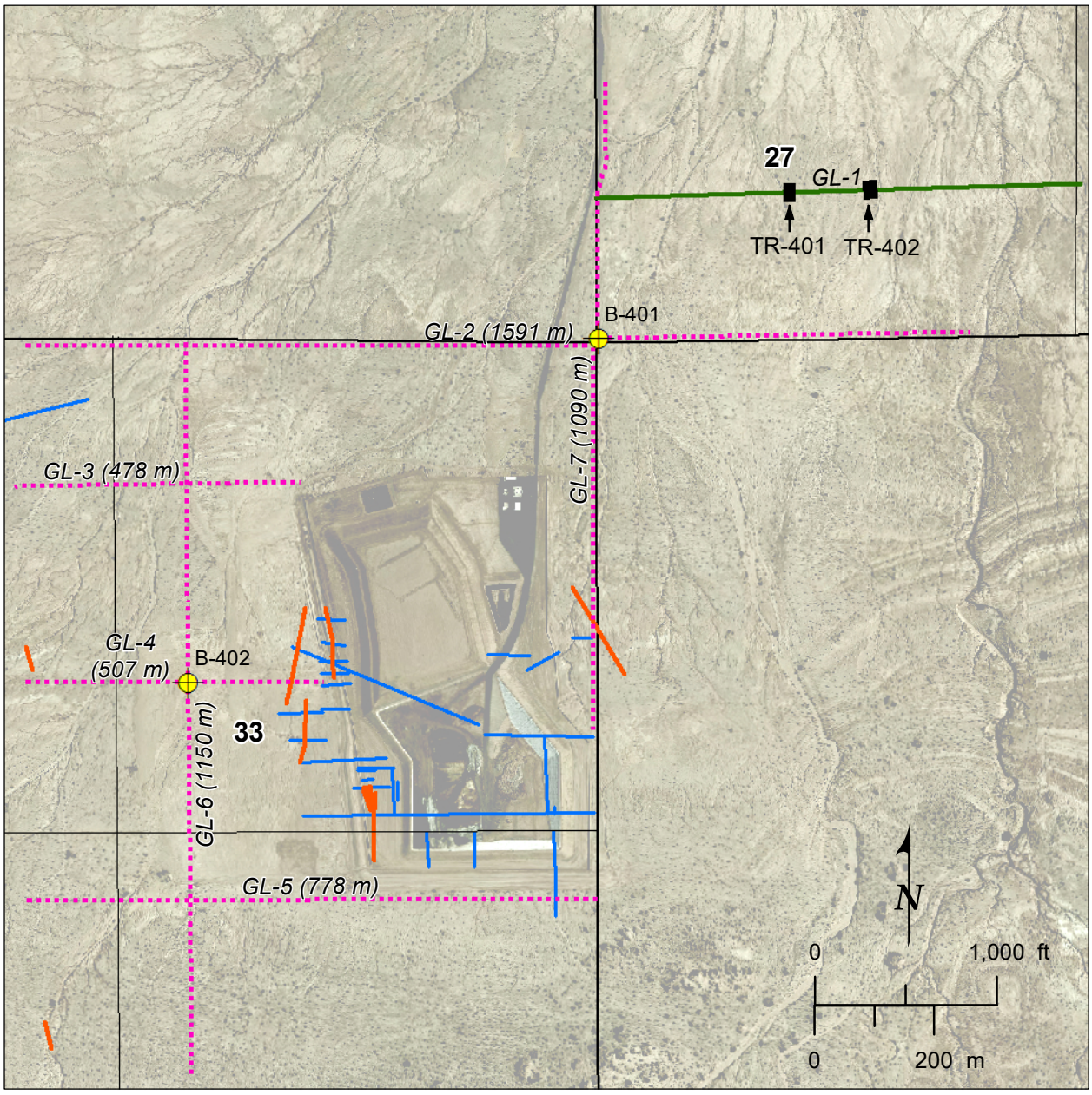
Qb2
Qb3
Qb4
Qb5
Qb6
Qb7

Simplified Borehole Lithology

Fill
Silt
Sand
Clay

3D MODEL, VIEW C

FIGURE 17



Imagery from Southern California Association of Governments (SCAG), 2011.

Legend

B-401 — Proposed borehole

GL-3 (478 m) — Proposed geophysical line

GL-1 — Completed geophysical line, 2018

Quarter section

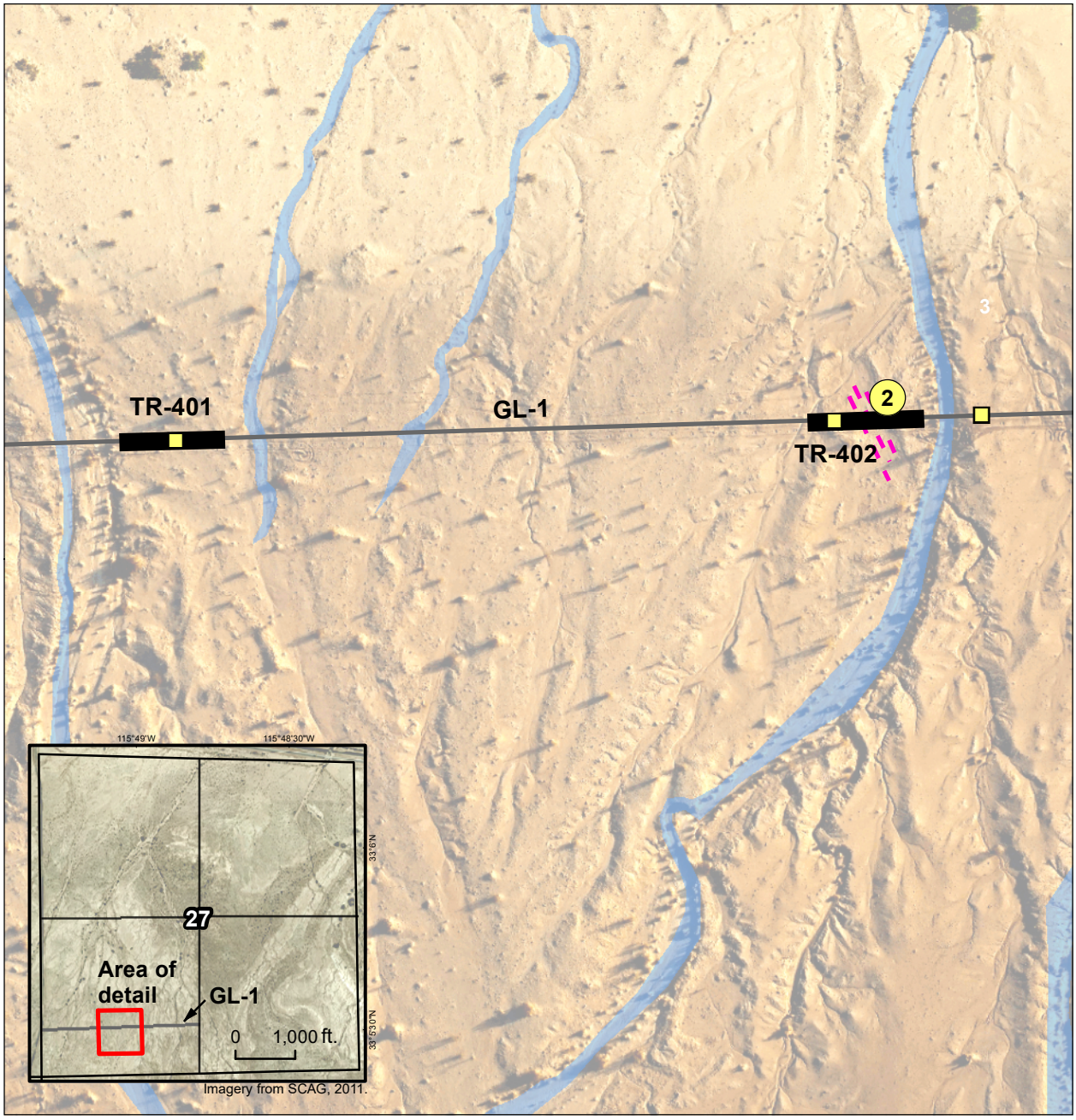
TR-401 — Proposed trench

Fault (Balderman, 2002, this study)

Trench (Balderman, 1988, 2002)

PROPOSED GEOPHYSICAL CAMPAIGN FIGURE 18

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\18_D-36_Proposed_Geophysical_Campaign.mxd; j.holmberg; 8/15/2018



Imagery from Fugro USA Land, Inc., 2018.

Legend

- Geophysical line (GL-1)
- Proposed trench
- Jurisdictional drainage
- Seismic lineament projection
- Field stop
- Fracture set

0 200 ft.
0 50 m
N

LOCATION OF PROPOSED TRENCHES TR-401 AND TR-402

FIGURE 19

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Site_Geology_Review\19_D-45_Proposed_Trenches.mxd; j.holmberg; 8/15/2018

APPENDIX A
REPORT OF GEOLOGIC FIELD RECONNASANCE, DVC CELL 4 PROJECT

A.1 INTRODUCTION

Fugro USA Land, Inc. conducted field-based reconnaissance and geologic mapping for the CalEnergy's DVC proposed Cell 4 monofill project to observe and document geologic and geomorphic features in order to assess suitability with respect to geologic siting requirements. This work builds on previous desktop studies and geophysical investigations conducted by Fugro USA Land, Inc. (Fugro Report 04.72170065-PR-001 and 04.72170065-PR-002), and provides input into the Phase 2 review of site geology (Fugro Report 04.72170065-PR-003). This memo documents the activities performed and observations made during a two-day field reconnaissance and summarizes resulting interpretations and conclusions.

Specific goals of this fieldwork were to verify and refine the results of recently completed desktop mapping of Sections 27, 28, 33, and 34 (T12S, R11E), examine features that may serve as strain markers for tectonic and non-tectonic deformation, document the characteristics of the various stratigraphic units exposed in the area, and to mark and assess suitability of potential fault trenching locations. Documentation of stratigraphic framework of geologic units is key to understanding the geologic history of the area, both to determine composition of units upon which the facility will bear, and to assess potential for geologic hazards such as fault rupture.

A.1.1 Field Activities

Geologic field reconnaissance and mapping was conducted by geologists Kelley Shaw and John Niles on July 10th and 11th, 2018. Field activities included mapping of geologic contacts, and characterization of sedimentological and structural features observed in key stratigraphic units. A map of field traverses is presented in Figure 1. A summarized daily log in presented in Table 1.

Table A.1. Log of Daily Activities

Date	Field Activities
July 10, 2018	The field party arrived at CalEnergy in Calipatria at 6:00 am to participate in safety orientation. Following the safety training, field team travelled to the DVC Monofill site to meet with site representative Sam Rubin to start field reconnaissance of the eastern portion of the field area. The field team conducted geologic mapping, including the measurement a stratigraphic section along a prominent drainage. To avoid heat exposure, the field team took a break from 2:00 pm – 5:00 pm. Finally, the field team located and marked purposed trench locations, and made observations and measurements of geologic features. Departed the site at 7:45 pm.
July 11, 2018	The field party spent the morning conducting a traverse of western portion of the field area. Recorded observations of surficial geology and outcrops exposed in drainages. The field team travelled to the mapped surface ruptures associated with of the 1987 Superstition Hills earthquake sequence to observe and document present-day characteristics of those ruptures. To avoid heat exposure, the field team took a break from 12:00 pm – 5:00 pm. Upon returned to the field area, the field team a portion traversed one of the potential locations for Cell 4, finally departing at 6:50 pm to avoid an oncoming dust storm.

A.2 METHODS

Geologic field mapping activities included conducting geologic traverses, recording qualitative geologic observations, collecting quantitative geologic data, documenting observations with photographs, and surveying precise locations of specific features.

Field observations were recorded in three ways:

1. Electronically on a rugged tablet computer (Toughbook) equipped with GPS capability and GIS software, and loaded with project-specific GIS files including preliminary geologic and geomorphic mapping and custom LiDAR derived maps,
2. By hand in a field notebook and/or marked on paper map sheets, and
3. Use of cell phone cameras to photograph key geologic observations.

Additionally, geologists carried a handheld GPS unit to confirm locations, mark waypoints, and to provide a supplementary log of the team's progress.

Measurement of stratigraphic thickness was facilitated by the use a 6-foot wooden folding rule and Brunton compass. Structural orientation data (strike and dip) were measured using a Brunton compass. Alignments of potential fault trenches, based on the results of a geophysical survey completed in the spring of 2018, were located using GPS, and were marked using a fiberglass tape measure and flagged with wooden stakes at either end (Photos 1A and 1B).

A.3 FIELD OBSERVATIONS

Field observations presented in this section include descriptions of stratigraphic units, a geologic map and generalized geologic cross section based on both desktop and field reconnaissance, observations of structural and stratigraphic relations, observations of brittle deformation, and liquefaction features. Where applicable, observations are illustrated on annotated photographs (Photo 1 through 6). An updated geologic map is presented in Figure 3.

A.1.2 Stratigraphy

An approximately 700-foot-thick section of the Brawley Formation was measured along a north-south transect in a prominent, incised channel in the central area of Section 4 (Figure 2). Channel sidewalls, oriented approximately perpendicular to the general strike of Brawley Fm. strata, provided nearly continuous exposure of the Brawley Formation strata, allowing for observation constituent grain size, color, cementation, sedimentary structure, bedding orientation and thickness, and discontinuities, from the lowest observed stratigraphic position exposed in the northern limb of an east-west oriented open anticline (Photo 2A), to the upper bounding contact with the overlying Lake Cahuilla deposits (Photo 2B). Some uncertainty in measured thickness may exist due to areas of poor exposure at channel level caused by erosion of poorly consolidated sand subunits of the Brawley Fm. Where measured, the Brawley Formation comprises at least 700 feet of moderately-dipping (15°-30°), generally west-striking fluvial, lacustrine and aeolian sands, and lacustrine silts and clays. Subunits within the Brawley Formation were divided based on constituent sedimentological characteristics, including grain size and cementation.

Where observed in a channel wall exposure north of the measured section, approximately 7 feet of horizontal to shallow-dipping (0°-5°) Lake Cahuilla deposits of fine-grained sands and silts unconformably overly the Brawley Formation (Photo 3A). Deposits of medium- to coarse-grained sand with abundant gastropod shells were observed in beach ridge deposits (Photo 3B).

Alluvial deposits are widely distributed throughout the field area, and are divided into two subunits: Qa1 and Qa2, representing active and inactive deposits, respectively (Table 2). Active, Qa1 deposits consist of locally derived, fluvial and aeolian sands and silts and are inset to all older stratigraphic units. Inactive, Qa2 deposits consist of locally derived fluvial and aeolian sands and silts, as well as granitic and volcanic gravels presumably derived from the Vallecito Mountains to the west.

A.1.3 Geologic Mapping

Prior to the site visit, a preliminary Quaternary geologic map was produced from interpretation of high resolution orthoimagery, LiDAR derived products including digital terrain model, hillshade model and elevation contours, and previously published geologic map products. Surficial units were delineated based on a combination slope, aspect, texture, tone, and imagery characteristics. Following field-based geologic mapping, this map was supplemented and revised based on observations made in the field including relative elevation, topography, lithology, stratigraphic superposition, and weathering characteristics.

The field area is underlain by four primary surficial geologic units: alluvial deposits (Qa), aeolian deposits (Qd), Lake Cahuilla deposits (Qc), and Brawley Formation (Qb) (Figure 3). These units have been subdivided based on relative age (e.g., Qa1, Qa2), or compositional differences (e.g., Qc(a), Qc(b), etc.) (Table 2).

Table A.2. Description of Surficial Units

Unit	Description
Qa1	Active channel and alluvial fan deposits – Consists of loose sands and silts in channels and on alluvial fans. Where incised into older deposits, channels are flanked by fluvial scarps ranging from a few cm to meters high. Channels are commonly lined with vegetation. Channel deposits are readily identified in aerial imagery by their light color. On alluvial fans, active deposits are characterized by strong bar and swale topography and debris flow levees.
Qa2	Inactive Alluvial fan and terrace deposits – Adjacent to active washes and composed of poorly-sorted sand and silt. subrounded to subangular gravel to cobble clasts, Surface shows remnant to weak bar and swale topography.
Qc(a)	Lake Cahuilla deposits – Silts, light gray, almost white on aerial imagery, with horizontal to gently-dipping bedding. Forms gently sloping surfaces.
Qc(b)	Lake Cahuilla deposits – Sands. Forms gently sloping surfaces, horizontal to gently-dipping bedding
Qc(c)	Lake Cahuilla deposits – Silts, appearing tan to brown on aerial imagery. Forms gently sloping surfaces, horizontal to gently-dipping bedding.
Qc(d)	Lake Cahuilla deposits– Silts and sands. Horizontal to gently dipping beds where observed in stream banks. The surface is characterized by bands of linear to gently curving ridges composed of coarser grained material (sands and gravels), interpreted as beach ridges that mark the gradual shrinking of the lake.

Unit	Description
Qb	Brawley Formation – Sands, silts, and clays, planar bedded, dipping 0 to 35 degrees. On aerial imagery this unit is recognized by contrasting parallel tonal bands. Where observed in the field, these beds are composed of fine sand to clay. Sandier units appear darker on the imagery, are vegetated, and are more easily eroded. Silt dominated units are generally lighter in color on the imagery.
Qd	Dunes – Aeolian deposits including *coppice dunes* (mounds up to 3 meters in height composed of fine sand and silt surrounding large creosote and mesquite bushes)

A.1.4 Fractures

Alignments of systematically north-northwest-trending, gypsum-filled fracture sets were observed and documented at three locations within the field area (Photo 4A; Figure 3, Field Stops 2, 3, and 4). These fractures varied in width (0.5 cm to 4 cm), and are filled with crystalline gypsum. The tabular and coarse crystalline nature of the gypsum is consistent with deposition from mineral-rich groundwater rather than from infiltrating rainwater in a near-surface soil environment, thus the gypsum is assumed to have been deposited in fractures during a lake high-stand then subsequently exposed by erosion.

North-northwest (330°) trending parallel fracture sets were observed projecting across the geophysical line GL-1 near the proposed Trench 2 site (Photo 4A, 4B; Figure 3, Field Stop 2). These fractures intersect with the surface projection of a seismic lineament previously interpreted from the geophysical data for line GL-1 (Fugro report 04.72170065-PR002).

In the northwest field area, a system of intersecting fracture sets with similar gypsum veining to those previously described were observed in the Lake Cahuilla deposits (Photo 4C; Figure 3, Field Stop 4). This fracture system is in-line with the projection of surface ruptures associated with the of the 1987 Elmore Ranch and Superstition Hills earthquake sequence along the East Kane Springs fault (Hudnut et al., 1989); however, gypsum precipitation in fractures likely indicates that these features represent long-term strain markers.

A.1.5 Faults

A previously unreported fault in Lake Cahuilla deposits was observed in a 3-foot-high channel wall exposure approximately 2,000 feet to the west of the existing monofill site (Photo 6A; Figure 3, Field Stop 5). Four fault planes with orientations: 350°,63°NE; 342°,73°NE; 330°,71°NE; and 345°,90° were observed offsetting stratigraphy within a one-foot wide fault zone. Cumulative vertical offset of 1.4 feet was measured from the basal contact of a gray silt unit. A subdued scarp trending approximately 340° was observed projecting away from the exposure. Apparent style of motion is down-on the east, with no evidence of lateral movement.

A.1.6 Liquefaction features

Soft-sediment deformation of fine-grained Lake Cahuilla deposits was observed within at least one interval of exposed strata (Photo 2A, 6A, Figure 3, Field Stop 6). These features are tentatively interpreted to be seismically induced soft-sediment deformation features, or *seismites*.

An approximately 6-inch-wide, subvertical, clastic dike striking approximately 200° was observed cross-cutting Brawley Formation strata (Photo 6B; Figure 3, Field Stop 7). This feature did not displace north-dipping Brawley Fm. strata it juxtaposed, so a tentative interpretation of seismically-induced fracturing related to liquefaction, and subsequent fluid-flow and deposition of mobilized sediment is favored here.

A.4 CONCLUSIONS

Field activities within Sections 27, 28, 33, and 34 documented primary surficial and stratigraphic units and identified multiple locations of gypsum-filled fractures which could serve as potential strain markers for identification of active faulting. Evidence of surface faulting was observed at one location where strata were exposed in an incised wash. Systematic fracturing of Quaternary deposits was observed at multiple locations. Deformation tentatively interpreted as seismically-induced liquefaction features was observed in Lake Cahuilla deposits.

Two fault trenches were sited in Section 27 along geophysical line GL-1 to investigate potential active surface faulting at locations where there is geophysical evidence of faulting at depth. Both trenches were marked in the field with wooden stakes. Trench 1 is 67 feet long, and Trench 2 is 74 feet long. Neither trench crosses a jurisdictional drainage.

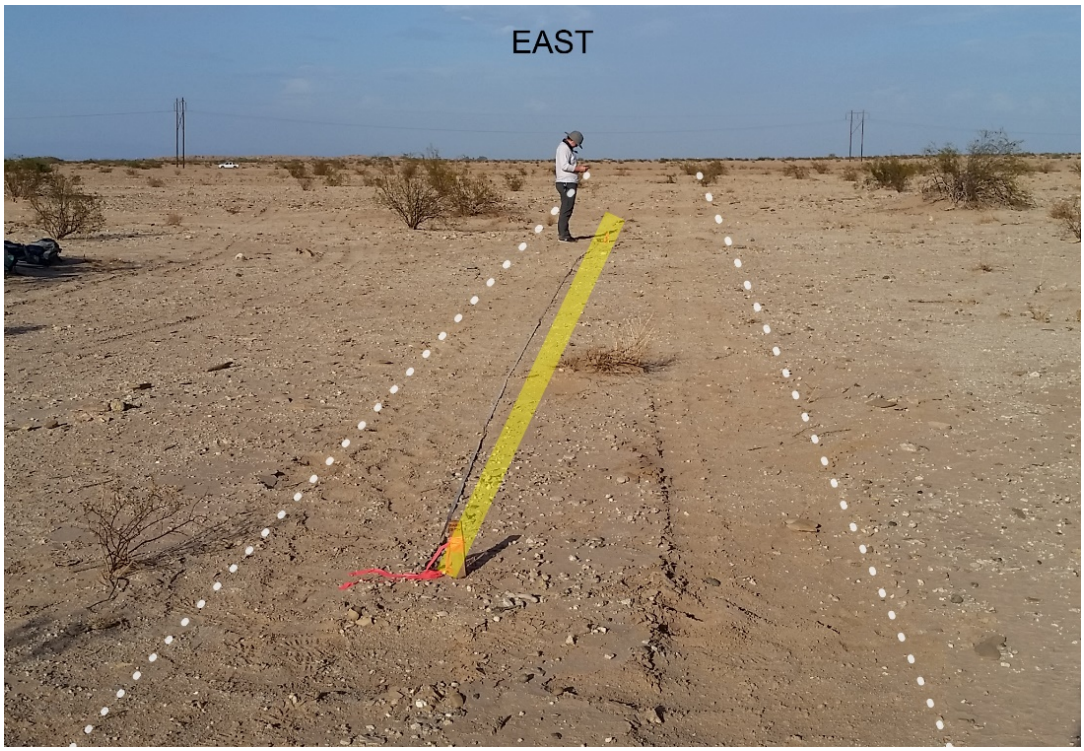


Photo 1A. Location of proposed Trench 1 (yellow line). Dotted white lines bound corridor of geophysical line GL-1

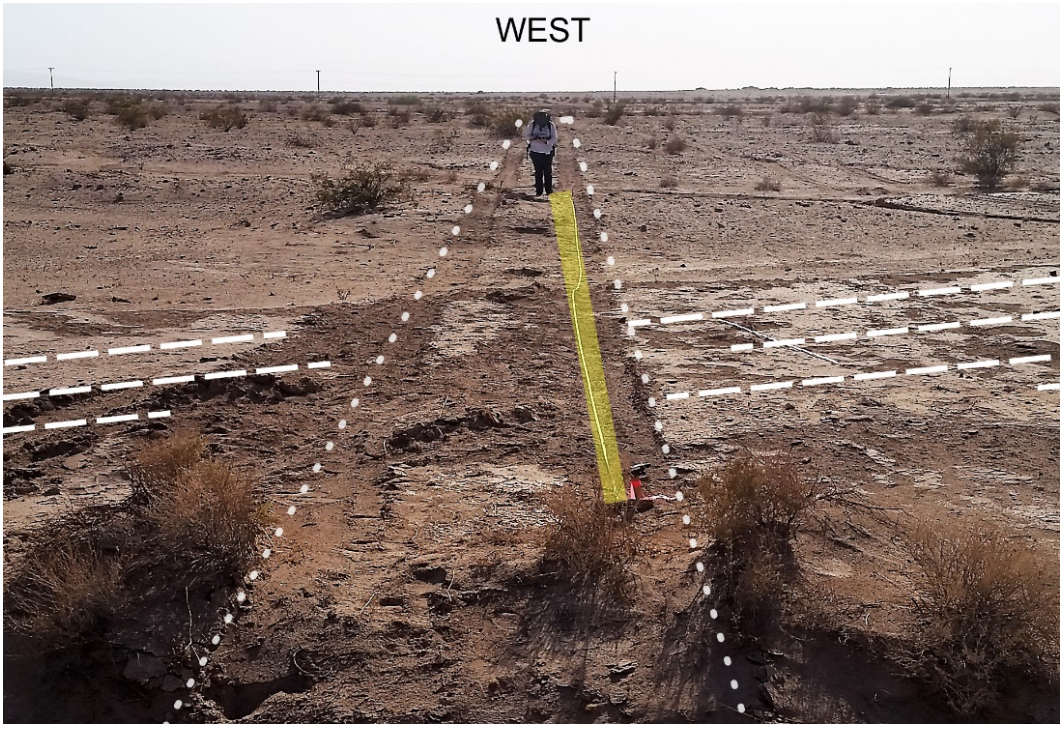


Photo 1B. Location of proposed Trench 2 (yellow line). Dotted white line shows corridor of geophysical line GL-1. Dashed white lines schematically show traces of gypsum-filled fractures.

Photo 2A. Exposure of gray clay in Brawley Formation (Qb) in core of anticline (see Figure 1, Field Stop 1 for location); dashed white line indicates the upper bounding contact of clay.

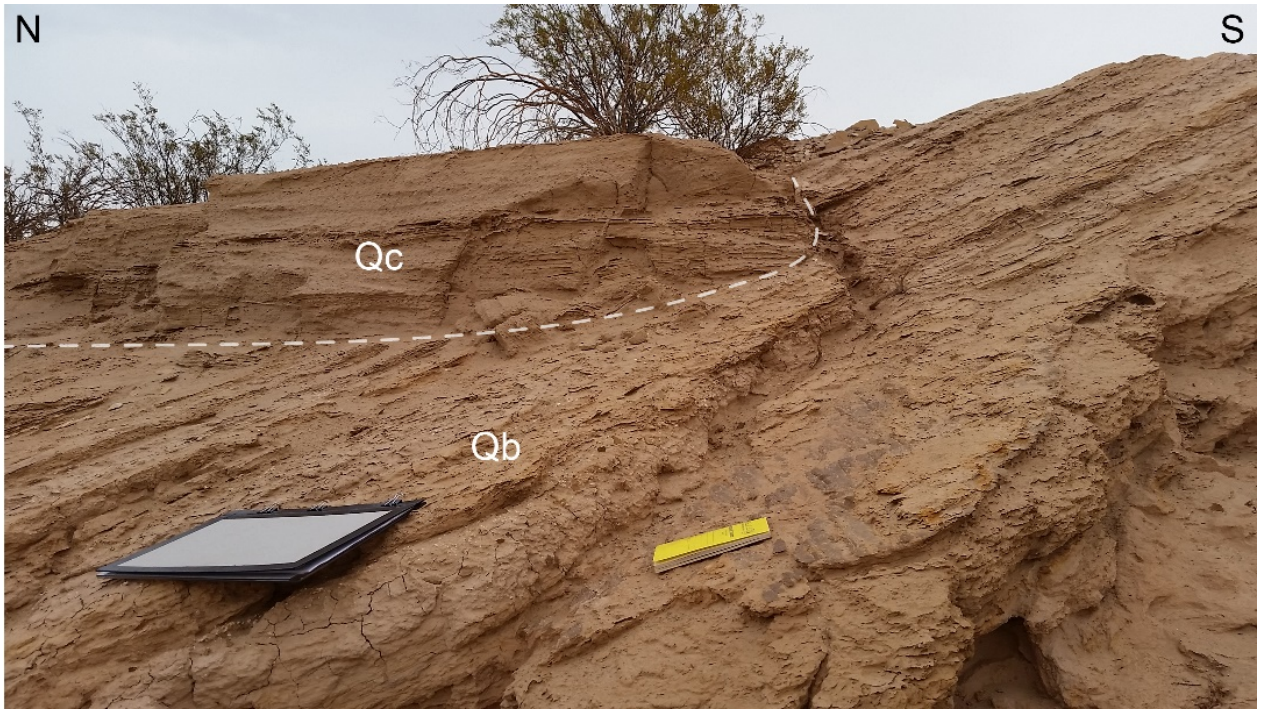


Photo 2B. Exposure of unconformable contact (dashed white line) between Lake Cahuilla deposits (Qc) and Brawley Formation (Qb).

Photo 3A. Outcrop of flat-lying sands and silts of the Lake Cahuilla deposits. See Figure 1, POI 7 for location. See Photo 6A for detail of soft-sediment deformation.

Photo 3B. Poorly-sorted sand and shell-rich Lake Cahuilla beach ridge deposits.

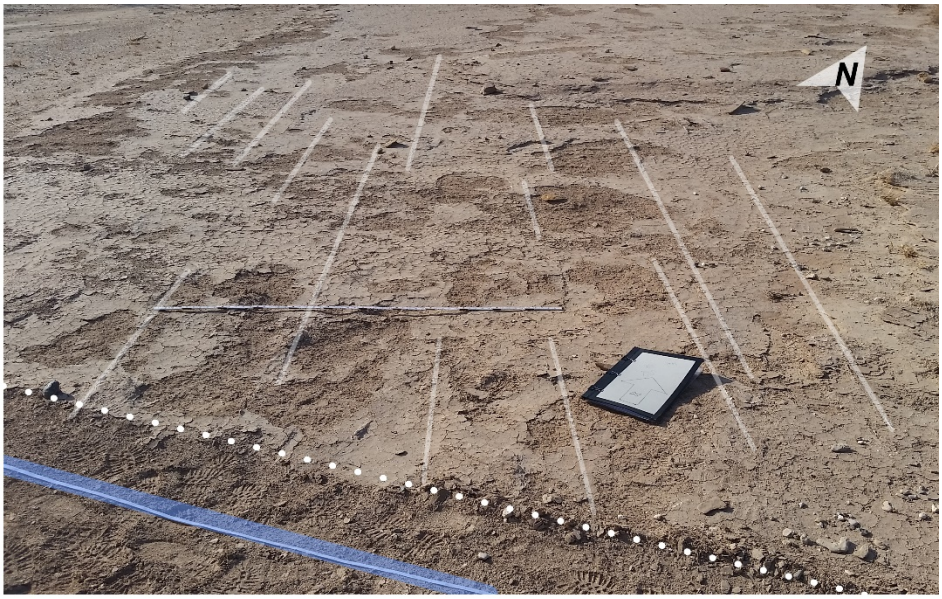


Photo 4A. NNE-trending gypsum-filled fractures (traced by white lines) in Lake Cahuilla deposits, adjacent to and projecting into geophysical line GL-1 (dotted white line) and proposed Trench 2 (blue line); six-foot ruler for scale. See Figure 1, Field Stop 2 for location.

Photo 4B. Detail of north-northeast-trending gypsum-filled fracture set (white arrows point at fracture tips) adjacent to and projecting into geophysical line and proposed Trench 2. See Figure 1, Field Stop 2 for location.

Photo 4C. Surface geometry of a gypsum-filled fracture system (dashed white lines) in Lake Cahuilla deposits proximal to 1987 surface ruptures associated with the Superstition Hills earthquake sequence. See Figure 1, Field Stop 4 for location.

Photo 5. Faulting of Lake Cahuilla deposits. Four fault surfaces (dashed white lines) displace a bedding contact (yellow line), showing cumulative vertical displacement of approximately 1.4 feet. Arrows show direction of movement. See Figure 1, Field Stop 5 for location.

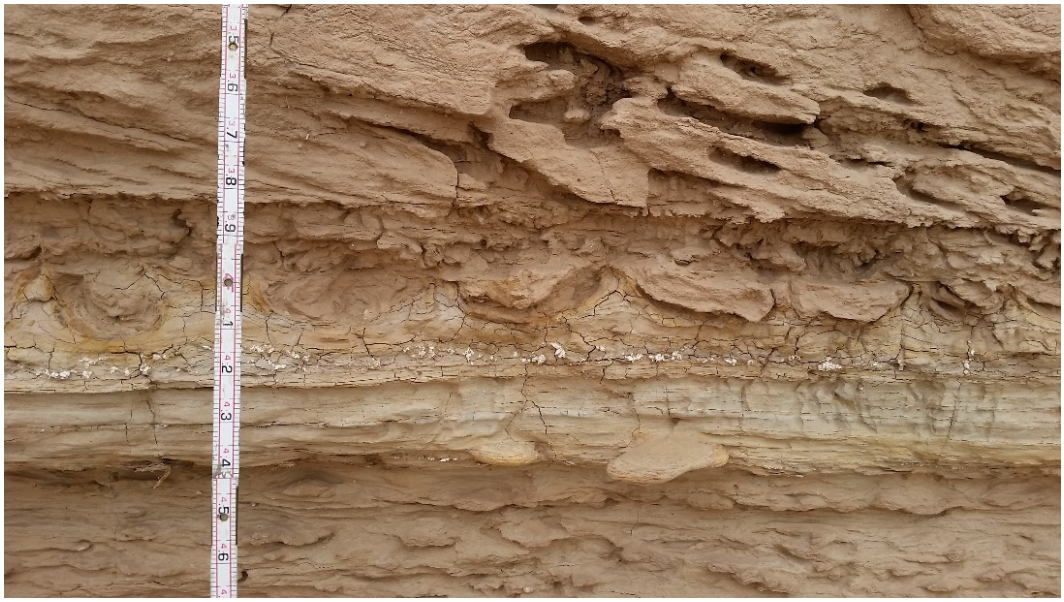
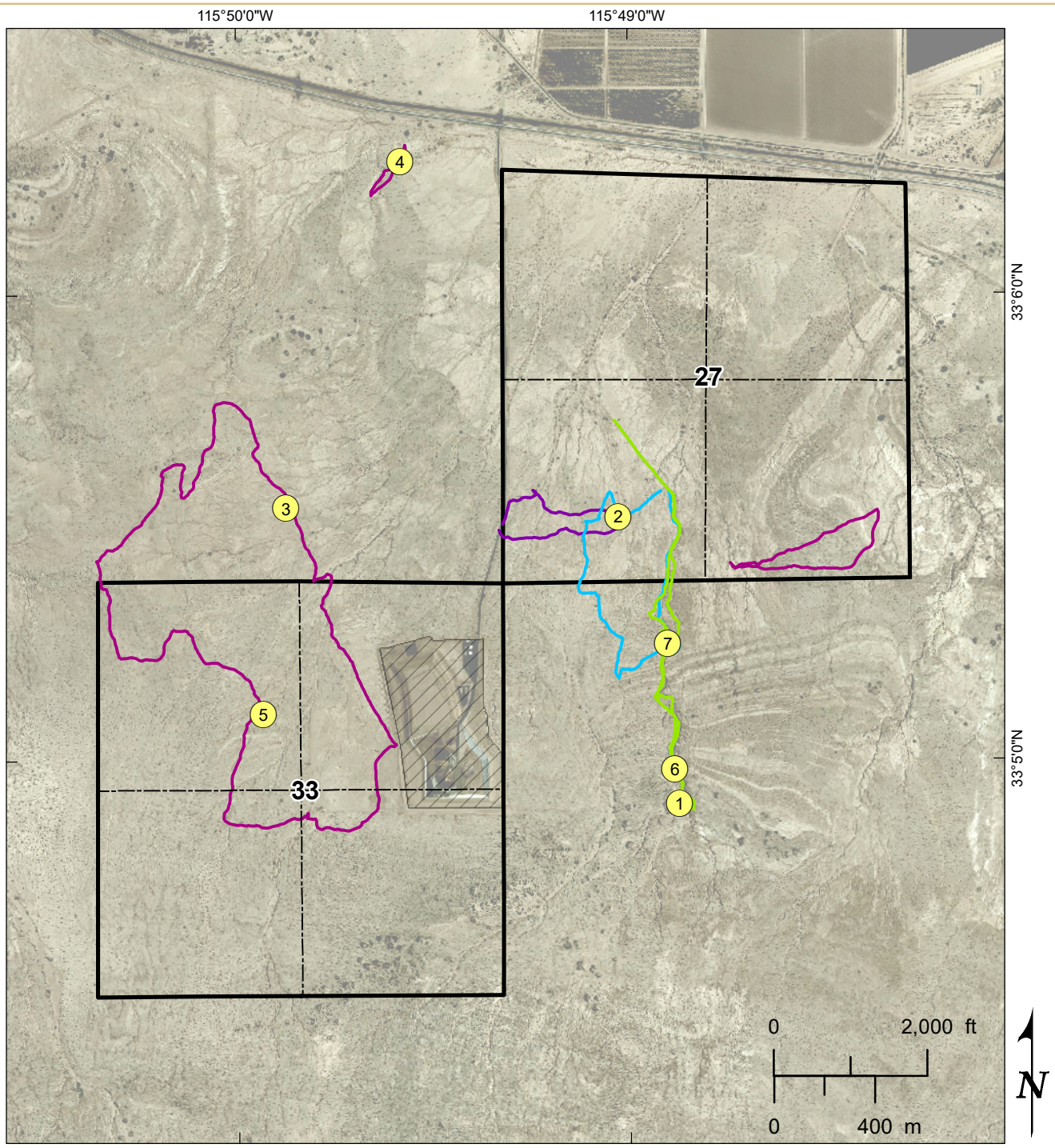


Photo 6A. Seismically-induced soft-sediment deformation, or *seismites*, observed in fine-grained Lake Cahuilla deposits, displaying cuspate, concave up geometry (arrow). See Figure 1, Field Stop 7 for location.

Photo 6B. An approximately 6-inch wide, subvertical clastic dike in Brawley Formation striking approximately 200°. Six-foot ruler for scale. See Figure 1, Field Stop 6 for location.

A.5 REFERENCES

Hudnut, K., Seeber, L., Rockwell, T., Goodmacher, J., Klinger, R., Lindvall, S. and McElwain, R., 1989. Surface ruptures on cross-faults in the 24 November 1987 Superstition Hills, California, earthquake sequence. *Bulletin of the Seismological Society of America*, *79*(2), pp.282-296.



Imagery from Southern California Association of Governments (SCAG), 2011.

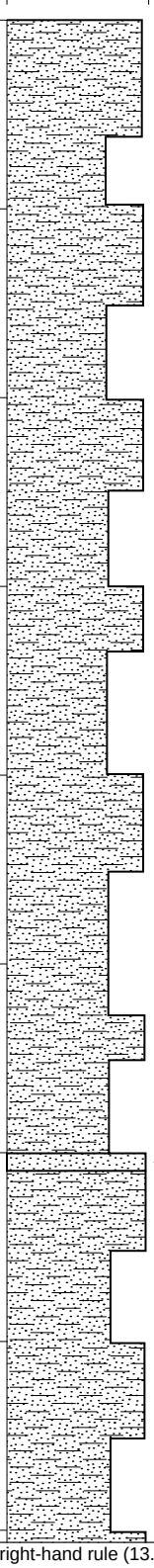
Legend

- Monofill development
- Sections 27 and 33, with quadrants
- 1 Field Stops
- GPS Track 7/10/18 - Morning
- GPS Track 7/10/18 - Afternoon
- GPS Track 7/11/18 - Morning
- GPS Track 7/11/18 - Afternoon

FIELD MAPPING TRACK LOG FIGURE A-1

P:\Projects\72_0000\72_170065_CalEnergy_DVC_Cell4\04_GIS\MXD\Figures\Appendix_A\A-1_(D20)_FieldReport_GPS.mxd; j.holmberg; 8/15/2018

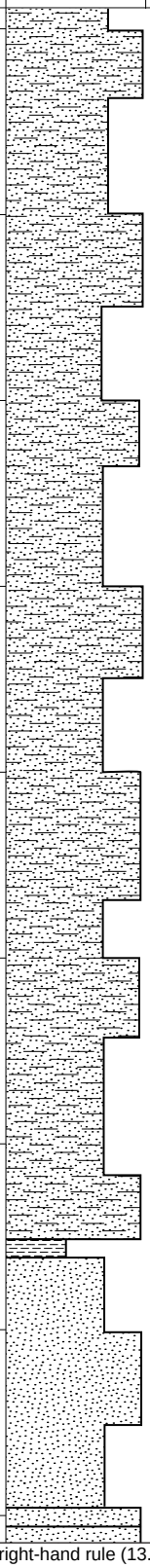
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175'	720 710 700 690 680 670 660 650 640		S/D 225/15 NW	Interbedded SILTS and SANDS, light grayish brown. Well cemented fine sand.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION OF BRAWLEY FORMATION FIGURE A-2, SHEET 1

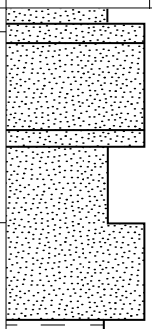
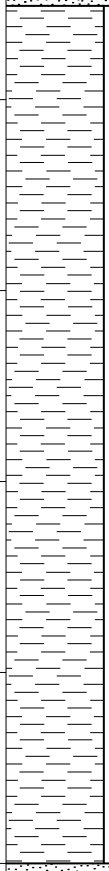
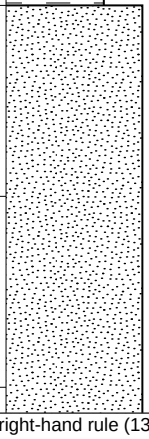
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175' (cont.)	640 630 620 610 600 590 580 570 560			Interbedded SILTS and fine SAND, light grayish brown. (continued) 1-foot thick clay bed, light gray.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 2

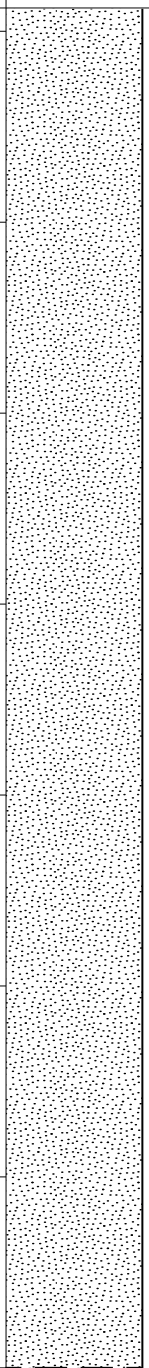
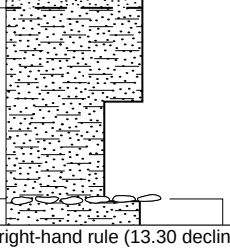
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
~175' (cont.)	560 – 550		S/D 240/25 NW	Interbedded SILTS and fine SAND, light grayish brown. (continued) Well cemented, partially continous fine sand layers, 9-10 cm thick.
45'	540 – 500			SILT, light brown to light grayish brown, thinly bedded to laminated.
90'	500 – 480			Fine grained SANDS. Poor exposure at wash level.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 3

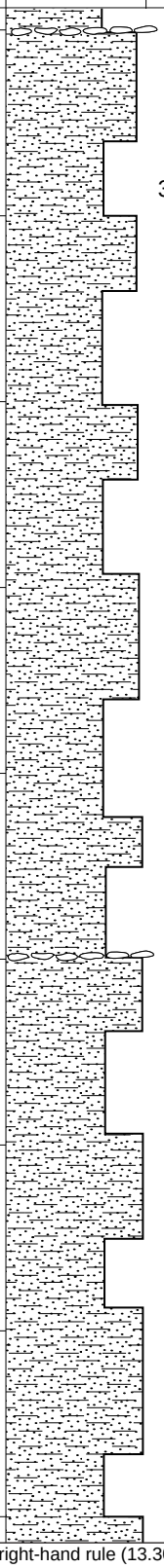
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
90' (cont.)	480 470 460 450 440 430 420			Fine grained SANDS. Poor exposure at wash level. (continued)
110'	410 400			Interbedded fine sands and silts. 3-5 feet thickly bedded. Planar laminated.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 4

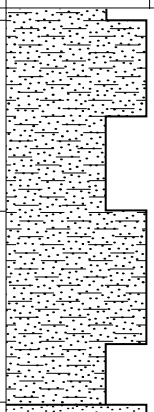
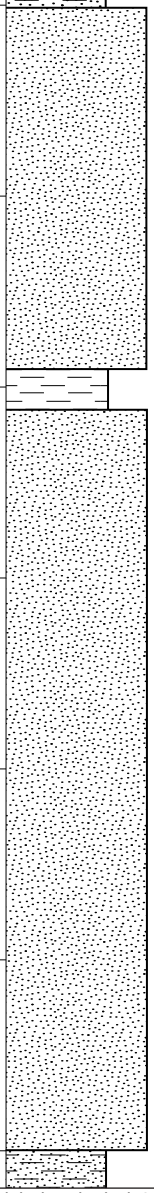
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
110' (cont.)	400		S/D 310/15 NE	Interbedded fine SAND and silt. 3-5 feet thickly bedded. Planar laminated. (continued) Large/huge concretions similar to below
	390			
	380			
	370			
	360			
	350			Large/huge discontinuouse concretions, elongate, ellipsoid. Cemented calcium carbonate, light brown.
	340			
	330			
	320			

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 5

Clay | Silt | Fine sand | Medium sand | Coarse sand

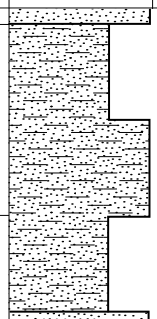
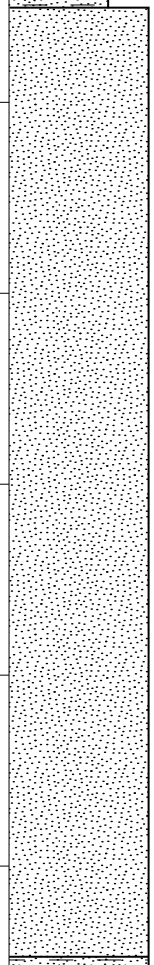
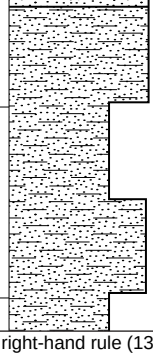
THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
110' (cont.)	320 – 310 – 300			Interbedded fine SANDS and SILTS. 3-5 feet thickly bedded. Plannar laminations. (continued)
60'	300 – 290 – 280 – 270 – 260 – 250 – 240			Fine-grained SANDS, light grayish brown. 2-foot bed of silts, contact is not planar, erosional.

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 6

CALENERGY OPERATION CORPORATION
PHASE 2: SITE GEOLOGIC REVIEW, DVC CELL 4 PROJECT
BRAWLEY, CA

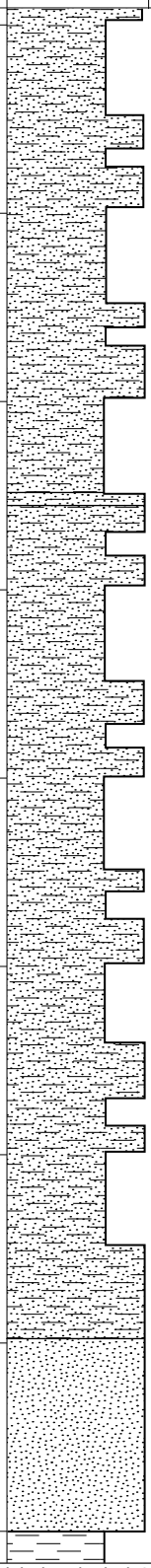
Clay Silt Fine sand Medium sand Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
15'	240 – 230			Interbedded fine SAND and SILT, thick-bedded silts.
50'	230 – 180			Fine-grained SAND, light grayish brown. Planar bedding.
85'	180 – 160			Interbedded fine-grained SANDS and silts. Light grayish brown to grayish brown silts moderately fractured

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 7

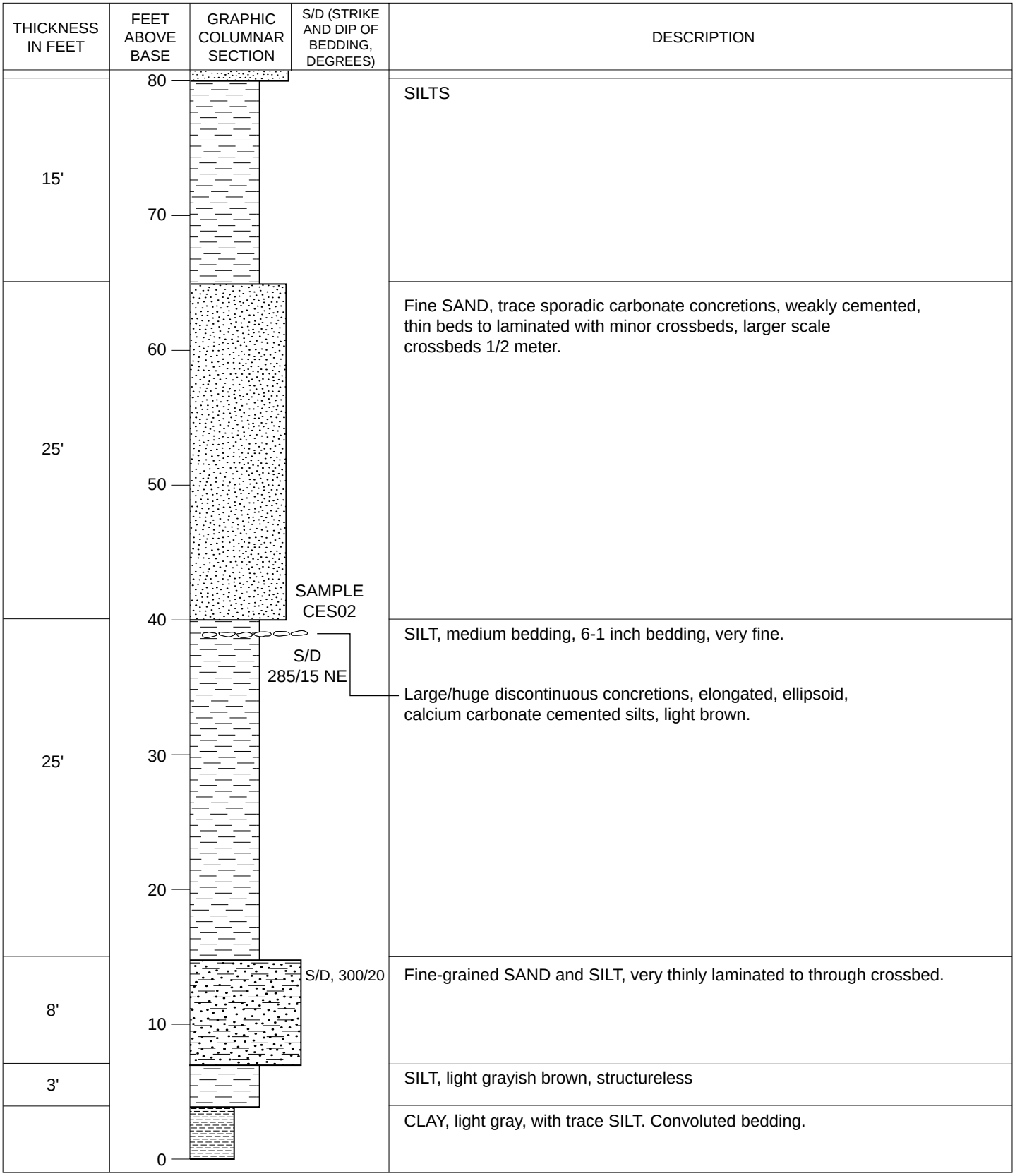
Clay | Silt | Fine sand | Medium sand | Coarse sand

THICKNESS IN FEET	FEET ABOVE BASE	GRAPHIC COLUMNAR SECTION	S/D (STRIKE AND DIP OF BEDDING, DEGREES)	DESCRIPTION
85' (cont.)	160			Interbedded fine-grained SANDS and silts. (continued) Light grayish brown to grayish brown silts moderately fractured
	150			
	140			
			S/D 300/30 NE	7 cm-wide discontinuous well cemented calcium carbonate fine-grained sand layer.
	130			
	120			
	110			
	100			
			S/D 280/18 NE	
	90			
10'				Fine-grained SAND.
	80			SILTS

Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 8

Clay | Silt | Fine sand | Medium sand | Coarse sand



Notes: 1) S/D - Strike and Dip, right-hand rule (13.30 declination). 2) Measured by J. Niles and K. Shaw, July 10, 2018. Measured with Jacobs staff.

MEASURED SECTION FIGURE A-2, SHEET 9

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I-6

Geophysical Screening Campaign,

Lines GL-2 to GL-7

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-004(Rev.00)
January 4, 2019

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Geophysical Screening Campaign, Seismic Reflection Lines GL-2 to GL-7, DVC Cell 4 Siting
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present the results of a geophysical screening campaign conducted along six seismic reflection profile lines in Sections 27 and 33, covering the siting study area for planned DVC Cell 4. This letter report documents the purpose and scope of the survey, field data acquisition methods, data processing methods, and results of the survey. The data are interpreted with respect to evidence of faulting, both suggesting and precluding faulting. Recommendations are made for a fault trenching investigation to characterize faults interpreted from the geophysical data.

All report figures are numbered and provided in the attached Figures section.

PURPOSE AND SCOPE

The primary goal of this geophysical investigation was to scan for the presence of active faults capable of surface rupture within the siting study area for DVC Cell 4. The siting study area is located within DVC property described as Sections 27 and 33, R11E, T12S. The east flank of the Superstition Hills where the DVC property is located is characterized by a number of active faults, including faults that experienced surface rupture in the 1987 Superstition Hills earthquake (Figure 1). Young alluvium, eolian sand, and Holocene lake sediments may overlie evidence for active faults that displace the underlying sediments. During the geologic investigations for Cells 1, 2, and 3, a number of small faults were discovered by fault trenching. To site Cell 4, Fugro has employed seismic reflection surveys to image the underlying sediments and help identify faulted strata. Data from line GL-1, surveyed in April of 2018, showed that the method clearly images the strata of the Brawley Formation and can detect fault displacements as

small as 2 to 3 meters. The results of this “Phase 1” survey are presented in Fugro report 04.72170065-PR-002, April 2018.

To further evaluate the presence of active faulting within the siting study area, six additional seismic lines were surveyed. Lines GL-2 through GL-5 were oriented west to east, approximately perpendicular to the known fault trends in the area (Figure 1). Lines GL-6 and GL-7 were “tie lines” oriented north-south, with GL-6 crossing GL-2 through GL-5 and GL-7 crossing GL-1 and GL-2. A conclusion from the survey of line GL-1 (Fugro report 04.72170065-PR-002, April 2018) was that the site in the southwest corner of Section 27 contains few if any surface faults, thus may provide a suitable location for Cell 4. Additional geophysical surveys were performed to provide information for the southern border of Section 27, and to explore an alternative site in Section 33. At the conclusion of this report, a fault trenching program is recommended to confirm the nature and location of faults interpreted from the geophysical data.

The work presented in this report was performed in general accordance with Fugro’s scope of work in the General Services Contract dated October 18, 2017, and the specific scope detailed in change order 4, dated September 18, 2018 and approved October 12, 2018. This report is the deliverable for Phase 2, Task 8, Geophysical Screening Campaign.

Limitations

All geophysical data analysis, interpretations, conclusions, and recommendations in this document were prepared under the supervision of, and were reviewed by, Fugro’s Principal Geophysicist.

This geophysical investigation was conducted using sound scientific principles and state-of-the-art technology. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing, interpretation, and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review.

A geophysicist’s certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, or ordinances.

DATA ACQUISITION

Acquisition Overview

Data acquisition equipment consisted of a seismic source and a linear array of geophones connected by a cable to record the signals generated by the source. A computer located inside a recording truck collected and displayed the raw data so that data quality could be checked in the field. Figure 2 shows the equipment used.

The seismic source consisted of a skid steer-mounted accelerated weight drop (AWD) (Figure 2A). The AWD uses a 200-pound steel mass accelerated by a nitrogen gas spring which hits an anvil on a baseplate. The unit is mounted to a skid steer and hydraulically operated. Source timing is controlled by a hammer switch mounted to the base plate which is connected to the recording system via a radio link. Subcontractor Bird Seismic provided the AWD source

and the operator, the Seistronix EX-6 cable telemetry recording system and technician (Figures 2B, 2C, and 2D), and additional field labor.

The seismic reflection field data were collected October 16 through 31, 2018. Fugro geophysicists Jim Hild and Moritz Fliedner supervised the data collection which was performed by subcontractor Bird Seismic Services. The borehole check shot velocity survey was performed November 2, 2018 by Moritz Fliedner and Fugro geologist John Niles. Field conditions during data acquisition were good with occasional light winds and no precipitation. The terrain along the survey line was generally flat, occasionally crossing shallow dry arroyos. Surface soils were loose and desiccated. Vegetation included sparse desert plants, mostly creosote bush.

Land surveying of the seismic receiver stations was performed by Fugro using a survey grade Trimble R10 RTK-GPS system. The GPS base station was located atop the southwest corner of the capped DVC Cell 2 to provide good “line of sight” across the geophysical survey area. During the initial setup of the GPS base, positional data were logged and the position of the base station was established using an OPUS point correction (Table 1).

Table 1. GPS Base Station Coordinates (NAD83 (2011) Epoch:2010.0000)

Latitude	Longitude	Ground Surface Elevation (m) (NAVD88)
33.08458901	-115.8257665	-21.792

Geophysical Data Acquisition Data (Lines GL-2 through GL-7)

Line GL-2 through GL-6 were located in Section 33, with GL-2 and GL-7 extending into the southwest quadrant of Section 27 to tie with Line GL-1 from the Phase 1 geophysical survey. Lines GL-2 through GL-5 were oriented west to east. Lines GL-6 and GL-7 were oriented south to north as tie lines. Each line was acquired with the AWD source recorded on 200 active receiver stations.

The nominal seismic acquisition parameters included:

- Seistronix EX-6 seismograph system with 24-bit A/D
- Active Array: 200 channels live
- Acquisition pattern: symmetric split spread (walk on, walk off)
- Geophones: Geospace SM-24 10 Hz single vertical element
- Geophone Spacing: 2 meters
- Source Spacing: 2 meters
- Record Length: 2 seconds
- Sample Rate: 0.5 milliseconds
- No Acquisition Filters
- Pre-trigger Delay: -13 msec (to account for radio trigger delay)

Data quality was good, with first break energy clearly visible across the entire spread for all source records. Frequency content was good, with useable spectra from about 6 Hz to over 200 Hz, providing good bandwidth for high-resolution reflection imaging.

Source and receiver positions were surveyed using a Trimble R10 RTK GPS system base station and rover combination. The GPS base station control point (Table 1) was determined through autonomous position logging and a position solution obtained using a post-processed OPUS correction.

Borehole Check Shot Survey

Two boreholes were drilled, logged, then PVC-cased and grouted along the seismic survey lines to perform a check shot velocity survey. Borehole B-401 was located on the north end of seismic line GL-07, and borehole B-402 was located on the eastern side of seismic line GL-4 (Figure 1). The boreholes were drilled to a total depth of 150 ft below ground surface (45.7 meters). Check shot surveys provide the vertical travel time within the borehole to incremental depths. The parameters for this check shot velocity survey included:

- Geometrics Geode seismograph system with 24-bit A/D
- Borehole Geophone: Geostuff Triax BHG-2
- Borehole depth measurement increment: 1 meter
- Seismic Source: 20 lb slide hammer
- Record Length: 2 seconds
- Sample Rate: 0.5 milliseconds
- No Acquisition Filters

P-wave travel-time data were recorded over the depth range of 1 to 45 m bgs at one meter increments in boreholes B-401 and B-402.

DATA PROCESSING

The seismic processing methods and approaches used for this study are presented in this section. Analysis of the processed data is presented in the Results and Interpretation section.

Reflection Processing

Seismic reflection processing was performed by Fugro subcontractor Sterling Seismic Services, Inc. Seismic reflection time images are effective in delineating detailed features such as diffractions, caused by small aspect features, such as small fault offsets, which are not resolved using tomographic analyses such as MASW and refraction tomography. Common-midpoint data (CMP) are generated at receiver positions and adjusted for geometric spreading and moveout using velocities from the stacking semblance analyses. The resulting CMP data are summed (stacked) in each receiver CMP bin and amplitude adjusted for display as wiggle trace images. An advantage of seismic reflection imaging is that the maximum resolved depths are usually at least 2-4 times greater than the maximum depth of MASW or seismic refraction imaging. Consequently, seismic reflection imaging extends the resolution of subsurface anomalies to depths of several hundred meters or more.

Seismic reflection time processing used high-pass filtering to improve signal-to-noise and maximize the resolution of subsurface structure. All displayed time sections have been band-pass filtered using filter parameters 48-60-240-320 Hz. The 200 lb AWD source provided useable signal to a maximum frequency of more than 200 Hz allowing resolution of subsurface shallow structure on the order of 1.5 to 2 meters of vertical offset on the strong lake bed reflector.

The seismic data collected along line GL-1 was very high-quality broadband data with a useable frequency range from about 6 to > 240 Hz. The data collected along lines GL-2 through GL-7 were also high-quality with a good signal-to-noise ratio but did not capture the same high frequency range as during the first phase, even though the same acquisition parameters, in particular the same source, were used to acquire the data. This difference may be due to an increase in ambient noise at the site during the phase 2 geophysical survey. Persistent ambient noise may result from electrical interference from powerlines, high winds, running equipment (i.e. pumps, fans, etc.). The variation may also be attributed to ground surface conditions (drier, softer unconsolidated soils within the vadose zone).

Depth Correction Using Check Shot Data

Seismic reflection data are initially processed in the time domain (two-way travel time (TWTT) vs. distance). A time to depth conversion or post-stack depth migration is applied to the temporal data in order to estimate the depth to reflection horizons. This was done by developing a vertical velocity profile from a borehole seismic check shot and lithology log. Two boreholes (B-401 and B-402) were drilled along the seismic survey lines to a total depth of 150 ft. below ground surface (bgs). Surface to borehole check shot data were acquired in these boreholes.

The check shot one-way vertical travel time data is shown in Figure 3. The low velocity surface layer, comprised of unconsolidated fine-grained sediments above the water table, is relatively thin, approximately 10 meters-bgs in B-401 and 5 meters-bgs in B-402. Below the water table the P-wave velocity measured in the boreholes averaged approximately 2,300 m/s while the datum correction velocity used to process the seismic reflection data was 2,500 m/s. The average velocities at 45 m bgs in the two boreholes were 1780 and 1830 m/s (51 and 49 ms TWTT). The average velocities derived from the stacking velocity models of GL-2 to GL-7 at 50 ms TWTT range between 1450 and 1910 m/s around a mean of 1660 m/s. Therefore, the difference in the time-to-depth conversions between the depth migrated seismic sections, as processed, and the conversion derived from the boreholes is less than 8%. The borehole check shot velocity survey provided ground truth confirmation that the seismic velocity field in the near surface used for the seismic reflection data processing was representative of the near surface velocity structure and provided constraints on the potential error in the depth estimates. A plot of smoothed P-wave velocity with depth is shown in Figure 4.

RESULTS AND INTERPRETATION

In this section the seismic reflection profile images are presented along with the interpretation of each profile with respect to evidence for faulting. These interpretations are then compiled in a summary map figure. Finally, depth corrected versions of the seismic reflection profiles are presented. Although less helpful for fault interpretation, these profiles provide true depth images that can be used for documentation of geologic structure and stratigraphy. Finally, recommendations are made for further investigation of active surface faults relevant to the siting of DVC Cell 4.

The geophysical profiles are first presented as time sections, in which two-way travel time (TWTT) is plotted against distance (Figures 5 through 9). The time sections provide the best resolution for interpretation of faulting and subtle signal features such as diffractions. Each seismic profile is presented as an uninterpreted image in the top panel and an interpreted image in the bottom panel. Each interpreted image shows marker horizons and possible faults. The marker horizons are stratigraphic layers within the Brawley Formation that are reflective. In this lacustrine and alluvial setting, the tops of clay layers are often the strong reflectors.

Annotated at the top of the interpreted panel, we show the segment of the survey line that shows evidence of the absence of faulting. In these segments the reflectors (stratigraphic horizons) are clear, continuous, and unbroken. We also show possible faults as “seismic lineaments” in a red line. Zones where faulting cannot be precluded are annotated as “possible fault areas,” and zones where the data show unbroken planar reflectors are annotated as indicating the “absence of faulting.” The initial interpretations were made by Senior Geophysicist Jim Pfeiffer and were subsequently reviewed and finalized by Senior Geologist Josh Goodman.

The results of the fault screening are summarized in Figure 10, a color-coded map of the geophysical survey lines. Segments of the geophysical lines where faulting is interpreted to be absent are shown in green, and segments where faulting is possible are shown in orange. The surface projections of seismic lineaments, shown in profile on Figures 5 through 9, are shown as red dots. The data presented in Figure 10 include the results from line GL-1, collected in April of 2018.

The depth corrected seismic reflection profiles are presented in Figures 11 thorough 15. Although less helpful for fault interpretation, these profiles provide true depth images that can be used for the documentation of geologic structure and stratigraphy. The geologic structure revealed by these profiles is one of generally horizontal, planar-bedded strata, consistent with the alternating beds of lacustrine, alluvial, and eolian sand, silt and clay of the Brawley Formation observed in outcrops and boreholes. Gentle warping observed in the profiles, for example the anticline (arch) in the strata from 500 to 700 meters on line GL-2 is evidence of tectonic deformation from compressive stresses. The northward dip of the bedding seen in line GL-6 may indicate deposition of the beds on the southern margin of the Salton Trough, a subsiding tectonic basin.

The information in Figure 10 may be used to design a fault trenching program. Trench investigations, by exposing the shallow strata, can conclusively establish the presence or absence of surface faults, and characterize their location, orientation, sense of slip, and magnitude of displacement. Trenches would be sited within the areas designated as possible fault areas. Priority should be given to investigation of possible faults that would constrain the acreage of the potential cell 4. If faults are identified, further trenching may be needed to determine their lateral extent and presence of parallel splays.

CLOSURE

We have enjoyed conducting this geophysical survey for CalEnergy and look forward to further assisting with the siting of DVC Cell 4. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

Jim Pfeiffer
Senior Geophysicist

Jim Hild
Principal Geophysicist

Attachments: Figures

Distribution: One electronic copy to Ms. Yanqiu Wu

00	Final	JP/MF	JMS	JH	January 4, 2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

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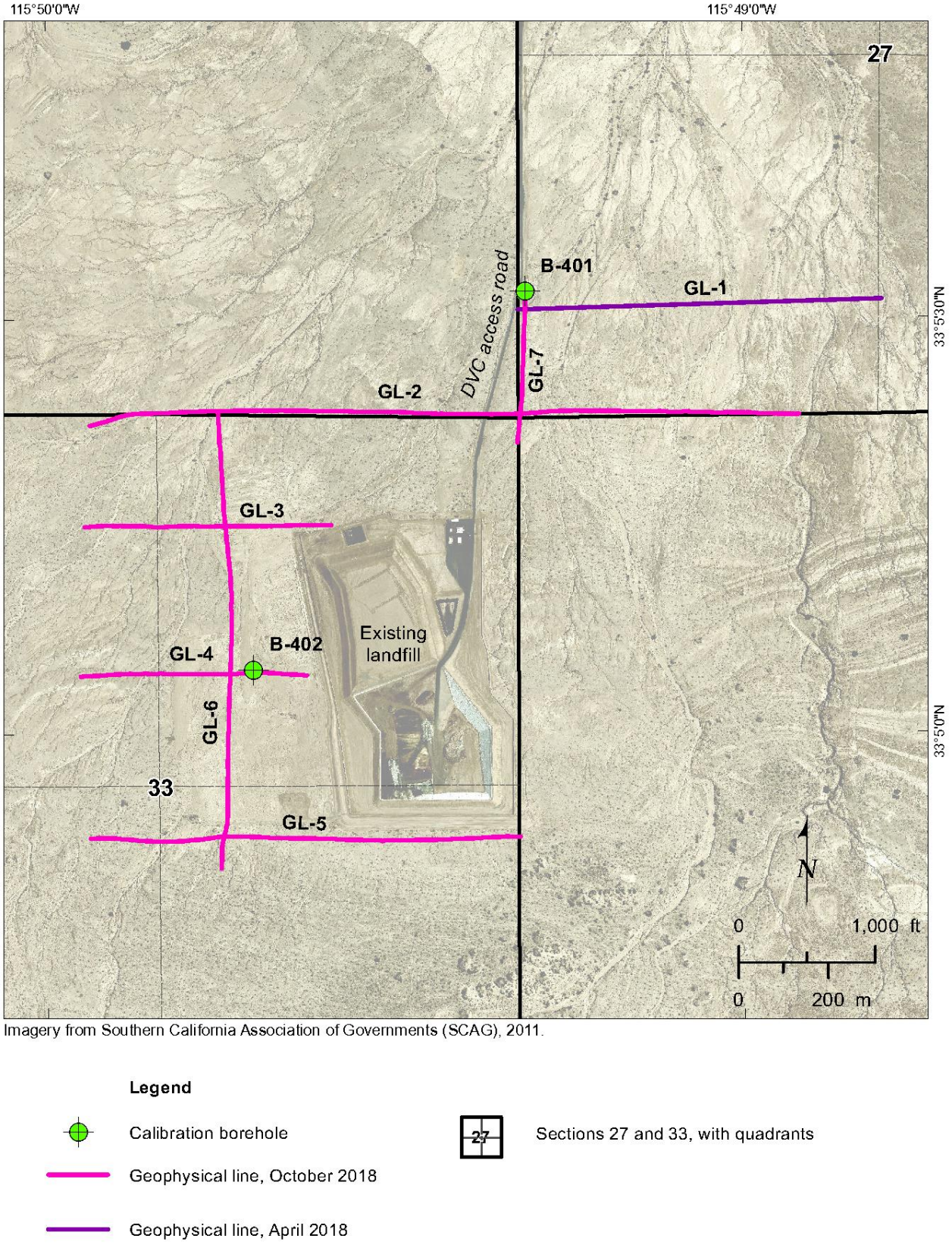

Figure 1. Location of Geophysical Lines

Figure 2. Seismic Data Collection Equipment

A. Track-mounted skid steer with AWD source
B. Data display in real time inside the recording truck
C. Geophone cable layout on GL-4
D. Geophone ready for deployment

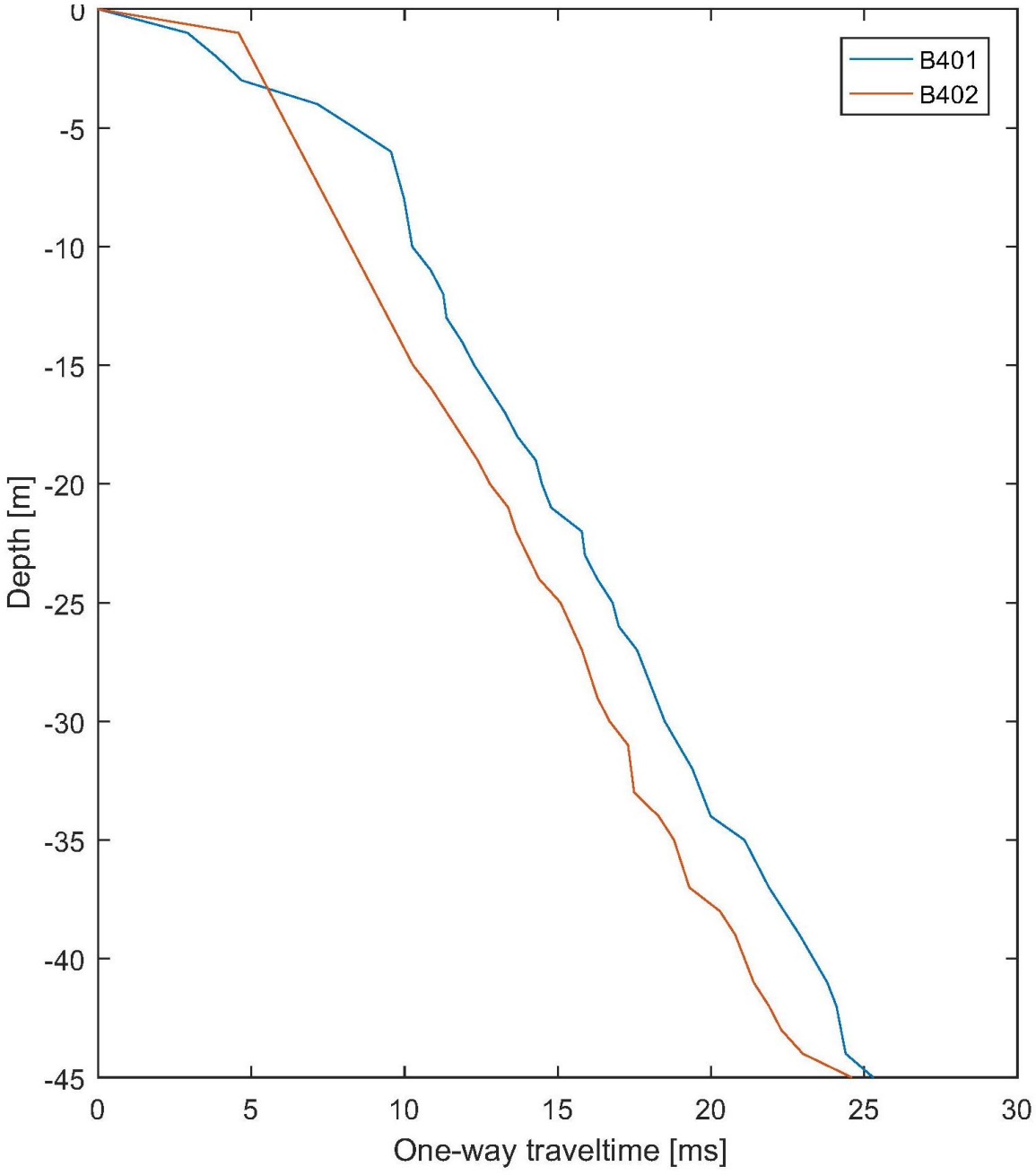

Figure 3. Check Shot Travel Time Profiles

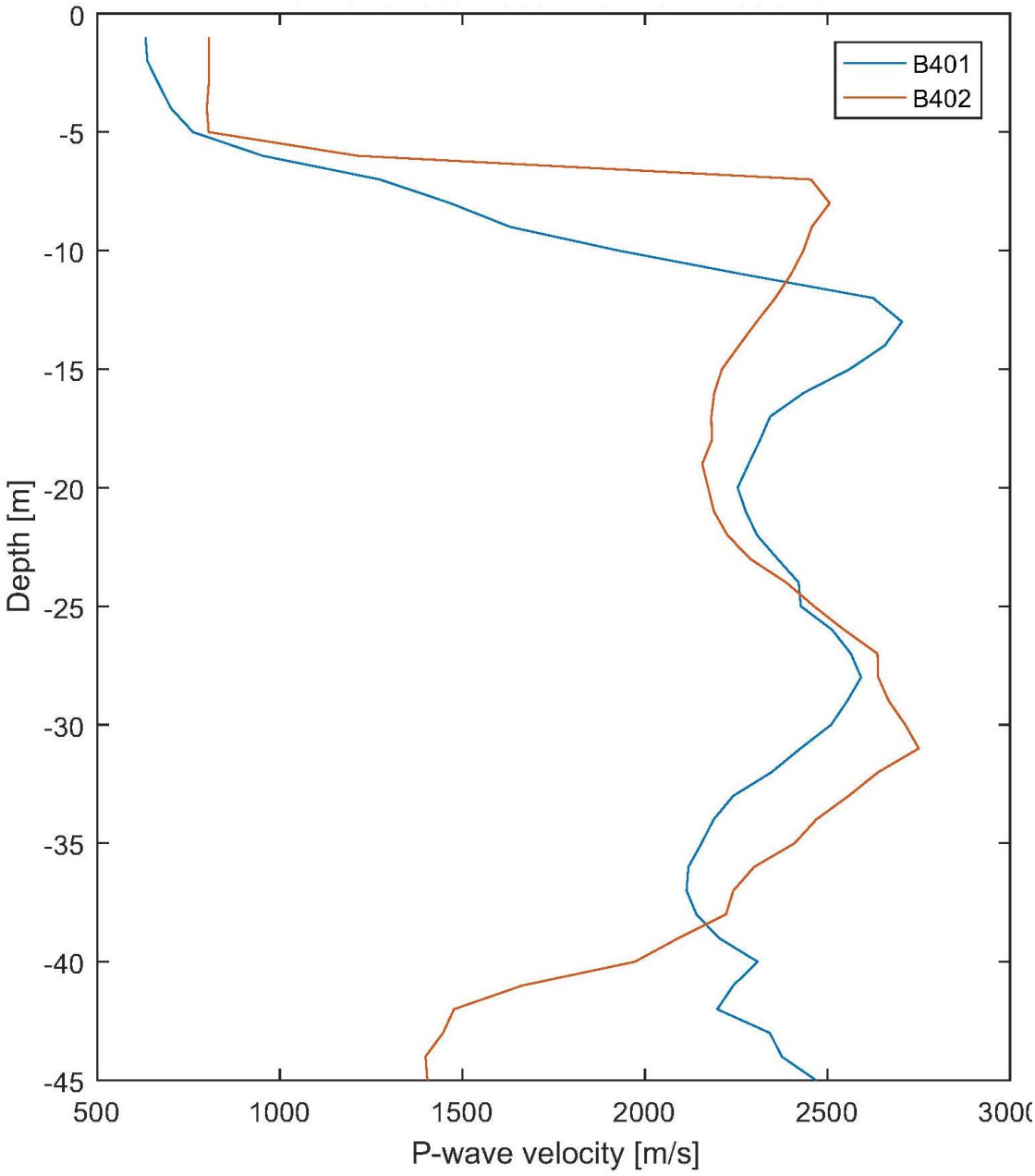

Figure 4. Check Shot P-wave (Vp) Profiles

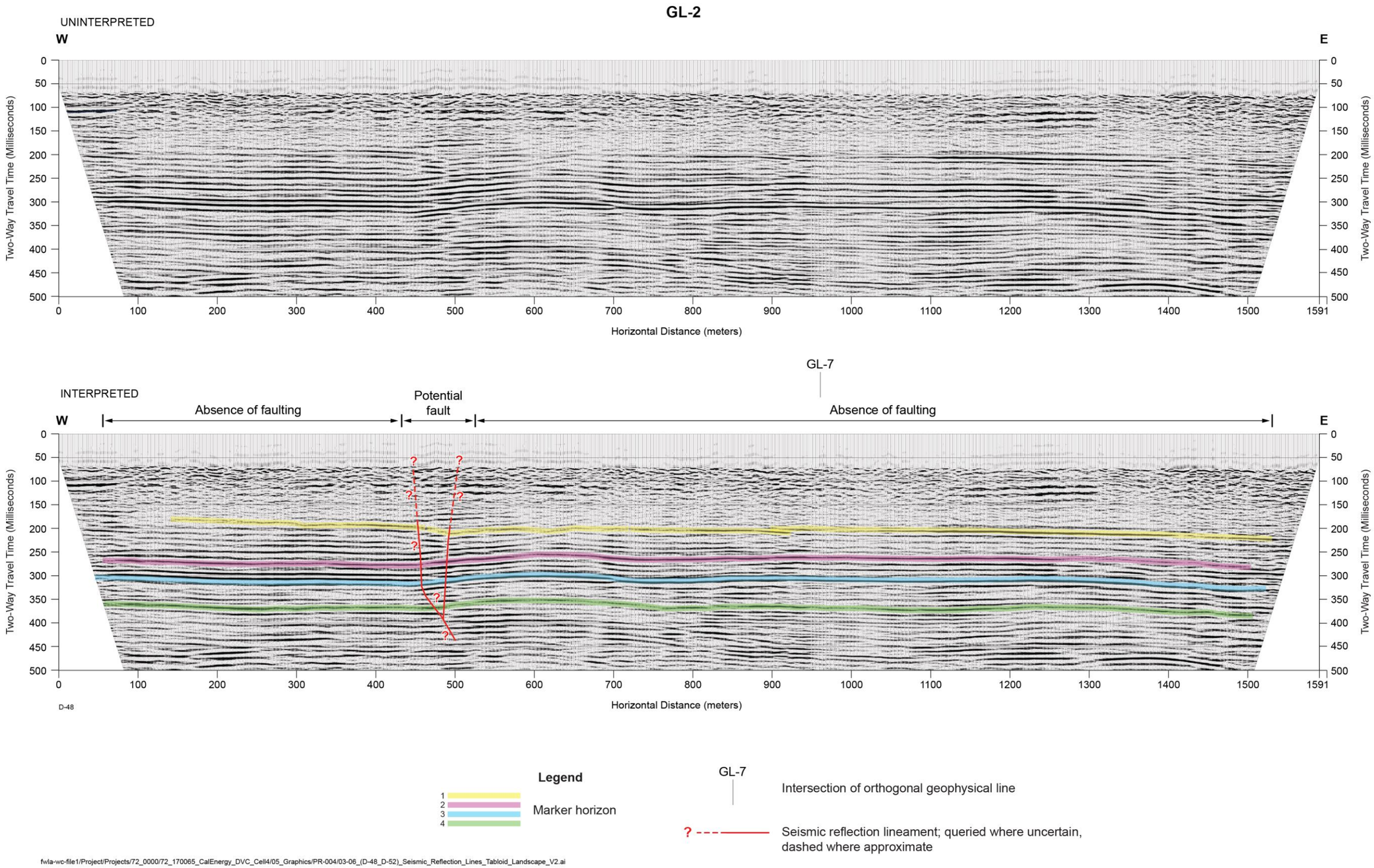

Figure 5. Seismic Reflection Profile, Line GL-2 (TWTT)

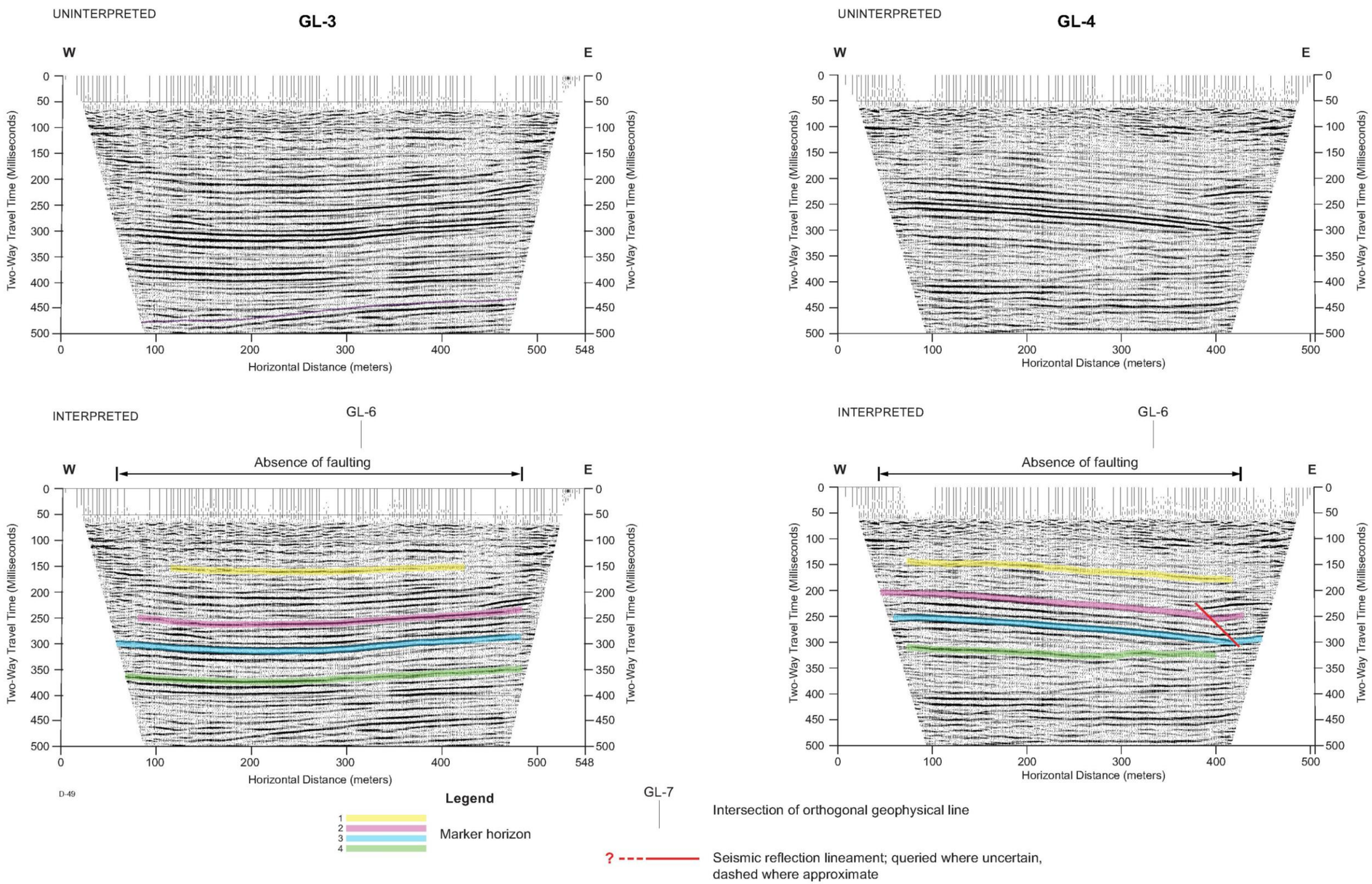

Figure 6. Seismic Reflection Profile, Lines GL-3 and GL-4 (TWTT)

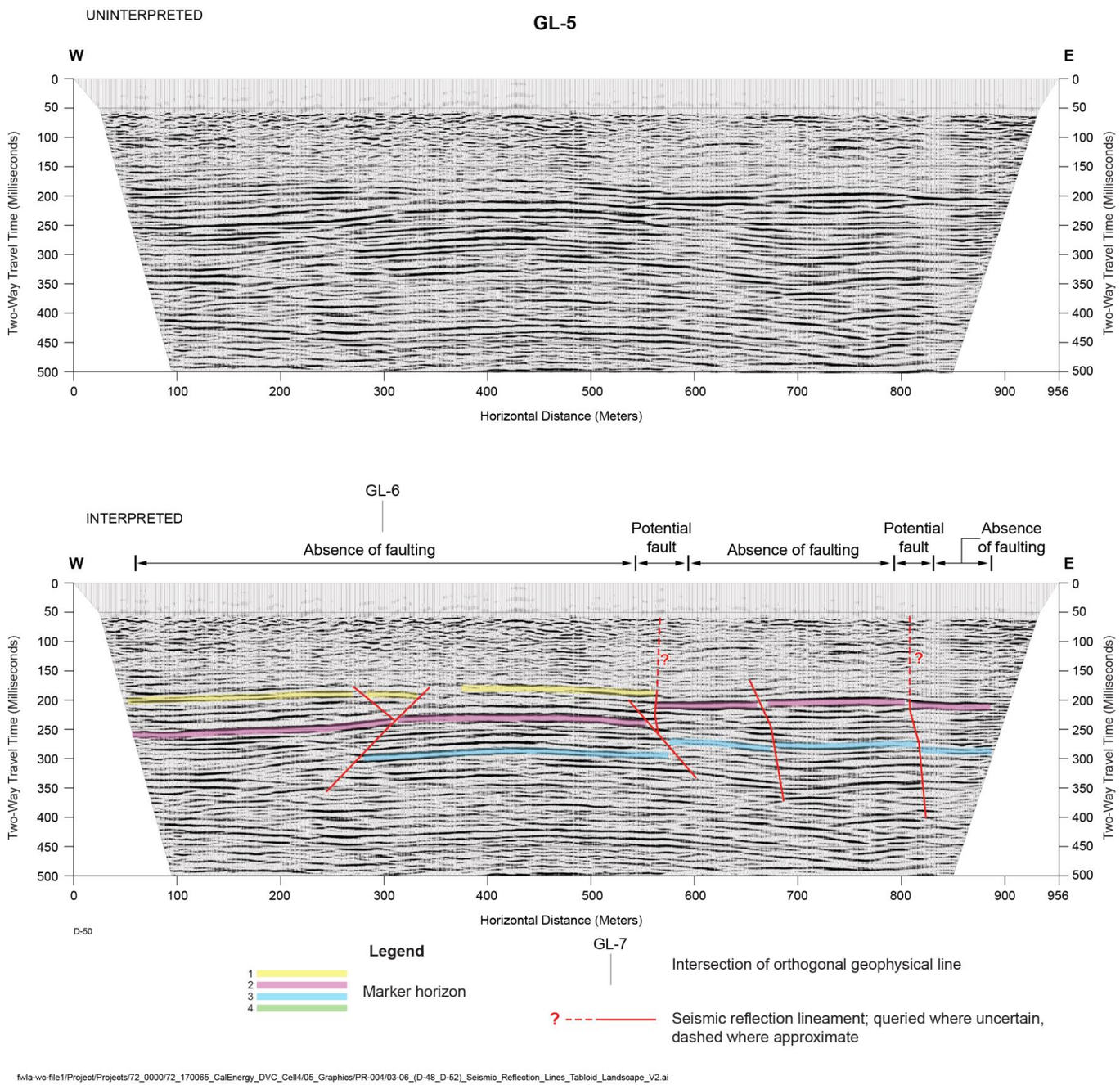

Figure 7. Seismic Reflection Profile, Line GL-5 (TWTT)

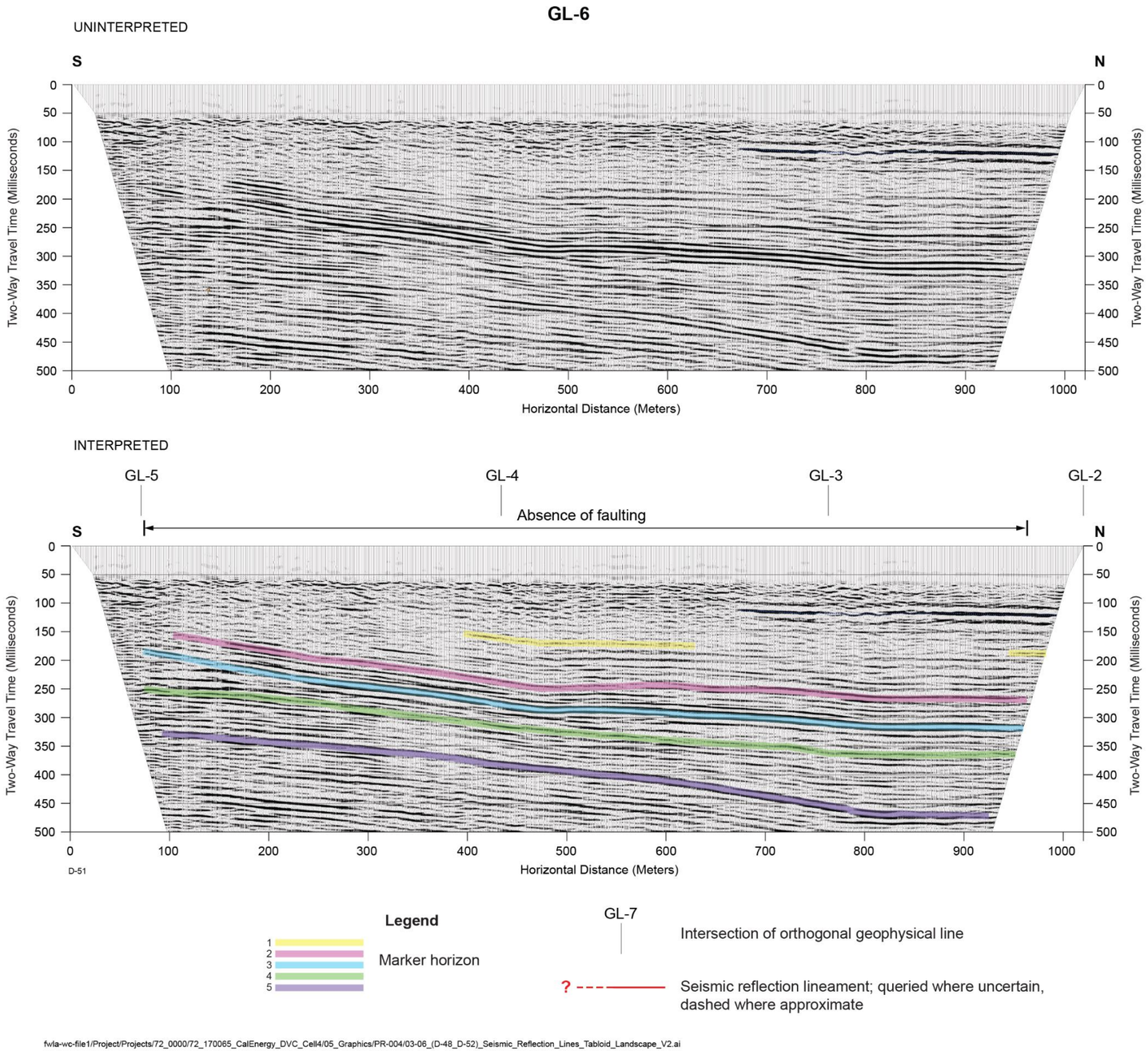

Figure 8. Seismic Reflection Profile, Line GL-6 (TWTT)

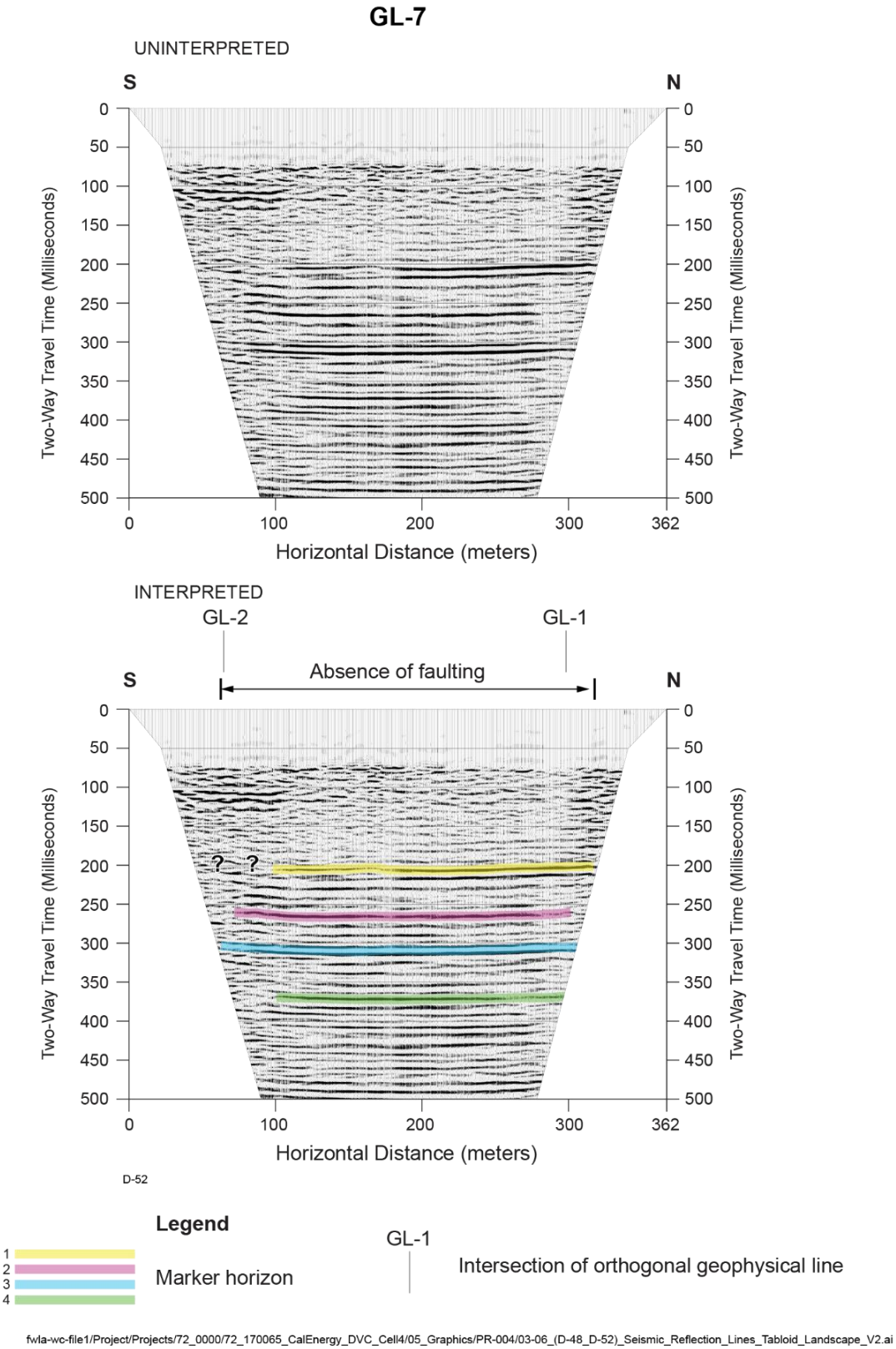

Figure 9. Seismic Reflection Profile, Line GL-7 (TWTT)

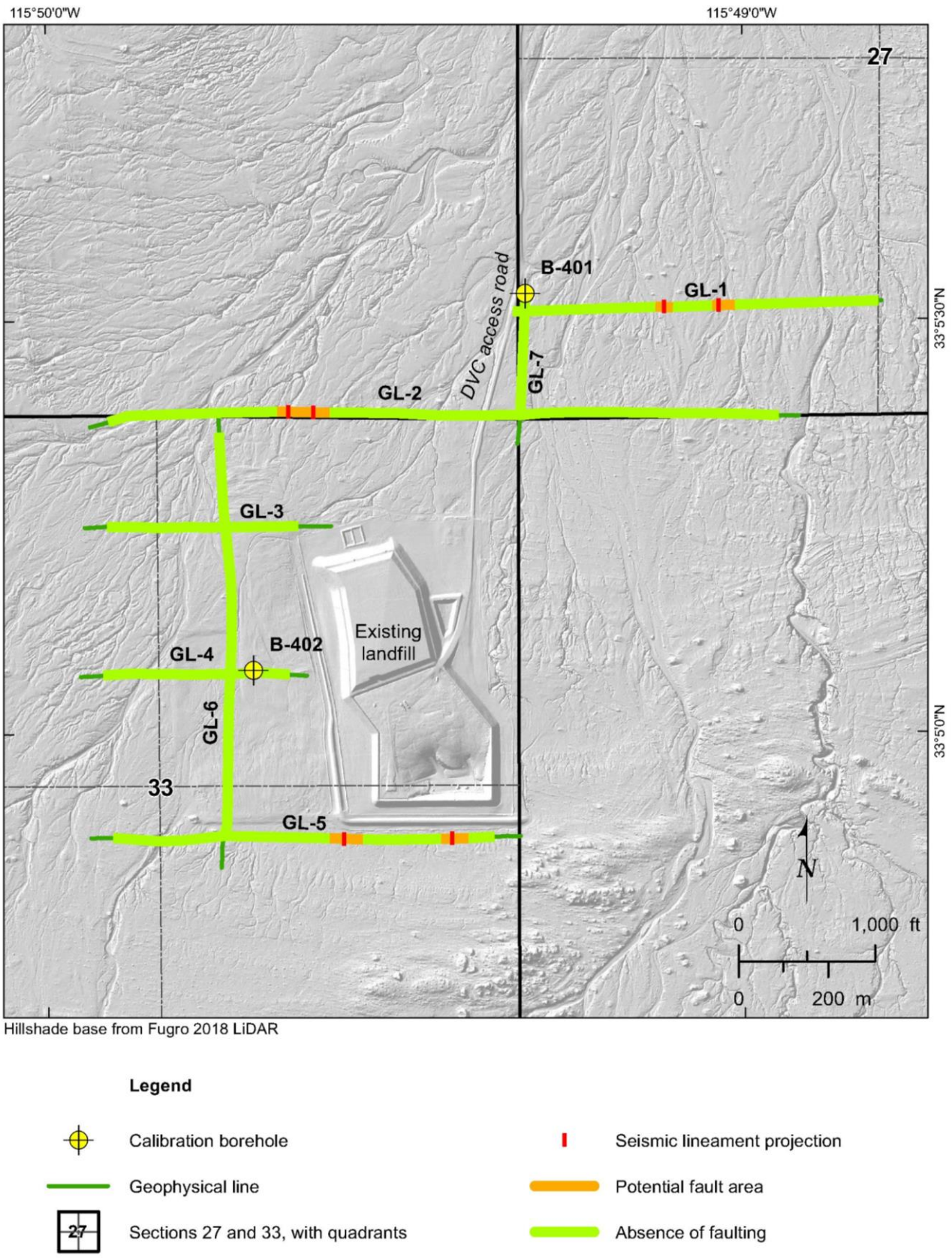

Figure 10. Fault Screening Results

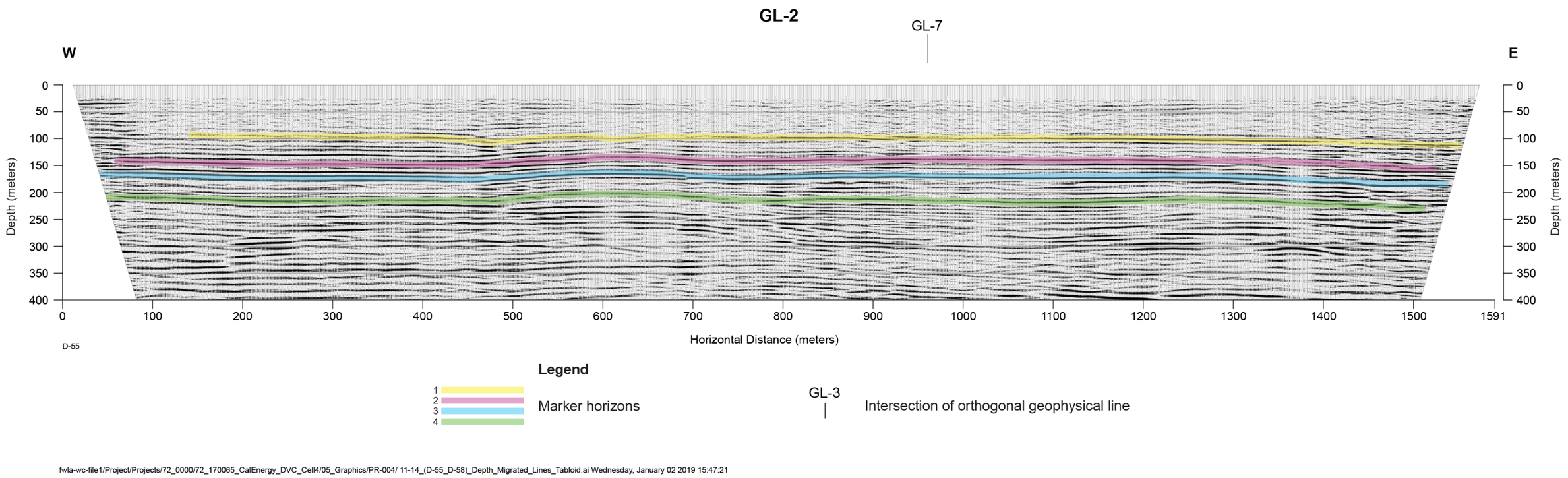

Figure 11. Seismic Reflection Depth Profile, Line GL-2

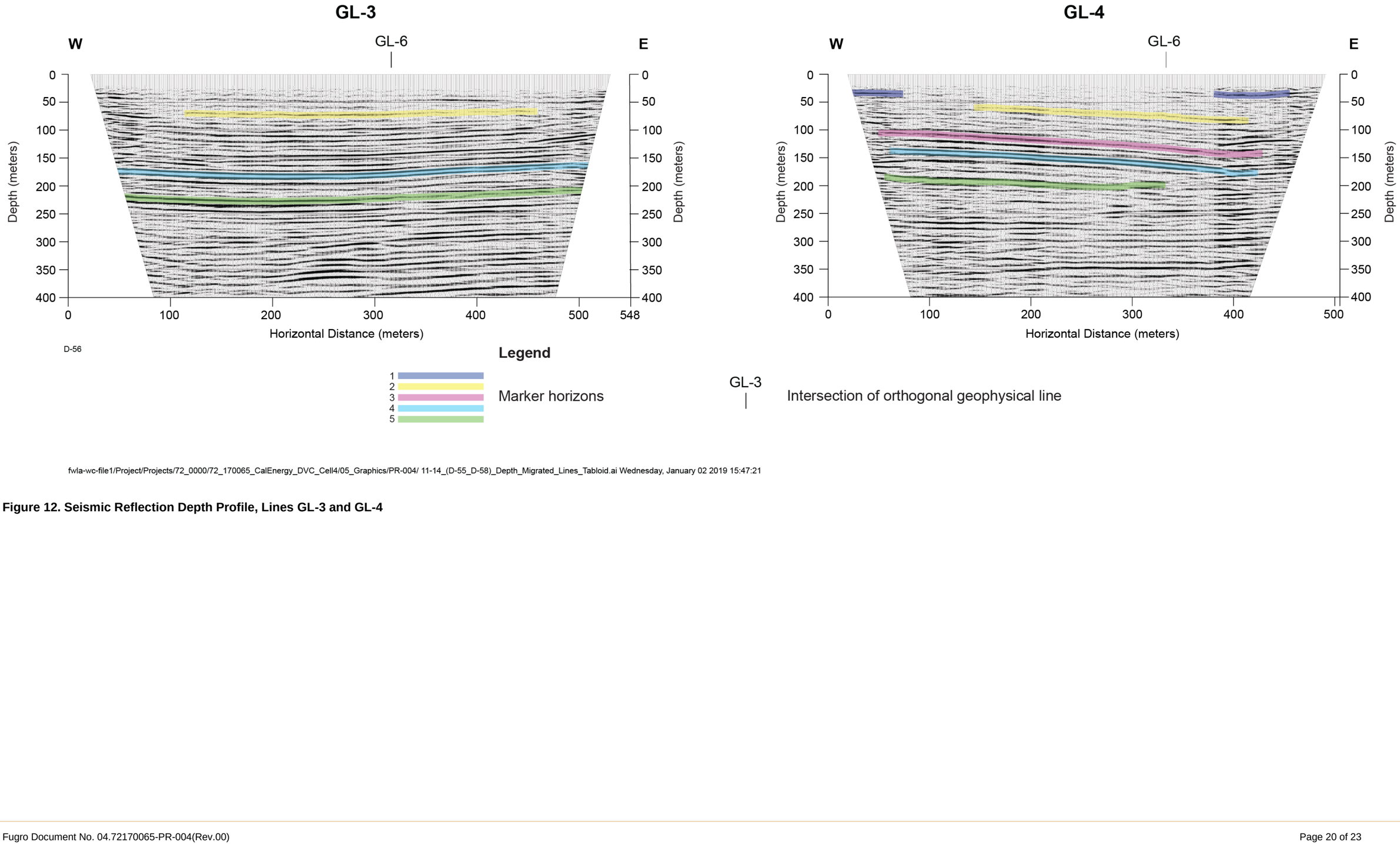

Figure 12. Seismic Reflection Depth Profile, Lines GL-3 and GL-4

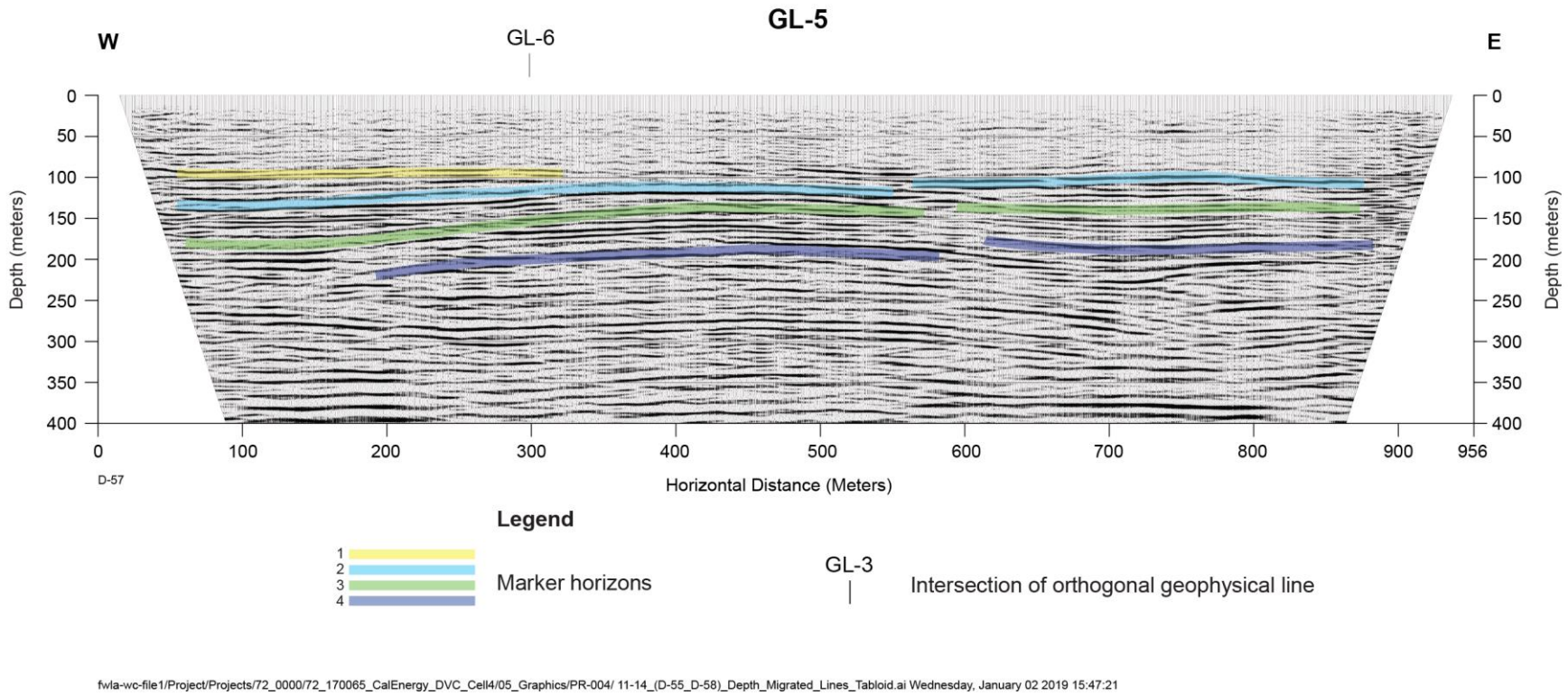

Figure 13. Seismic Reflection Depth Profile, Line GL-5

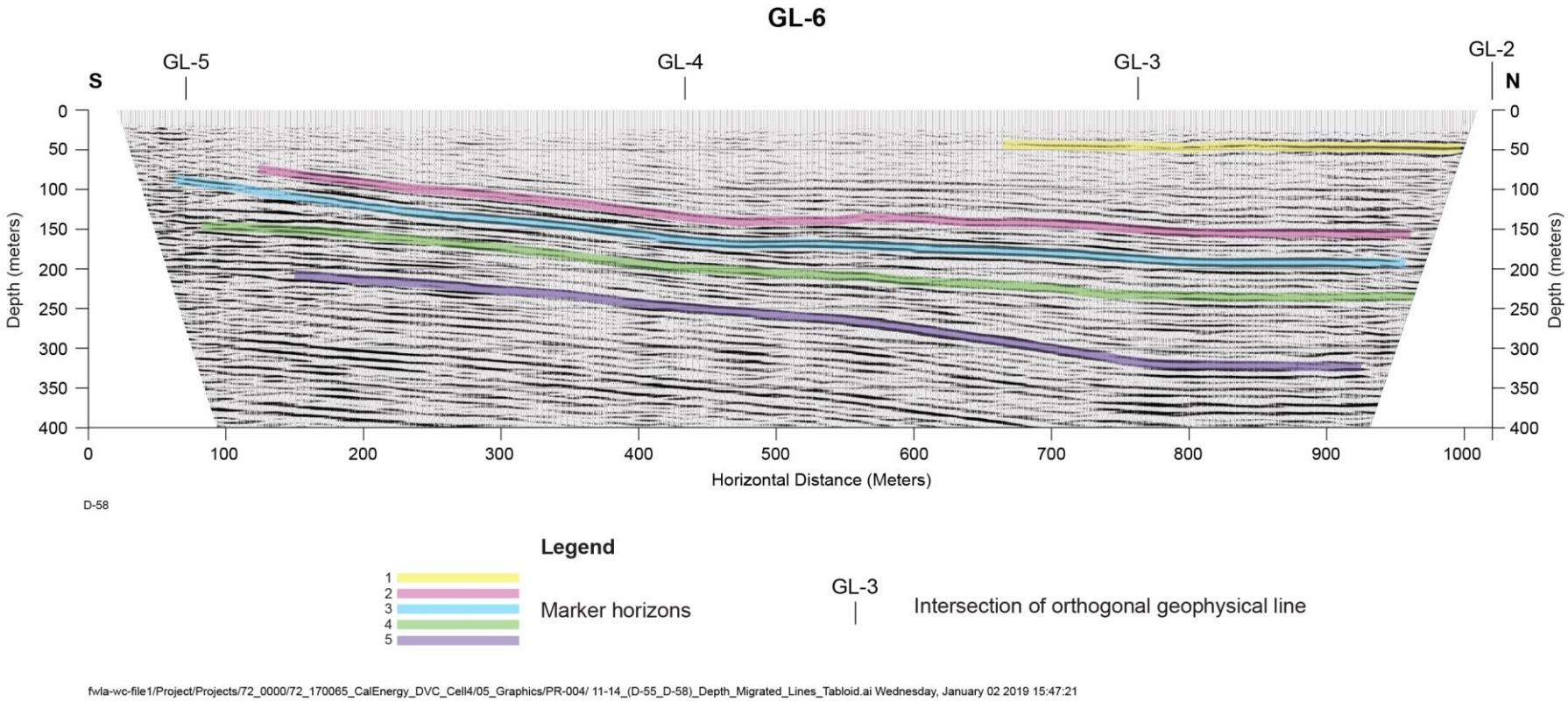

Figure 14. Seismic Reflection Depth Profile, Line GL-6

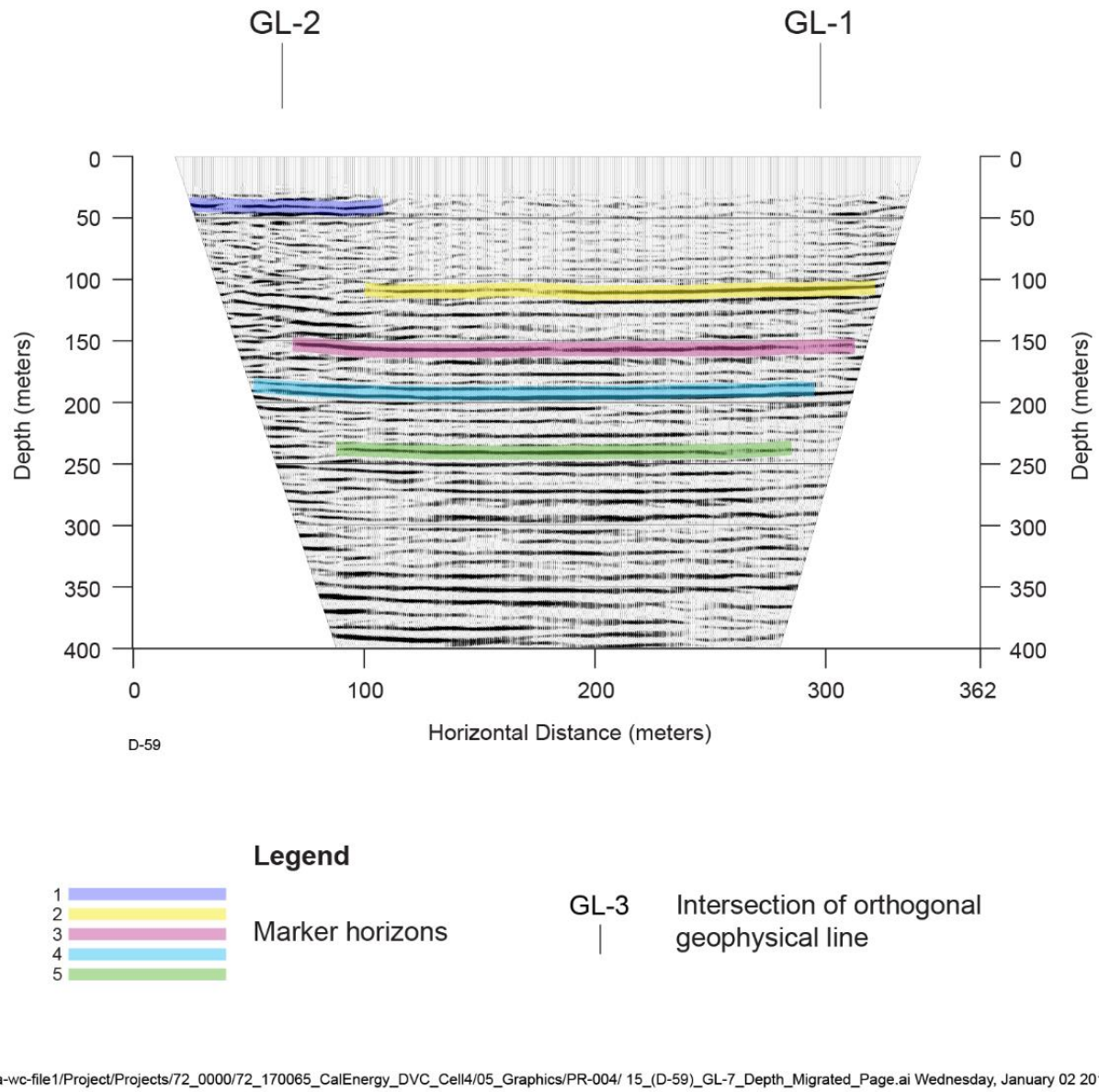

Figure 15. Seismic Reflection Depth Profile, Line GL-7

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I-7 Geophysical Survey Report, Line GL-1

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Fugro Project No. 04.72170065
Document No. 04.72170065-PR-002(Rev.00)
April 25, 2019

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Geophysical Survey Report, Line GL-1, DVC Cell 4 Siting
Brawley, California

Dear Ms. Wu,

Fugro is pleased to present results of the geophysical survey conducted along line GL-1 in the southwest quadrant of Section 27, a proposed location for planned DVC Cell 4. This letter report documents the purpose and scope of the survey, field data acquisition methods, data processing methods, and results of the survey. The data are interpreted with respect to evidence of faulting, both suggesting and precluding faulting. Recommendations are made for a fault trenching investigation of two potential faults interpreted from the geophysical data.

All report figures are numbered and provided in the attached Figures section.

PURPOSE AND SCOPE

The primary goal of this geophysical investigation was to scan for the presence of active faults capable of surface rupture within the SW quadrant of Section 27, one of the proposed sites for DVC Cell 4. The east flank of the Superstition Hills where the DVC property is located is characterized by a number of active faults, including faults that experienced surface rupture in the 1987 Superstition Hills earthquake (Figure 1). No active faults are presently mapped across Section 27, however, the presence of overlying young sediments may obscure fault evidence. In the SW quadrant of Section 27, young alluvium and Holocene Lake Cahuilla sediments may overlie evidence for faults displacing the underlying sediments.

To help evaluate the presence of active faulting in the SW quadrant of Section 27, a single seismic profile was surveyed, line GL-1, oriented approximately perpendicular to the known fault trends in the area (Figures 1 and 2). The work described in this report was performed in general accordance with Fugro's scope of work in the General

Services Contract, dated October 18, 2017. However, the scope of work in the contract includes geophysical survey in portions of both Sections 33 and 27. A conclusion of the Phase 1 report (Fugro Phase 1 Constraints Report, Revision 1 dated March 14, 2018) was that the SW quadrant of Section 27 is likely a more favourable location than the NW quadrant of Section 33 based on biologic and archeologic constraints. Thus the decision was made to conduct the geophysical survey in Section 27 only, and to extend survey line across the entire quadrant, utilizing the resources originally allotted to the survey of Section 33. At this time, no geophysical survey of section 33 is planned.

Limitations

All geophysical data analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of, and were reviewed by Fugro's' Principal Geophysicist.

This geophysical investigation was conducted using sound scientific principles and state-of-the-art technology. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing, interpretation, and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review.

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DATA ACQUISITION

Acquisition Overview

Data acquisition equipment consisted of a seismic source and a linear array of geophones connected by a cable to record the signals generated by the source. A computer located inside a recording truck collected and displayed the raw data so that data quality could be checked in the field. Figure 3 shows the equipment used.

The seismic source consisted of a skid steer-mounted seismic accelerated weight drop (AWD) (Figure 3A). The AWD uses a 200-pound steel mass accelerated by a nitrogen gas spring which hits an anvil on a baseplate. The unit is mounted to a skid steer and hydraulically operated. Source timing is controlled by a hammer switch mounted to the base plate which is connected to the recorded system via a radio link. Subcontractor Bird Seismic provided the AWD source and the operator.

The field data were recorded March 19 through 21, 2018. Field conditions during data acquisition were good with occasional light winds and no precipitation. The terrain along the survey line was generally flat, occasionally crossing shallow dry arroyos. Surface soils were loose and desiccated. Vegetation included sparse desert plants and small sagebrush.

Table 1. GPS Base Station Coordinates (NAD83 (2011) Epoch:2010.0000)

Latitude	Longitude	Ground Surface Elevation (m) (NAVD88)
33.0876227	-115.8230254	-39.379

Line GL-1 Acquisition

Line GL-1 was located in the southwest quarter of Section 27. The line was laid out from the western edge of Section 27 to a point approximately 805 meters directly east (Figure 2) at the approximate quadrant boundary. Nominally, 59 source locations were recorded for each spread (active array), which included source locations off both ends of the active array.

The nominal seismic acquisition parameters included:

- Geometrics Inc., Geode seismograph system with 24 bit A/D
- Active Array: 95 channels live
- Acquisition pattern: 95 live static, roll up 71 channels (24 channel overlap)
- Geophones: Geospace GS20D 8 Hz single vertical element
- Geophone Spacing: 2 meters
- Source Spacing: 4 meters
- Record Length: 1.5 seconds
- Sample Rate: 0.5 milliseconds
- No Acquisition Filters
- Pre-trigger Delay: - 50 msec (to account for radio trigger delay)

Data quality was good, with first break energy clearly visible across the entire spread for all source records. Frequency content was good, with useable spectra from about 6 Hz to over 200 Hz, providing good bandwidth for high-resolution reflection imaging.

Source and receiver positions were surveyed using a Leica GPS System 500 RTK base station and rover combination. The base station was located near the south end of the paved DVC access road. GPS base station control point (Table 1) was determined through autonomous stacking of the base station, and elevation corrected for Orthometric height using a post-processed OPUS correction.

DATA PROCESSING

The seismic processing methods and approaches used for this study are presented in this section. Analysis of the processed data is presented in the Results and Interpretation Section.

MASW & IMASW Processing

Long linear arrays of geophones can be processed for surface waves using the Multi-Channel Analysis of Surface Waves method (MASW). The surface wave data collected along the profile were processed using Geogiga, LLC.

Surface Plus MASW software and Fugro's proprietary IMASW software (O'Connell and Turner, 2011). For MASW processing using Surface Plus, the general processing flow included:

- Import SEG2 data
- Insert Source and Receiver Geometry
- Combine all source files into single SEGY file
- CMPCC sort (sort into CMPs)
- Derive dispersion curves for each CMP
- Pick maximum amplitude of fundamental mode of Rayleigh waves
- Invert to create closely spaced 1-D Vs layer models
- Krig data to produce 2D Vs velocity sections

Additionally, the surface wave data were processing using the Interferometric Multi-Channel Analysis of Surface Waves method (IMASW) for central 1-D Vs soundings located at the mid-point of each of the 6 active arrays. This approach averages the shear wave velocity under the entire active array and combined all the source records recorded for each active array. This approach provides improved signal to noise and improved depth resolution but reduced lateral resolution. Phase slowness-frequency (p-f) data were generated for each receiver location within each active array. On average 59 source records were used for each receiver position to create high-resolution phase slowness-frequency images used to pick Rayleigh-wave phase slowness frequency. The phase slowness-frequency dispersion pick data are used in three independent Monte-Carlo inversions at each receiver position to calculate classes of shear-wave velocity depth models below each receiver that are all consistent with the dispersion picks. The final Vs-depth model at each receiver is calculated using log averages of all the Vs-depth models consistent with the observed dispersion. More information on the IMASW method can be found in O'Connell and Turner (2011). The 2D shear wave velocity cross section along the seismic profile line are shown in Figure 4.

Refraction Processing

First breaks (first arrival of energy from the seismic source at each receiver) where picked for 223 source records (out of 343) from all active arrays. These time-distance picks were then combined and processed as a single line. The refraction processing was performed using Fugro's proprietary finite-frequency wave-equation 2D tomographic processing (FFWET). Fugro's FFWET processing can include a priori constraints such as average refractor depths to ensure that the inverted 2D velocity models are consistent with well-log and other geologic and geophysical constraints. Fugro's FFWET processing allows Bayesian priors to be explicitly included in inversions and is considered a "subjective" approach to refraction tomographic inversion. Refraction tomography is also used to estimate velocities to use for shallow seismic reflection processing to calculate refraction statics used in reflection processing.

Processing steps included importing stacked seismic files and inputting inline geometry and elevations. Data were picked with limited filtering using normalized trace amplitudes to enhance the resolution of the first-break energy. Picking of first breaks was performed manually and first break times were utilized by the program to perform velocity inversion and tomographic models.

Profiles of seismic compressional wave velocities were generated based on the arrival times of the seismic waves. Fugro's FFWET inversion used a least-absolute deviation residual norm instead of a least-squares norm to ensure

that estimated tomograms were insensitive to travel time picking errors. The refraction tomogram is presented in Figure 4.

Reflection Processing

Seismic reflection processing was performed by Sterling Seismic Services, Inc. Seismic reflection time images are effective in delineating detailed features such as diffractions, caused by small aspect features, such as small fault offsets, which are not resolved using tomographic analyses such as MASW and refraction tomography. Common-midpoint data (CMP) are generated at receiver positions and adjusted for geometric spreading and moveout using velocities from the refraction analyses. The resulting CMP data are summed (stacked) in each receiver CMP bin and amplitude adjusted for display as gray-scale or wiggle trace images. An advantage of seismic reflection imaging is that the maximum resolved depths are usually at least 2-4 times larger than the maximum depth of MASW or seismic refraction imaging. Consequently, seismic reflection imaging extends the resolution of subsurface anomalies to depths of 200 meters or more.

Seismic reflection time processing used high-pass filtering to improve signal-to-noise and maximize the resolution of subsurface structure. The 200 lb AWD source provided useable signal to a maximum frequency of > 200 Hz allowing resolution of subsurface shallow structure on the order of 1.5 to 2 meters of vertical offset on the strong lake bed reflector (reflector #2, Figure 5).

Seismic reflection data are typically processed in time domain (two-way travel time vs CMP). A time to depth conversion is applied to the temporal data in order to estimate the depth to reflection horizons. Ideally, this is done by developing a vertical velocity profile from a borehole seismic checkshot and lithology log. However, no boreholes were available to survey along the seismic profile line. Therefore, the vertical velocity profile was derived from the FFWET P-wave velocity tomogram. The caveat to this approach is that there is a potential for significant error in the depth estimates for the seismic reflection horizons.

RESULTS AND INTERPRETATION

Results of seismic processing and their interpretations for seismic line GL-1 are presented in this section. Refer to Figures 4 and 5 for illustrations of these results, which include, MASW shear wave tomography, seismic refraction tomography, and seismic reflection.

MASW/IMASW

The 2D shear wave velocity profile, with IMASW soundings, is shown in the upper panel of Figure 4. The shear wave velocity profile displays more lateral and vertical variability than the FFWET P-wave tomography profile. The east half of the line, from about 390 meters though 790 meters shows a relatively uniform shear wave velocity distribution in the upper 15 meters. The zone from about 165 meters to 320 meters along profile where characterized by dominate higher mode Rayleigh wave energy over most of the useable Rayleigh wave spectra. This greatly limited the resolution of the MASW 2D velocity analysis and likely underestimates the true velocity. This is evidenced by the IMASW sounding at 238 meters which shows a significant velocity increase at approximately 4 meters depth. This large velocity jump is not found on any of the other IMASW soundings. IMASW, because it was processed as a central sounding utilizing a summation of the dispersion curves from 59 shot records, was able to better define the

Rayleigh wave fundamental mode over a broader spectrum than the MASW 2D processing which develops dispersion curves from individual shot records. It is common for higher modes to dominate the Rayleigh wave spectrum in areas with thin slow soils overlying a much faster stiff layer.

Refraction Tomography

The FFWET refraction tomography P-wave velocity cross section is shown in the lower panel of Figure 4. The velocity structure is fairly uniform across the line, with no clear indication of vertical offsets in the velocity field. The section displays a vertical velocity gradient from the ground surface to a depth of about 6 to 12 meters across the site, with P-wave velocity ranging from about 250 to 1,000 meters/second. This layer is interpreted as young alluvium and Lake Cahuilla sediments. This overlies interpreted weathered sedimentary strata of the Brawley Formation varying from about 4 to 10 meters thick, with P-wave velocity ranging from about 1,000 to 1,500 meters/second. The interpreted weathered material overlies un-weathered or slightly weathered sedimentary strata of the Brawley Formation with P-wave velocity ranging from about 1,500 to 2,300 meters/second. The low P-wave velocities are reasonable for these young, weakly cemented lacustrine deposits.

The refraction tomography section also provides an indication of a velocity reversal at a depth of approximately 35 to 40 meters. Refraction methods have difficulty resolving velocity reversals because it violates the assumption of increasing velocity with increasing depth. Therefore, the velocity structure derived for depths below the top of this layer may have increased uncertainty.

There is a small moderate velocity (approximately 1,300 meter/second) zone which extends down into higher velocity layering centered at about 545 meters along the profile (Figure 4). This feature is approximately 25 meters wide and could represent a backfilled incised channel or possibly less induration or increased fracturing or weathering of the bedrock. This feature does not extend to depth and is interpreted to be a near surface feature that is unlikely to be related to faulting.

Seismic Reflection

The post-stack depth migrated seismic reflection section is shown in Figure 5. Good shallow reflection horizons are visible throughout. This includes three major reflectors, highlighted in yellow as marker horizons and labelled reflector 1, 2 and 3, which are visible across most of the seismic profile. The approximate median depths to these three reflectors beneath the profile line are 12 meters, 38 meters and 81 meters, respectively. The 2nd reflector at approximately 38 meters is the most uniformly continuous across the profile line and is used as the primary marker horizon for interpretation. These reflectors are primarily flat-lying across the profile line with a gentle apparent dip to the east of about one meter vertical for every 500 meters horizontal (measured from the 2nd reflector at approximately 38 meters depth). The horizons are assumed to represent sedimentary layering. No large offsets or deflections of the reflectors are visible in the data. Additionally, only a few minor random diffractions were observed in the time data.

Three locations with small offsets of the marker horizons have been identified as seismic lineaments (Figure 5). Projecting the alignment of these lineaments to the ground surface show them located at approximately 328 meters (lineament 1), 450 meters (lineament 2) and 480 meters (lineament 3) along profile, respectively. These vertical bedding offsets on the 2nd marker horizon at 38 meters are interpreted to be 1.5 to 2 meters. The lineament at 328

meters displaces the marker horizon down to the east, while those at 450 and 480 meters displace the marker horizon down to the west.

It should be noted that the depth estimates to the reflection horizons shown are gross approximations based on a vertical velocity profile derived from the P-wave velocity tomogram, as discussed in section 3.4 above on reflection processing. Without borehole data to constrain the time to depth conversion, the potential error in the depth conversion could be significant.

SUMMARY AND CONCLUSIONS

The seismic data collected along line GL-1 was very high quality broadband data with a useable frequency range from about 6 to > 240 Hz. This allowed the data to be processed using multiple methods, each of which analyses a unique set of wave trains in the data which are sensitive to different mechanical properties of the geologic materials. This dataset was processed for P-wave refraction tomography using the first arrival of energy from the direct and refracted P-wave arrivals, for S-wave (MASW) velocity analysis using surface waves, and for high-resolution seismic reflection processing and full waveform common offset analysis.

The refraction tomography and MASW results do not show strong evidence for lateral velocity boundaries indicative of shallow faulting. The refraction profile shows a strong velocity gradient at about 10 meters depth, which is tentatively correlated to the contact between the Lake Cahuilla sediments and the underlying Brawley Formation (Figure 4). Variability in the shear wave velocity profile is interpreted to reflect differential weathering of these layered sediments.

The high resolution seismic reflection data show planar and continuous reflectors (marker horizons) over most of survey line GL-1. These marker horizons indicate a clear absence of fault displacement over the areas so marked on Figure 5. In these areas at least one of the three prominent marker horizons is present and all marker horizons are continuous and undeformed at the resolution of the imaging (about 1 meter).

Three seismic lineaments at depth in high-resolution seismic reflection data suggest the presence of small faults. Vertical offsets of 1.5 to 2 meters in the marker horizon at 38 meters depth can be traced from the lowest marker horizon up to the highest marker horizon at 12 meters depth. It is unclear from the reflection data whether these lineaments extend up to the ground surface, as the P-wave reflection method has limited resolution at depths less than about 20 meters. However, the locations of the features in the reflection data are coincident with location of lateral discontinuities in the propagation of surface waves, which may indicate that these reflection features indeed extend to shallower depths.

Based on the tectonic setting and known characteristics of nearby faults, the dominant sense of movement on a north-trending fault is likely to be right lateral. Therefore, the vertical component of displacement observed in the seismic reflection data would not adequately characterize total displacement, if these seismic lineaments are indeed found to be active faults. A fault trenching investigation would be required in order to establish activity, as well as the direction and amount of displacement.

RECOMMENDATIONS

The seismic reflection lineaments observed in the seismic reflection profile of GL-1 (Figure 5) may represent fault displacement, thus a fault investigation is recommended. The goals of the fault investigation would be to: (1) document the presence or absence of faults at the surface projection of these lineaments, and (2) if any fault is present, establish whether the sediments displaced are Holocene in age thus the fault would be considered active, and (3) determine the geometry of the fault so that it can be projected across the site. Regulations prohibit siting of a landfill within 200 feet of an active fault.

We recommend conducting a fault trenching investigation of the two westernmost seismic lineaments, lineaments 1 and 2 on Figure 5 and Table 2. Lineament 3 is seen as the weaker of the three lineaments, thus if lineaments 1 and 2 are shown to not be active faults, lineament 3 is expected to follow suit. Two 50-foot long trenches are proposed, each centered on the projection of lineament 1 or lineament 2 (Figure 6). The 50-foot length is expected to allow for the uncertainty in the projection of these lineaments to the surface. A jurisdictional drainage delineation must be conducted prior to excavation to ensure that no drainage channels are impacted. Based on the aerial imagery, the trench at lineament 1 would not cross a drainage, and the trench at lineament 2 would cross a very small drainage whose status would depend on the results of the jurisdictional delineation.

Note that the projection of the known fault from the south into the SW quadrant of Section 27 (i.e. projected fault corridor on Figure 1) does not correspond to the location of the suspected fault features (i.e. lineaments on Figure 6). Instead, the area crossed by the projected fault corridor appears to be free of fault displacement (Figure 5). We recommend that this projected fault corridor be removed from DVC project maps going forward.

Table 2. Location of Seismic Lineaments for Fault Investigation (NAD83, Zone 11N)

Seismic Lineament	Easting UTM (m)	Northing UTM (m)
1	610255.69	3662097.24
2	610377.48	3662010.53

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O'Connell, D. R. H., and Turner, J. P., 2011, Interferrometric Multi-Channel Analysis of Surface Waves (IMASW): Bulletin of the Seismological Society of America, vol. 101, no. 5, pp. 2122-2141.

CLOSURE

We have enjoyed conducting this geophysical survey for CalEnergy, and look forward to further assisting with the siting of DVC Cell 4. Please do not hesitate to contact us if you have questions or require further information.

Sincerely,
Fugro USA Land, Inc.

Jim Pfeiffer
Senior Geophysicist

Jim Hild
Principal Geophysicist

Attachments:

FIGURES

Figure 1. Overview of the DVC Site 1
Figure 2. Location of Seismic Line GL-1 2
Figure 3. Seismic Data Collection Equipment 3
Figure 4. MASW and FFWET Refraction Tomography Profiles, Line GL-1 4
Figure 5: Seismic Reflection Profile, Line GL-1 5
Figure 6. Proposed Fault Trenching Investigation 6

Distribution: One electronic copy to Ms. Yanqiu Wu

00	Final	JP/JH	JMS	JH	April 25, 2018
Rev.	**Status**	**Prepared**	**Reviewed**	**Approved**	**Date**

FIGURES

Figure 1: Overview of the DVC Site contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

Figure 2: Location of Seismic Line GL-1 contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

A. Track-mounted skid steer with AWD source
B. Using the AWD source in the field
C. Recording truck with red flags along geophone cable
D. Data display in real time inside the recording truck

Figure 3. Seismic Data Collection Equipment

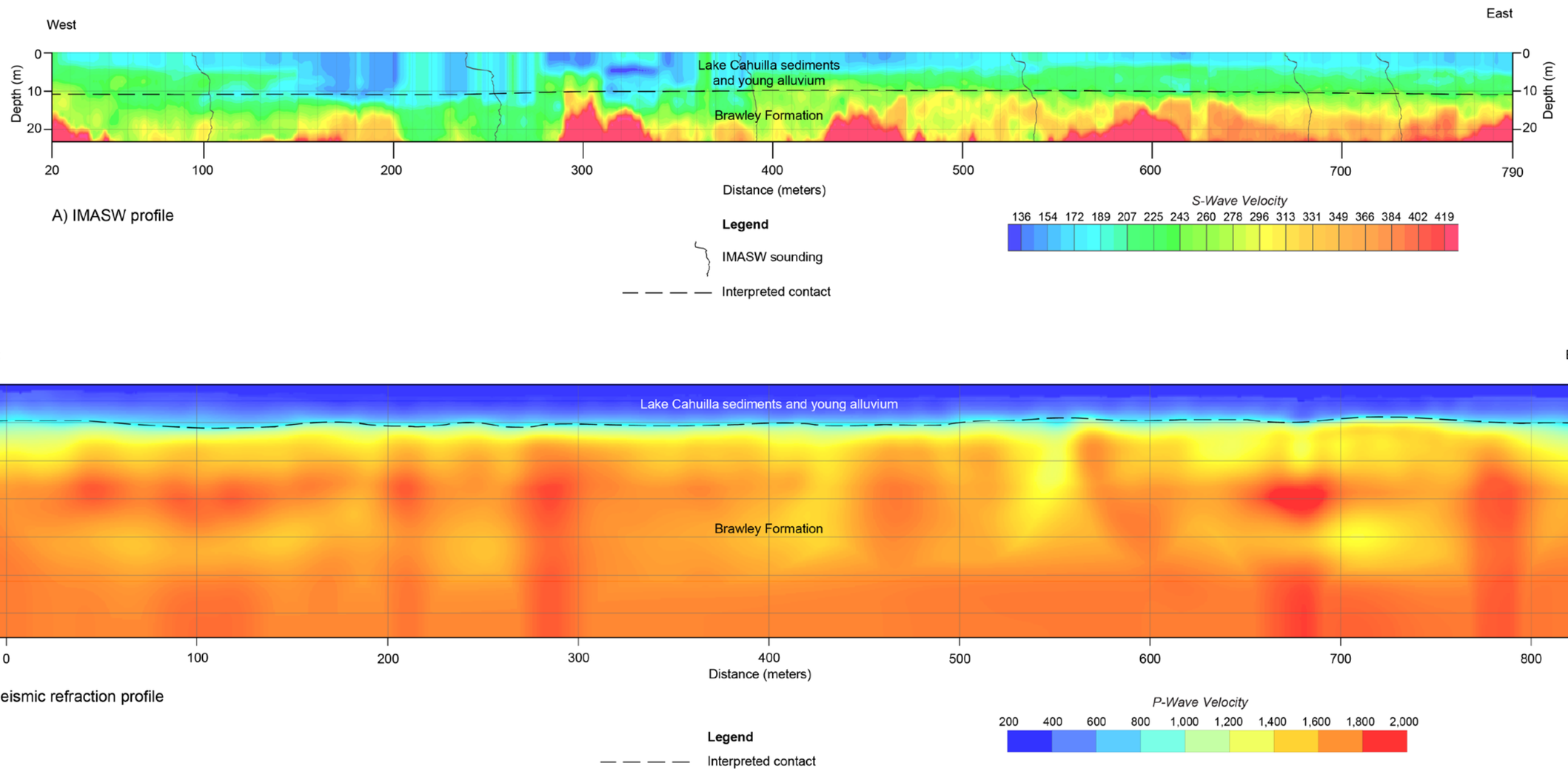

Figure 4. MASW and FFWET Refraction Tomography Profiles, Line GL-1

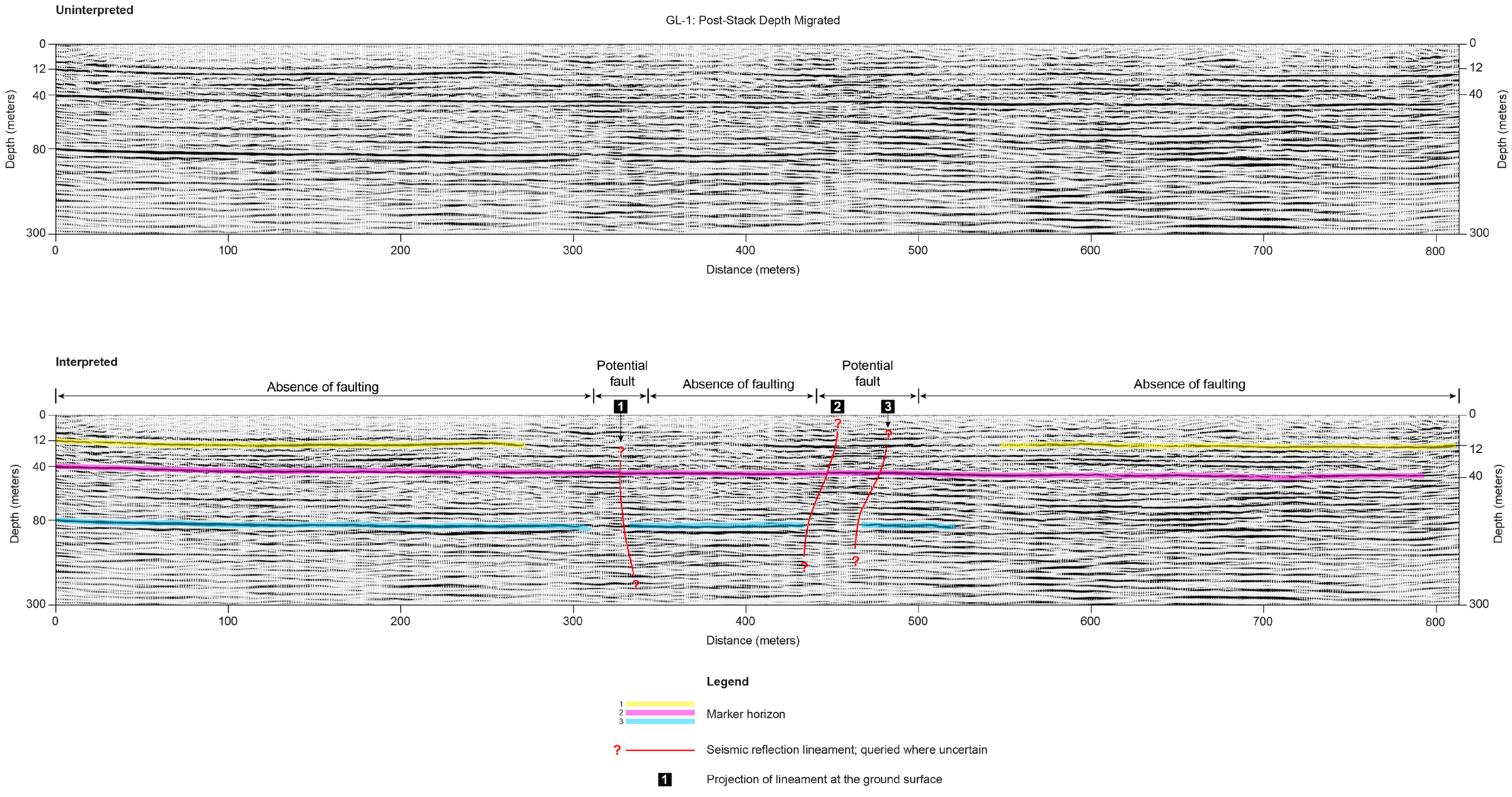

Figure 5: Seismic Reflection Profile, Line GL-1

Figure 6: Proposed Fault Trenching Investigation

contains confidential information. A copy is on file with the County of Imperial and is available for review by qualified individuals only.

I-8

Site Specific Seismic Hazard Analysis

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TECHNICAL MEMORANDUM

Date:	9 September 2021
To:	Osvaldo Flores, CalEnergy Operating Corporation
From:	Madeline Downing, P.E., Keaton Botelho, P.E., and Christie Hale, PhD
Subject:	CalEnergy DVC Cell 4 Seismic Hazard Evaluation

The results of the seismic hazard evaluation performed by Geosyntec Consultants (Geosyntec) for the Desert Valley Company (DVC) active Class II monofill in Westmorland, California (Cell 4, the Project) are presented in this technical memorandum (memo). The seismic hazard evaluation performed for the site consists of identifying seismic sources near the site and developing a site-specific design 5% damped elastic acceleration response spectrum based on a deterministic seismic hazard analysis. The evaluation was completed in accordance with California Code of Regulation (CCR) Title 27 Maximum Credible Earthquake (MCE) design criteria required by CEQA.

SEISMIC SOURCES IDENTIFICATION

The seismic hazard evaluation is based on the Maximum Credible Earthquake (MCE). The MCE is defined as the largest earthquake that appears capable of occurring under the presently known geologic framework. The MCE is defined in terms of its moment magnitude (Mw) and the closest source-to-site distance (R). The Mw of the MCE is the mean maximum magnitude of a seismic source using established correlations between fault parameters (e.g., fault area) and earthquake magnitude. It should also be as large as the largest historical event to have occurred along the seismic source.

The Project is located within Westmorland, California. The site location is shown on Figure 1. Approximate coordinates of the site are:

- Latitude : 33.0841 °
- Longitude: -115.8283 °

The Elmore Ranch fault lies approximately 1.7 kilometers (km) due southeast of the site. The Superstition Hills and San Jacinto Superstition Mountain faults lie approximately 7.3 km and 13.4 km due southwest of the site, respectively (Figure 1). Other major faults in the region include the Brawley fault zone, Imperial fault, and the San Andreas fault; however these faults are located further from the site and are not expected to control the deterministic seismic hazard.

Table 1 provides a list of earthquakes with Mw = 5 or greater that have occurred within 100 km of the site over the past 200 years. The closest historical earthquakes to the site are also depicted on Figure 1. As shown in Table 1, the largest earthquakes were of magnitude 6.6, which occurred in 1987 and 1942 in Westmorland and 1968 near Ocotillo Wells. These Mw = 6.6 events are less than the maximum magnitude for the Elmore Ranch fault based on its fault characteristics from the Uniform California Earthquake Rupture Forecast Version 3 (UCERF3) by Working Group of California Earthquake Probabilities (WGCEP, 2014).

DETERMINISTIC SEISMIC HAZARD ANALYSIS

A site-specific deterministic seismic hazard analysis (DSHA) was performed using a geometric mean value of peak ground acceleration (PGA) evaluated using four NGA-West2 empirically based ground motion models (GMM). The NGA-West2 relationships are the most reliable GMMs currently available for shallow crustal earthquakes along active plate margins (i.e., California) and are the current industry standard. The NGA-West2 relationships include Abrahamson, Silva, and Kamai (2014), Boore, Stewart, Seyhan, and Atkinson (2014), Campbell and Bozorgnia (2014), and Chiou and Youngs (2014). The Idriss (2014) relationship was not used as it is not applicable for sites with V_{S30} less than 450 m/s. Using the identified active faults and the fault segmentation models adopted in UCERF3 (WGCEP, 2014) within a 100 km radius of the site, the average of the four NGA-West2 relationships were used to compute the PGA and acceleration response spectrum for the maximum magnitude of each seismic source. The other parameters used for the NGA-West2 ground motion models are shown in Table 2 for the three largest contributing events.

The V_{S30} parameter of 275 m/sec was calculated as the average of the measured shear wave velocity values in the upper 30 meters determined during a supplemental subsurface exploration on 31 August 2021. Kehoe Testing (2021) performed a seismic cone penetration test (sCPT-1) within the proposed DVC Cell 4 siting area under the direction of Geosyntec. Seismic shear wave measurements were recorded every 5 feet to a depth of approximately 80 feet bgs where refusal was encountered. Shear wave velocities were assumed for depths beyond 80 feet to extend the velocity profile to a depth of 100 feet for the estimation of V_{s30}. The sCPT-1 location and shear wave velocity profile from the testing is shown on Figure 2 with the estimated V_{S30}.

The results of the deterministic analysis are shown on Figure 3. The maximum PGA calculated for this site comes from a Mw = 6.72 rupture event on the Elmore Ranch fault at a distance of 1.7 km. Due to the proximity of the fault to this site, it is the controlling seismic source for this project. Thus, the MCE for this site is a strike-slip event on the Elmore Ranch fault with Mw = 6.72 and R = 1.7 km.

The design PGA at the existing ground surface of 0.48 g was established based on this MCE earthquake scenario. The median 5% damped elastic spectral acceleration response spectrum at the ground surface is shown in Figure 4 for the MCE design level event.

CONCLUSIONS

The results of the seismic hazard evaluation performed for DVC Cell 4 in Westmorland, California have been presented. The results of the DSHA will be employed to define the design PGA for this project. The site-specific 5% damped elastic acceleration response spectrum based on a DSHA using NGA-West2 relationships at the median (50th percentile) ground motion level will be utilized in further analysis such as seismic slope stability, seismic cover stability, and liquefaction evaluation. The site-specific evaluation for the MCE (i.e., $M_w = 6.72$ with R = 1.7 km) produces a median PGA of 0.48 g. We recommend that this value of 0.48 g be utilized as the MCE-level PGA for the proposed Cell 4 base. The top deck PGA may need to be further estimated once design height is established and an estimate of the non-MSW V_{S30} is defined. This recommendation is consistent with current standards of practice in California wherein the median ground motion parameter derived deterministically for the MCE event is used as the basis for seismic evaluation of landfills that fall under CCR Title 27 regulations.

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ATTACHMENTS

Table 1: Historical Earthquakes
Table 2: Earthquake Scenario Inputs for Deterministic Analysis
Figure 1: Nearby Faults and Historical Earthquakes
Figure 2: Shear Wave Velocity Test Location and Profile
Figure 3: Deterministic Seismic Hazard Spectra for Three Largest Seismic Sources
Figure 4: MCE Site-Specific Design Spectrum

TABLES

Table 1: Historical Earthquakes				
Date of Earthquake	**Latitude**	**Longitude**	**Magnitude**	**Location Description**
11/24/1987	33.0150	-115.8520	**6.6**	22 km W of Westmorland, CA
10/21/1942	32.9753	-115.7853	**6.6**	17 km WSW of Westmorland, CA
4/9/1968	33.1798	-116.1030	**6.6**	5 km NNE of Ocotillo Wells, CA
3/19/1954	33.2985	-116.0805	6.4	12 km W of Salton City, CA
11/24/1987	33.0900	-115.7920	6.2	17 km WNW of Westmorland, CA
10/16/1979	32.9987	-115.5575	5.8	3 km NW of Brawley, CA
8/15/1945	33.0823	-115.6312	5.77	5 km N of Westmorland, CA
4/26/1981	33.0955	-115.6245	5.75	6 km N of Westmorland, CA
10/22/1942	33.2662	-115.5720	5.63	6 km WNW of Niland, CA
6/23/1915	32.8000	-115.5000	5.5	5 km E of El Centro, California
6/23/1915	32.8000	-115.5000	5.5	5 km E of El Centro, California
3/19/1954	33.2095	-116.0977	5.48	8 km NNE of Ocotillo Wells, CA
6/14/1953	32.8923	-115.5043	5.47	8 km NE of Imperial, CA
7/29/1950	33.0883	-115.6637	5.42	7 km NW of Westmorland, CA
8/26/2012	33.0185	-115.5403	5.41	4 km NNW of Brawley, CA
5/19/1940	32.8550	-115.5000	5.41	6 km E of Imperial, CA
1/8/1946	33.1112	-116.0008	5.33	13 km ESE of Ocotillo Wells, CA
8/26/2012	33.0172	-115.5537	5.32	5 km NNW of Brawley, CA
6/5/2021	33.1400	-115.6348	5.25	11 km W of Calipatria, CA
4/9/1968	32.8747	-116.1502	5.2	21 km NW of Ocotillo, CA
4/25/1957	33.1190	-115.6808	5.19	11 km NNW of Westmorland, CA

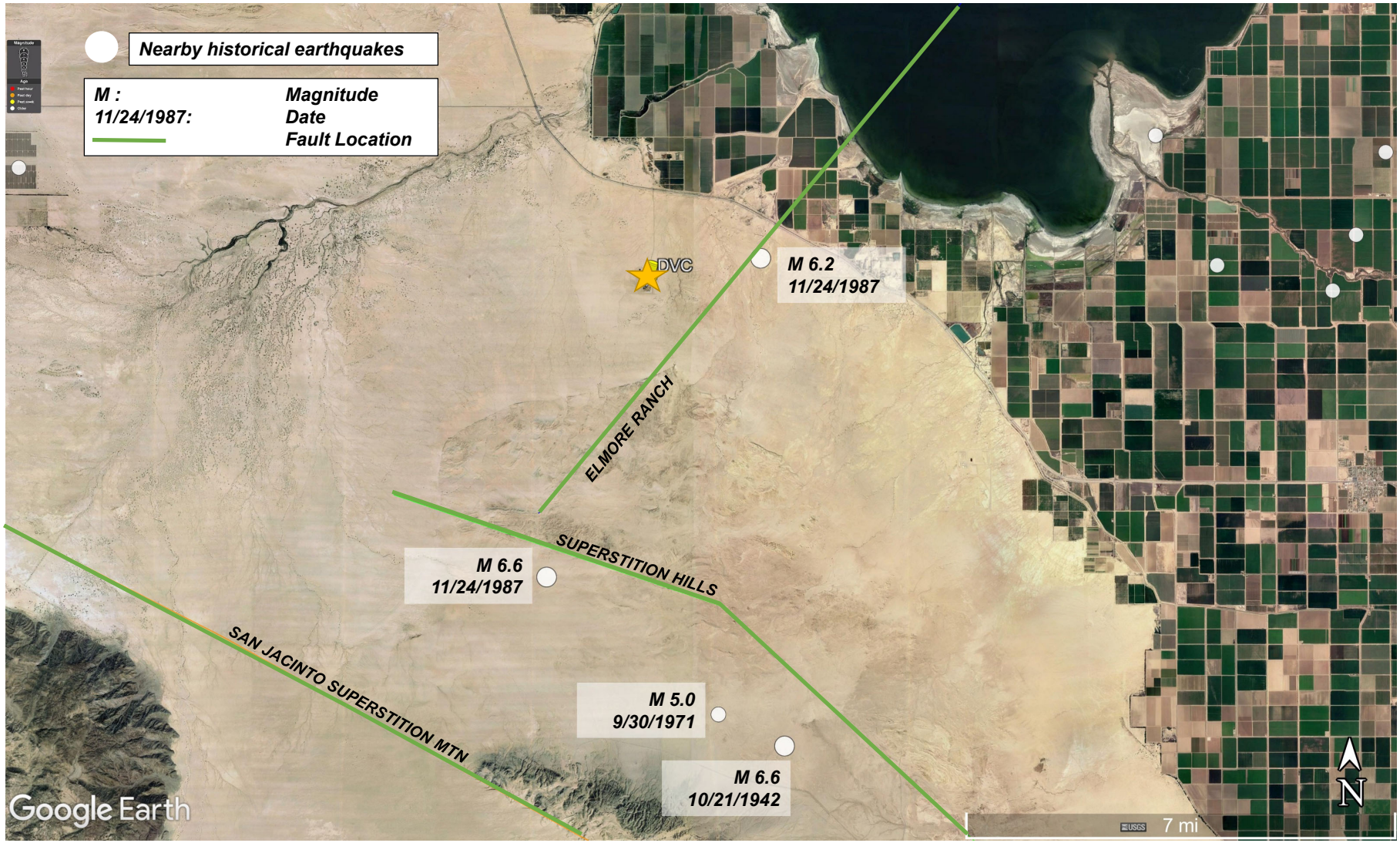
Notes:

1. Locations and magnitudes were obtained from the USGS Historic United States Earthquakes, https://earthquake.usgs.gov/earthquakes/search/ , from (1821 - 2021).

Table 2: Earthquake Scenario Inputs for Deterministic Analysis														
UCERF3 Fault ID	**Fault Name**	**R (km)**	**Fault Type**	**Average Dip (degree)**	**Upper Seismic Depth (km)**	**Lower Seismic Depth (km)**	**Fault Geometry and Magnitude**				**Rx (km)**	**R_{jb} (km)**	**R_{rup} (km)**	**Z_{tor} (km)**
							Width (km)	**Trace Length (km)**	**Area (Width x Trace Length) (km^2)**	**Mw Log(Area) +4.2**				
96	Elmore Ranch	1.7	SS	90	0	11.4	11.4	29	330.6	6.72	-1.7	1.7	1.7	0
98	Superstition Hills	7.3	SS	90	0	12.6	12.6	36.2	456.12	6.86	-7.3	7.3	7.3	0
28	San Jacinto Superstition Mtn	13.4	SS	90	0	12.4	12.4	26.3	326.12	6.71	-13.4	13.4	13.4	0

Notes:
Rrup = Closest distance to rupture
Rjb = Closest distance to surface projection of rupture
Rx = Horizontal distance from top of rupture measured perpendicular to fault strike
SS = strike slip
Mw = moment magnitude
Ztor = depth to top of rupture

FIGURES

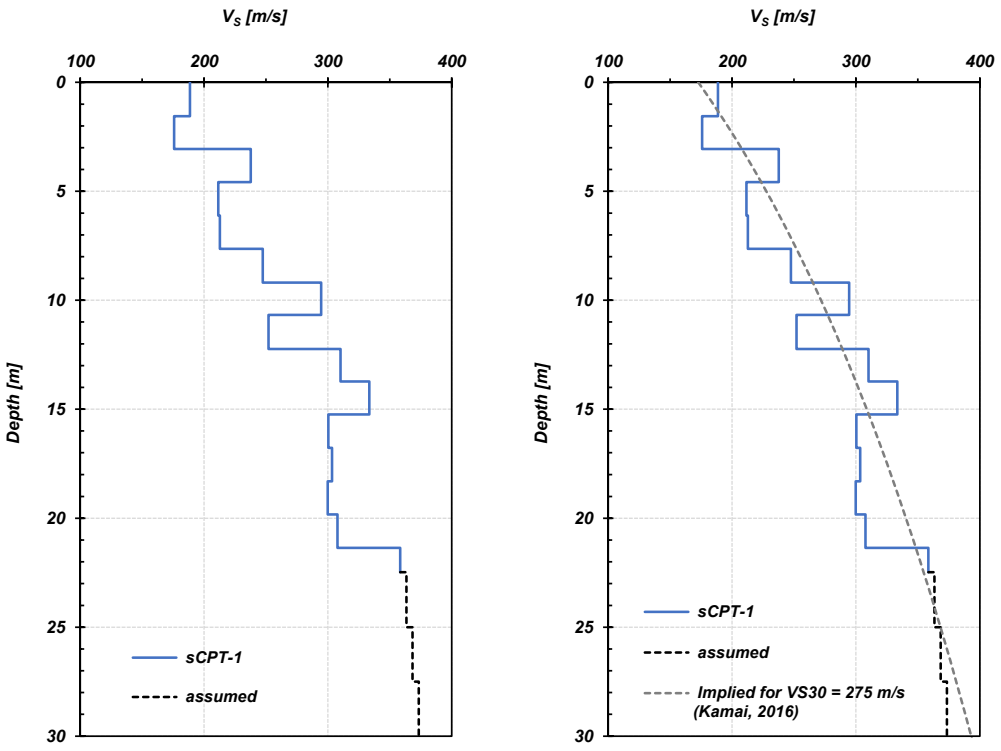


Notes:
1. Base map aerial provided by Google Earth Pro, 2018.
2. Fault data provided by UCERF3 database.
3. Historical earthquakes provided by USGS.
3. Site Location: 33.0841, -115.8283
4. DVC: Desert Valley Company (Site)

Geosyntec

NEARBY FAULTS AND HISTORICAL EARTHQUAKES
CALENERGY DVC CELL 4
WESTMORLAND, CALIFORNIA

FIGURE NO.	1
PROJECT NO.	SC0852C
DATE:	SEPT 2021



Vs30 Calculation

20.4.1 $\bar{v}_s$, Average Shear Wave Velocity. $\bar{v}_s$ shall be determined in accordance with the following formula:

$$\bar{v}_s = \frac{\sum_{i=1}^{n} d_i}{\sum_{i=1}^{n} \frac{d_i}{v_{si}}} \qquad (20.4\text{-}1)$$

where **Vs30 = 275 m/s**

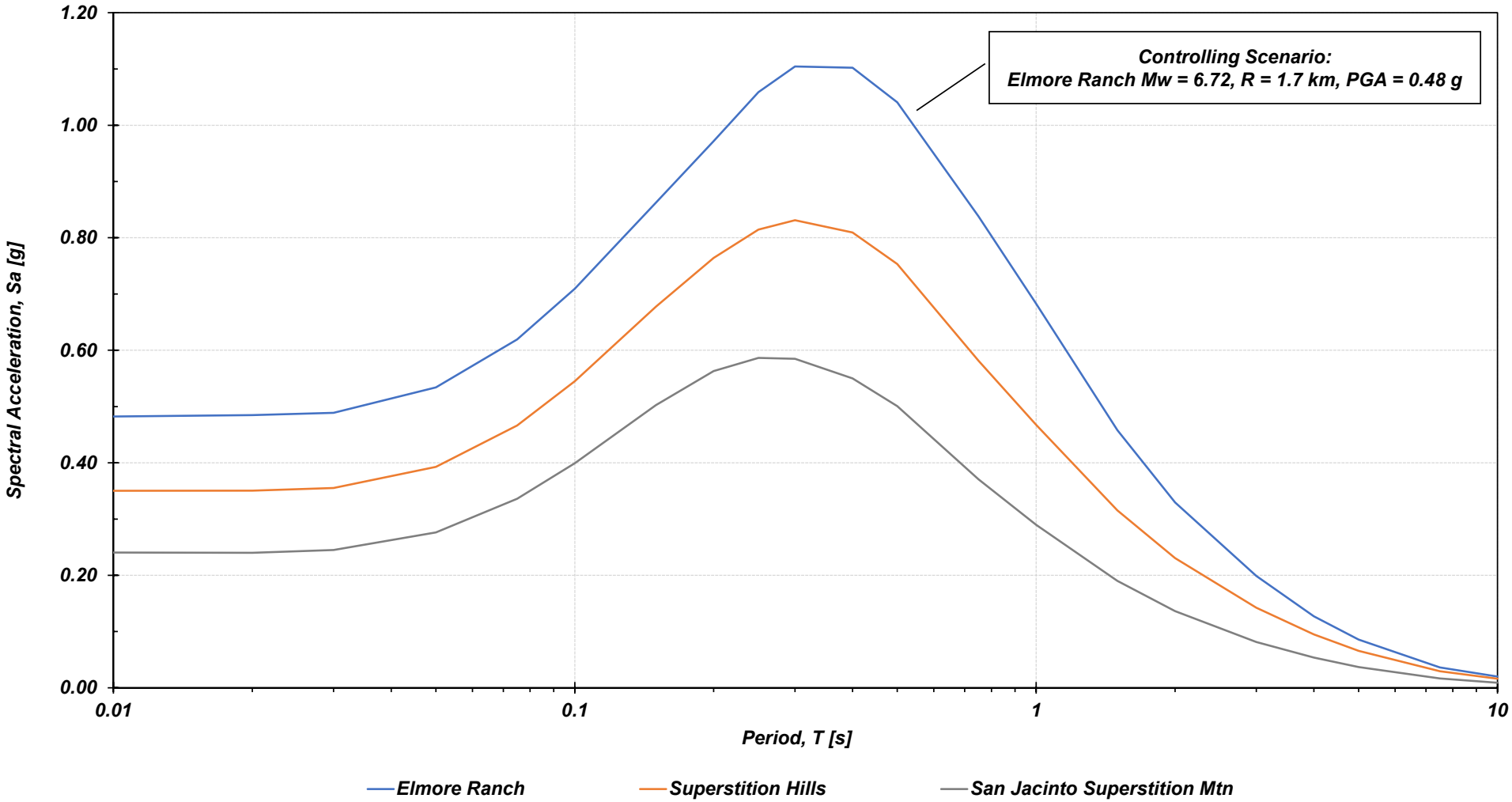
d_i = the thickness of any layer between 0 and 100 ft (30 m);
v_{si} = the shear wave velocity in ft/s (m/s); and
$\sum_{i=1}^{n} d_i$ = 100 ft (30 m).

Notes:
1. Shear wave velocity in the upper 30 meters estimated from seismic cone penetration test (sCPT-1) performed by Kehoe Testing under direction of Geosyntec on 31 August 2021 at location within DVC Cell 4 Siting Area. sCPT-1 coordinates: 33.0841° Latitude and -115.8283° Longitude.

Geosyntec

SHEAR WAVE VELOCITY PROFILE AND LOCATION
CALENERGY DVC CELL 4
WESTMORLAND, CALIFORNIA

FIGURE NO.	2
PROJECT NO.	SC0852C
DATE:	SEPT 2021

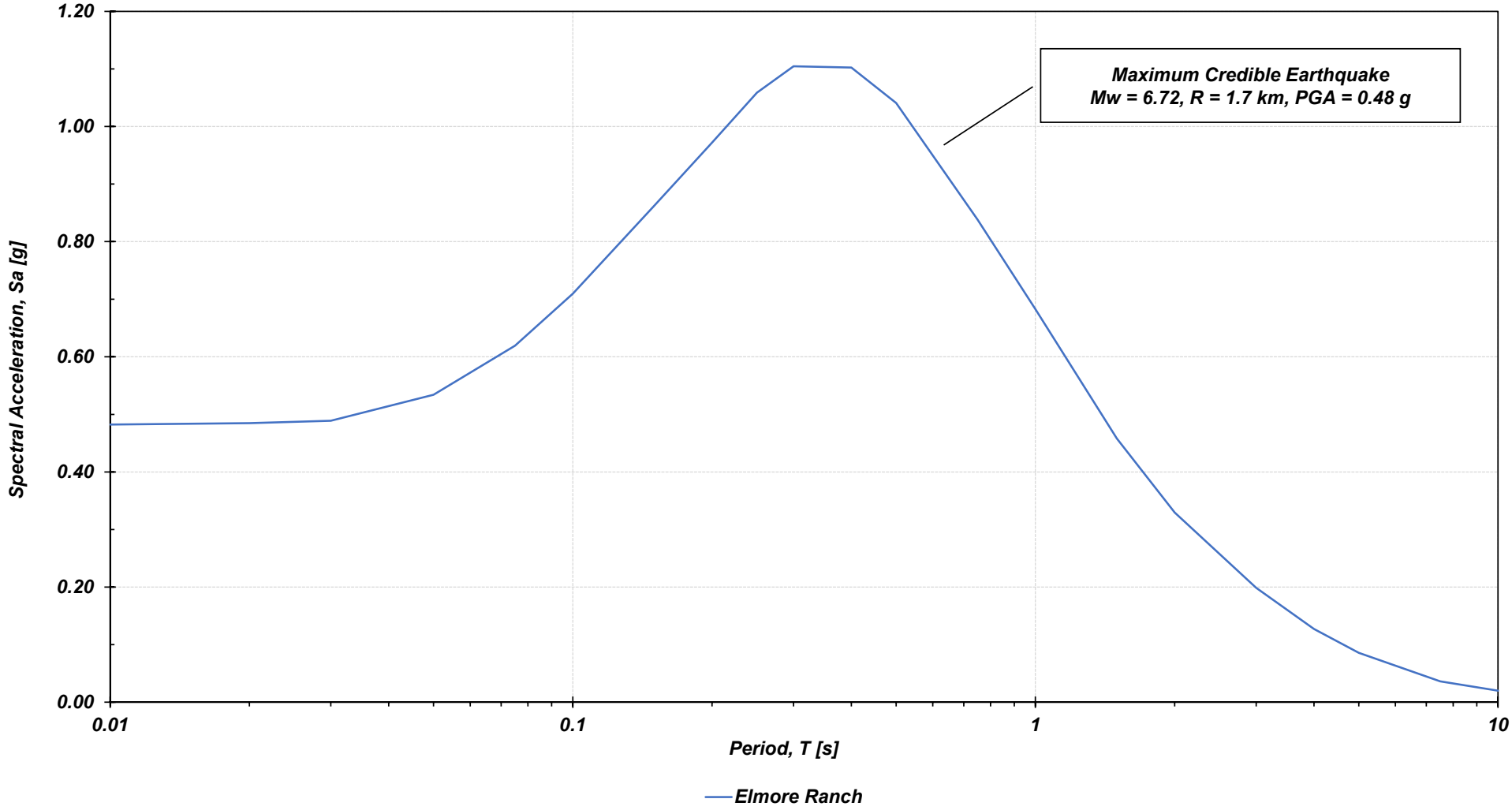


Notes:
1. GMPEs used include ASK14, BSSA14, CB14, CY14.
2. Equal weights of 0.25 for each GMPE.
3. Deterministic scenarios evaluated for the median, 5% damping spectral acceleration response.

Geosyntec

DETERMINISTIC SEISMIC HAZARD SPECTRA
CALENERGY DVC CELL 4
WESTMORLAND, CALIFORNIA

FIGURE NO.	3
PROJECT NO.	SC0852C
DATE:	SEPT 2021



Notes:
1. The MCE is defined in terms of moment magnitude (Mw) and source-to-site distance (R).
2. The largest recorded earthquake from the source (Elmore Ranch fault) is Mw = 6.6. Therefore, the deterministic scenario (Mw = 6.72) is greater than the historical recording and shall be used to represent the MCE moment magnitude.

Geosyntec

MCE SITE-SPECIFIC DESIGN SPECTRUM
CALENERGY DVC CELL 4
WESTMORLAND, CALIFORNIA

FIGURE NO.	4
PROJECT NO.	SC0852C
DATE:	SEPT 2021

J Paleontological Report

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PALEONTOLOGICAL REPORT FOR THE DESERT VALLEY COMPANY MONOFILL CELL 4 EXPANSION PROJECT BRAWLEY, IMPERIAL COUNTY, CALIFORNIA

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SECTION 1.0 – MANAGEMENT SUMMARY

Purpose and Scope

Chambers Group was retained by Terraphase Engineering to provide paleontological resource services for the Desert Valley Company Monofill Project located in the City of Brawley, Imperial County, California. The scope of services included (1) a paleontological literature review, (2) a museum records search, and (3) the preparation of this technical report of findings and recommended mitigation measures.

Dates of Investigation

The museum records search was performed on May 10, 2019. This technical report was completed in July 2019.

Results of the Investigation

According to geological mapping by Dibblee and Minch (2008), the Desert Valley Company Monofill project area is underlain by the Brawley Formation (early to middle Pleistocene) and the Lake Cahuilla Beds (late Pleistocene to Holocene). Museum collection records maintained by the San Diego Natural History Museum (SDNHM) indicate that no fossil localities have been recorded within a half mile of the study area (San Diego Natural History Museum 2019).

The results of the literature review indicate that both geological units underlying the project area are determined to have high paleontological sensitivity. That is, the current project area contains an above average potential for paleontological resources. Therefore, any project-related ground disturbances may result in an adverse impact to non-renewable fossil resources unless proper mitigation measures are implemented.

Recommendations

Chambers Group recommends that a qualified paleontologist be retained to design and implement a paleontological resource mitigation plan during any ground disturbing activities related to the proposed development within the project area. All fossils recovered during the paleontological monitoring and mitigation program should be prepared, stabilized, identified, and permanently curated in an approved repository or museum (such as the SDNHM).

Disposition of Data

This report will be filed with Terraphase Engineering. A copy will be retained at Chambers Group along with maps and all other records relating to the project.

SECTION 2.0 – INTRODUCTION

This report presents the findings of a paleontological literature review and museum records search conducted for the Desert Valley Company Monofill Project located in the City of Brawley, Imperial County, California. This study evaluates the paleontological sensitivity of the project area and vicinity, assesses potential project related impacts on paleontological resources, and provides recommendations for project specific mitigation measures. This study was conducted in accordance with the professional guidelines established by the Society of Vertebrate Paleontology (SVP) (2010).

2.1 DEFINITION AND SIGNIFICANCE OF PALEONTOLOGICAL RESOURCES

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry and physics to understand the history of life on Earth. Paleontological resources, or fossils, are the remains, imprints or traces of once-living organisms preserved in sedimentary rocks. Fossils include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. The fossil record is the only direct evidence that life on Earth has existed for more than 3.6 billion years. Fossils are considered non-renewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced. Fossils are important scientific and educational resources because they are utilized to:

- Study the evolutionary relationships between extinct organisms, as well as their relationships to modern groups.
- Elucidate the taphonomic, behavioral, temporal and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record.
- Reconstruct ancient environments, climate change, and paleoecological relationships.
- Provide a measure of relative geologic dating which forms the basis for biochronology and biostratigraphy, and which is an independent and corroborating line of evidence for radiometric dating.
- Study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time.
- Study patterns and processes of evolution, extinction and speciation.
- Identify past and potential future human-caused effects to global environments and climates.

SECTION 3.0 – PROJECT DESCRIPTION

3.1 PROJECT DESCRIPTION

Chambers Group has been contracted by Terraphase Engineering to complete a paleontological literature review and museum records search along with an intensive cultural resources pedestrian survey of the entire 320-acre project area. This study is for the proposed construction Desert Valley Cell 4 Monofill, a solid waste facility with a capacity of at least 1,300,000 cubic yards.

Initial siting efforts for this project are still underway. Hence, only the approximate location of the proposed facility is known and the project area as defined below consists of the entirety of Section 33. The purpose of this investigation is to assess the potential for significant paleontological deposits and/or materials within the proposed project area.

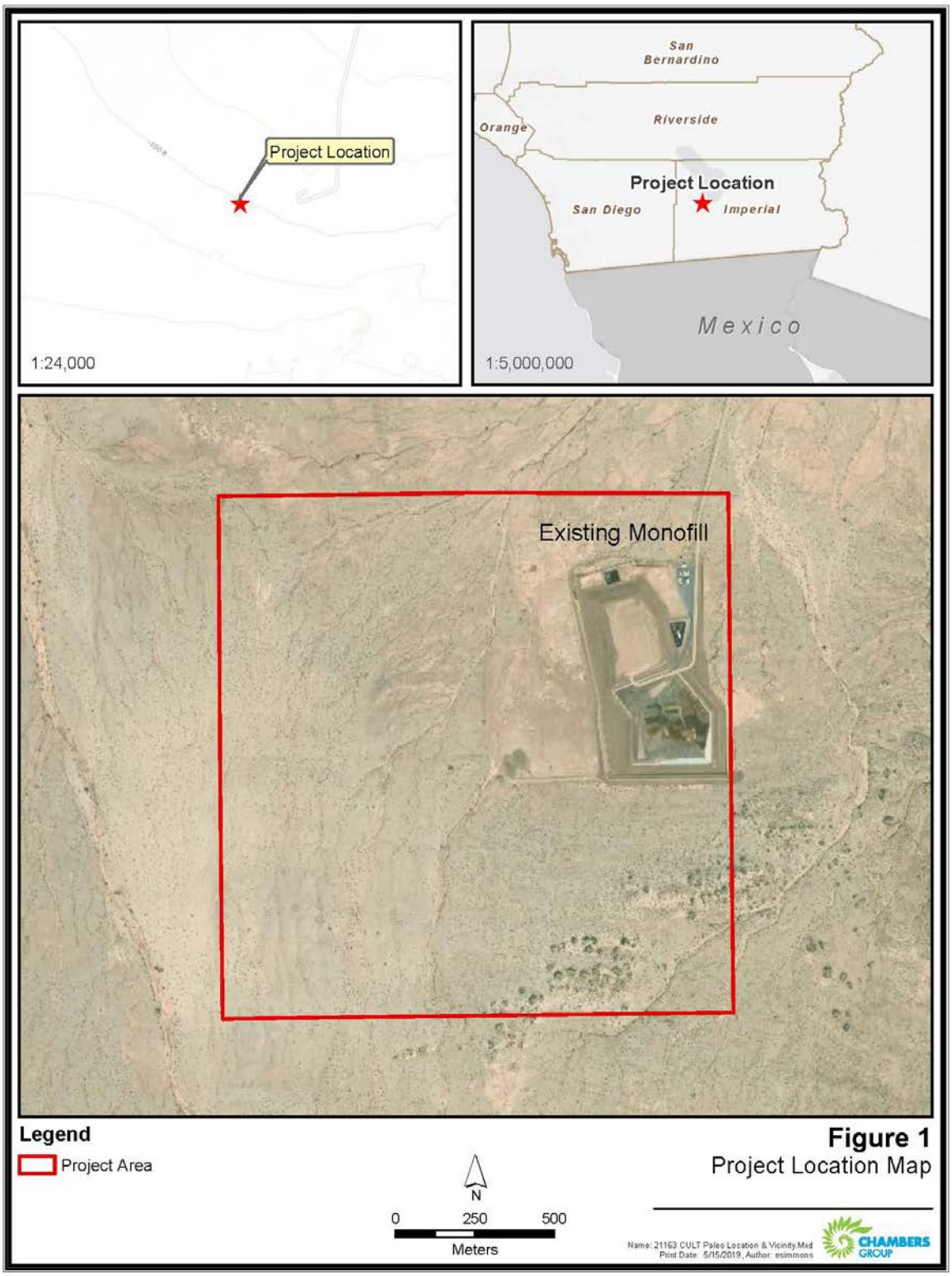
3.2 PROJECT LOCATION

CalEnergy owns and operates the Desert Valley Company Monofill facility located at 3301 West Highway 86 in Brawley, California. It is situated in the northeast quadrant of Section 33, Range 11 East, Township 12 South on the Kane Springs 7.5-minute quadrangle. Other than the facility, the area is undeveloped and located in a remote, unirrigated portion of the open desert in the western portion of Imperial Valley. The City of Westmoreland is located approximately twelve miles to the east. The Salton Sea is approximately four miles north of the monofill. South of the facility are the Superstition Hills and to the west is open desert.

The sections surrounding the proposed monofill property support a very similar geologic, floristic, and topographic landscape to the landform supporting the existing monofill. Modern disturbances, primarily grading, are evident in some areas but not to a major degree. Kane Springs Jeep Trail crosses Section 29 northeast of Section 33. A power transmission line and its maintenance road cross Sections 27, 28 and 34, running diagonally from northwest to southeast less than a mile from Section 33. No other anthropogenic features are evident in the immediately adjacent sections to the existing or future monofill facility. The most significant development in the area is Route 86, which is located to the north and east of the facility.

The project study area includes all of Section 33 plus a half-mile buffer (Figure 1).

Figure 1: Project Location



SECTION 4.0 – RESOURCE ASSESSMENT GUIDELINES

Paleontological resources are limited, non-renewable resources of scientific, cultural, and education value and are afforded protection under federal (National Environmental Policy Act, or NEPA), state (California Environmental Quality Act, or CEQA), and local (Imperial County) laws and regulations. This study satisfies project requirements in accordance with CEQA (13 Public Resources Code [PRC] 2100 et seq.)) and Public Resources Code § 5097.5. This analysis also complies with guidelines and significance criteria specified by the SVP (2010) and Imperial County.

4.1 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Fossils are classified as non-renewable scientific resources and are protected by various laws, ordinances, regulations, and standards (LORS) across the country. The SVP (2010) has established professional standards for the assessment and mitigation of adverse impacts to paleontological resources. This paleontological assessment was conducted in accordance with the LORS that are applicable to paleontological resources within the Desert Valley Company Monofill project area.

4.1.1 State Requirements

California state laws and regulations under the California Environmental Quality Act (CEQA) and Public Resources Code (PRC) Section 5097.5 apply to paleontological resources and the Desert Valley Company Monofill Project.

California Environmental Quality Act

Guidelines for the Implementation of CEQA (Title 14, Chapter 3, California Code of Regulations (CCR) 15000 et seq.) define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include as one of the questions to be answered in the Environmental Checklist (CEQA Appendix G, Section VII, Part f) the following: “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?”

Public Resources Code Section 5097.5

Section 5097.5 of the California Public Code Section protects historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological sites, or any other archaeological, paleontological, or historical feature that is situated on land owned by, or in the jurisdiction of, the State of California, or any city, county, district, authority, or public corporation, or any agency thereof.

4.1.2 Local Requirements

The General Plan for the County of Imperial does not specify any requirements for paleontological resources. At the time it was written, however, paleontological resources were a subcategory of cultural resources in the CEQA Guidelines Environmental Checklist. The Conservation and Open Space Element of the General Plan contains requirements for cultural resources that involve the identification and documentation of significant historic and prehistoric resources and the preservation of representative and worthy examples. The Conservation and Open Space Element also recognizes the value of historic and

prehistoric resources and the need to assess current and proposed land uses for impacts upon these resources.

4.1.3 Professional Standards

The SVP has established standard guidelines (SVP 2010) that outline professional protocols and practices for the conducting of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most state regulatory agencies with paleontological LORS accept and utilize the professional standards set forth by the SVP.

As defined by the SVP (2010:11) significant paleontological resources are defined as:

> *fossils and fossiliferous deposits… consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

Based on the significance definitions of the SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value because vertebrate fossils are relatively uncommon, and because only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geological units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

A geologic unit known to contain significant fossils is considered “sensitive” to adverse impacts if earth moving or ground-disturbing activities in that rock unit could likely disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from that for archaeological resources as follows:

> *It is extremely important to distinguish between archaeological and paleontological resources when discussing the paleontological potential of rock units. The boundaries of an archaeological resource site define the areal/geographic extent of an archaeological resource, which is generally independent from the rock unit on which it sits. However, paleontological sites indicate that the containing rock unit or formation is fossiliferous. Therefore, the limits of the entire rock unit, both areal and stratigraphic, define the extent of paleontological potential.*

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are contained within surficial sediments or within bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of surface fossils, it is necessary to access the sensitivity of rock units based on their known potential to

produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken to prevent adverse impacts to these resources.

4.1.4 Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils (See above section 4.1.3 for definition of significance). This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources," the SVP (2010:1-2) defines four categories of paleontological sensitivity for rock units: high, low, undetermined, and no potential:

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
- **Low Potential:** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be

developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **No Potential:** Some rock units have no potential to contain significant paleontological resources, for instance high grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

For geologic units with high potential, full-time monitoring is generally recommended during any project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontologic potential of the rock units present within the study area.

SECTION 5.0 – METHODS

Due to the nature of the fossil record, paleontologists cannot know either the quality or the quantity of fossils present in a given geologic unit prior to natural erosion or human-caused exposure. Therefore, in the absence of surface fossils, it is necessary to assess the sensitivity of rock units based on their known potential to produce scientifically significant fossils elsewhere within the same geologic unit (both within and outside of the study area) or a unit representative of the same depositional environment.

A detailed review of museum collections was performed by the Department of Paleontology and PaleoServices staff at the SDNHM for the purposes of (1) determining whether there are any known fossil localities in or near the project area, (2) identifying the geologic units present in the project area, and (3) determining the paleontological sensitivity ratings of those geologic units in order to assess potential impacts to nonrenewable paleontological resources.

In addition to the records search, published and unpublished literature and geologic maps were reviewed and mitigation measures specific to this project were developed in accordance with the SVP (2010). A paleontological sensitivity map was created using these findings (See Section 7 below).

SECTION 6.0 – GEOLOGY AND PALEONTOLOGY

6.1 GEOLOGICAL SETTING

The project area lies within the southern portion of the Salton Trough, a northwesterly-trending tectonic basin located between the Peninsular Ranges on the west and the Chocolate Mountains on the east (Dorsey, 2006). The area is characterized by numerous northwest-trending strike-slip faults, including from east to west, the San Andreas, San Jacinto, and Elsinore faults. Roughly 2,000 square miles of the Salton Trough lie below sea level, and in many respects, the area can be considered a landward extension of the Gulf of California. In fact, if it were not for the tremendous volumes of sediment transported by the modern Colorado River and its Pliocene and Pleistocene counterparts, the Gulf of California would extend northward as far as Riverside County. However, during the past five million years as the ancestral and modern-day Colorado River have cut down through the Colorado Plateau carving out the Grand Canyon and carrying the eroded sediment load southward, the river has built a sediment dam—the Colorado River delta – across the Salton Trough from east to west. At various times during the history of the prograding Colorado River delta, the full discharge of the river flowed north, forming a large, inland freshwater lake (actually a succession of ephemeral lakes, see discussion below). Periodic changes in the river's course would divert the flow to the south and into the Gulf of California. Cut off from its freshwater supply, the prehistoric lake would eventually dry up due to evaporation (Figure 2).

Figure 2: Overview of Project Area, facing west.

In point of fact, there has not been one, but a succession of ephemeral lakes in the area spanning a period of almost three million years (Kirby et al., 2007). The oldest ephemeral lakes from approximately 2.5 to 1.1 million years ago accumulated extensive deposits of claystone, mudstone, and siltstone that are collectively referred to by geologists as the Borrego Formation (Lutz et al., 2006). A younger succession of ephemeral, freshwater lakes that formed from approximately 1.1 to 0.5 million years ago accumulated thick deposits of fine-grained sediments referred to by geologists as the Brawley Formation (Steely et al., 2009). More recently, including up to late prehistoric times (~450 years ago), a series of ephemeral freshwater lakes accumulated sediments that today are exposed extensively across the central portion of the Salton Trough and are referred to by geologists as Lake Cahuilla sediments (see discussion below).

6.2 GEOLOGIC UNITS UNDERLYING THE PROJECT AREA

Published geological reports (e.g., Dibblee & Minch, 2008) covering the Project area indicate that the proposed Project has the potential to impact late Pleistocene- to Holocene-age Lake Cahuilla Beds and the middle to late Pleistocene-age Brawley Formation. These geologic units and their paleontological potential are summarized below. The SDNHM does not have any recorded fossil localities within a half mile of the Project site. The general fossil content of these localities is described below.

6.2.1 Quaternary Alluvium

Much of the ground surface of the western portion of the Salton Trough in Imperial County is covered by a thin veneer of recent sediments of variable thickness (0-20 feet), including aeolian sand (in currently active sand dunes) and alluvial sand and gravel (in modern washes and alluvial fans) (Jennings et al. 1977; Morton, 1977). In general, these surficial deposits are undeformed by faulting and are probably entirely Holocene in age. Quaternary alluvium typically is not considered to yield significant fossils given the young age of the sediments.

6.2.2 Lake Cahuilla Beds

Lake Cahuilla was a former freshwater lake that periodically occupied a major portion of the Salton Trough during late Pleistocene to Holocene time (approximately 37,000 to 240 years ago), depositing sediments that underlie the entire Project site. Generally, Lake Cahuilla sediments consist of an interbedded sequence of both freshwater lacustrine (lake) and fluvial (river/stream) deposits. There are no SDNHM fossil collection localities from these deposits within a half-mile radius of the Project site. Elsewhere in Imperial County, the Lake Cahuilla Beds have yielded well-preserved subfossil remains of freshwater clams and snails (Stearns, 1901) and sparse remains of freshwater fish (Hubbs and Miller 1948). The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and paleoecological information they can provide (Jefferson, 2006), and these deposits are therefore assigned a high paleontological potential (SVP, 2010).

Recent paleontological mitigation work in Imperial County has resulted in the discovery and recovery of diverse fossil assemblages from exposures of Lake Cahuilla lacustrine and fluvial sediments. During 2009, trenching and slant drilling for the Southern California Gas Line 6914 Loop Imperial Valley Project between Brawley and Calipatria exposed layers of clayey siltstones and fine-grained sandstones to a depth of 40 feet. Fossils recovered from these layers included freshwater mollusks, ostracods, and fish. Some were found as shallow as 5 feet. During the 2009 mass grading operations for the State Route 78/111 Brawley Bypass Project near Brawley exposed over 35 feet of alternating mudstone, siltstone, and fine-grained

sandstone of prehistoric Lake Cahuilla. Fossils recovered from these layers included remains of freshwater algae, mollusks, ostracods, and fish.

6.2.3 Brawley Formation

The early to middle Pleistocene-age (approximately 1.1 to 0.5 million years old) Brawley Formation consists of sediments deposited in freshwater lacustrine, fluvial, and eolian settings, and underlies the southeastern portion of the Project site. The SDNHM does not have any recorded fossil localities from the Brawley Formation within a half-mile radius of the Project site. The Brawley Formation has primarily produced well-preserved shells of freshwater mollusks and diatoms (Kirby et al., 2007), as well as sparse remains of freshwater vertebrates (Dibblee, 1954) and brackish water foraminifers (Kirby et al., 2007), and is therefore assigned a high paleontological potential (SVP, 2010).

SECTION 7.0 – ANALYSIS AND RESULTS

7.1 RESOURCE ASSESSMENT SUMMARY

Geologic mapping by Dibblee and Minch (2008) was consulted to identify the specific geologic units underlying the Desert Valley Company Monofill project area (Figure 3). The following table summarizes these units and their known paleontological sensitivity ratings.

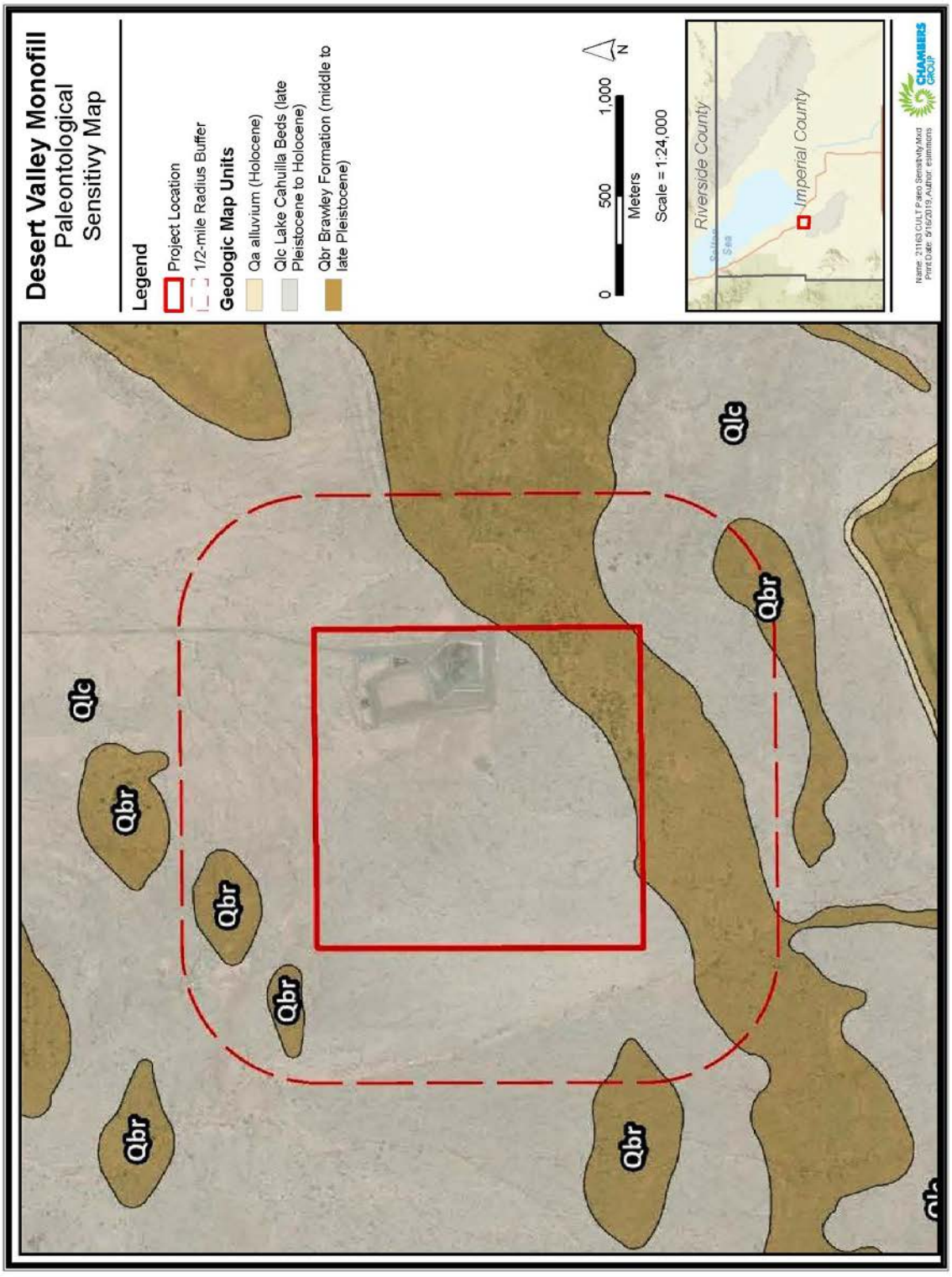
Table 1: Geologic Formations in the Project Area

Geologic Formation	Age	Fossils	Paleontological Sensitivity Potential	Monitoring Recommendation
Quaternary alluvium	Holocene	Not anticipated	No Potential	No monitoring
Lake Cahuilla Beds	Late Pleistocene to Holocene	Invertebrates, vertebrates	High	Full-time
Brawley Formation	Early to Middle Pleistocene	Invertebrates, vertebrates, plants	High	Full-time

7.2 MUSEUM RECORDS SEARCH AND LITERATURE REVIEW

The Department of Paleontology and PaleoServices staff at the SDNHM performed a paleontological records search to locate fossil localities within an in the immediate vicinity of the project area. Museum records indicate that no vertebrate fossil localities have been documented within the study area.

Figure 3: Paleontological Sensitivity Map of Project Area



SECTION 8.0 – RECOMMENDED MITIGATION MEASURES

The destruction of fossils as a result of human-caused ground disturbance has a significant cumulative impact, as it makes biological records of ancient life permanently unavailable for study by scientists. Implementation of proper mitigation measures can, however, reduce the impacts to the paleontological resources to below the level of significance.

The following mitigation measures have been developed in accordance with the SVP (2010) standards and meet the paleontological requirements of CEQA. These mitigation measures have been used throughout California and have been demonstrated to be successful in protecting paleontological resources while allowing timely completion of construction.

A. All project-related ground disturbances that could potential impact the Brawley Formation and the Lake Cahuilla Beds will first be:

   - subjected to excavation testing (including microfossil screening) to analyze the local geologic deposits, and
   - evaluated for sensitivity and potential significance.

   If testing indicates low sensitivity and potential significance:

   - environmental awareness training will be provided by a qualified paleontologist to all contractors working on site and
   - periodic monitoring will be performed to confirm no new significant deposits are encountered. This will occur approximately monthly or as determined by the project paleontologist in the monitoring and mitigation plan.
   - If testing indicates high sensitivity and potential significance: monitoring by a qualified paleontological monitor will be performed on a full-time basis. Project-related excavations that occur in surficial younger alluvial deposits (not mapped in the current study area but existing in the vicinity) will be monitored on a part-time basis to ensure that underlying paleontologically sensitive sediments are not being impacted. Excavations exceeding 5 feet in depth in Quaternary alluvium will be monitored on a full-time basis.

B. A qualified paleontologist, as approved by the county, will be retained to supervise monitoring of construction excavations and to produce a Paleontological Monitoring and Mitigation Plan for the proposed project. Paleontological resource monitoring will include inspection of exposed rock units during active excavations within sensitive geologic sediments. The monitor will have authority to temporarily divert grading away from exposed fossils and halt construction activities in the immediate vicinity in order to professionally and efficiently recover the fossil specimens and collect associated data. The qualified paleontologist will prepare progress reports to be filed with the client and the lead agency.

C. At each fossil locality, field data forms will be used to record pertinent geologic data, stratigraphic sections will be measured, and appropriate sediment samples will be collected and submitted for analysis.

D. Matrix sampling would be conducted to test for the presence of microfossils. Testing for microfossils would consist of screen-washing small samples (approximately 200 pounds) to determine if significant fossils are present. If microfossils are present, additional matrix samples will be collected (up to a maximum of 6,000 pounds per locality to ensure recovery of a scientifically significant microfossil sample). Matrix sampling will only be required in the event that preliminary testing indicates high sensitivity and potential significance.

E. Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and reposited in a designated paleontological curation facility. The most likely repository is the SDNHM.

F. The qualified paleontologist will prepare a final monitoring and mitigation report to be filed with the client, the lead agency, and the repository.

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Phase I Environmental Site Assessment

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Phase I Environmental Site Assessment

Desert Valley Company Monofill Expansion Project
3301 West Highway 86
Brawley, California

BRG Consulting

304 Ivy Street | San Diego, California 92101

May 5, 2020 | Project No. 109005001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
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Phase I Environmental Site Assessment

Desert Valley Company Monofill Expansion Project
3301 West Highway 86
Brawley, California

Ms. Christina Willis
BRG Consulting
304 Ivy Street | San Diego, California 92101

May 5, 2020 | Project No. 109005001

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1 INTRODUCTION

Ninyo & Moore was retained by BRG Consulting (herein referred to as the client) to perform a Phase I Environmental Site Assessment (ESA) of the Desert Valley Company (DVC) Monofill Expansion Project property, located at 3301 West Highway 86, Imperial County, California. For the purposes of this study, the entire 653-acre parcel is referred to as the site. The existing approximately 180-acre DVC Monofill is located on the northeastern portion of the site. The following sections discuss the purpose, the involved parties, the scope of services, and the limitations and exceptions associated with the Phase I ESA.

1.1 Purpose

In accordance with the ASTM International (ASTM) Standard Practice for ESAs on Commercial Real Estate E1527-13, the objective of the Phase I ESA is to identify recognized environmental conditions (RECs). The term recognized environmental conditions means "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions."

Identification of RECs fall into the following three categories: existing RECs (as defined above); Historical RECs (HRECs); or Controlled RECs (CRECs). HRECs and CRECs are defined as follows:

- HREC – An HREC is defined as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations [AULs], institutional controls, or engineering controls)." An HREC is an environmental condition, which in the past, would have been considered a recognized environmental condition, but currently may or may not be considered a recognized environmental condition. An example of an HREC may be a former gas station where a release of gasoline had occurred, but the site was cleaned up to an unrestricted land use standard.

- CREC – A CREC is defined as a "recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by a regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, AULs, institutional controls, or engineering controls)." An example of a CREC could be a former gas station where a release of gasoline has been cleaned up to a commercial use standard, but does not meet unrestricted residential cleanup criteria.

1.2 Scope of Services

Ninyo & Moore's scope of services for this Phase I ESA included the activities listed below.

- Reviewed physical setting and background information.
- Performed a site reconnaissance.
- Reviewed federal, state, tribal, and local regulatory agency databases for the site and for properties located within a specified radius of the site.
- Reviewed reasonably ascertainable local regulatory agency files for the site, as applicable.
- Reviewed historical information for the site, such as historical aerial photographs, historical topographic maps, reverse street directories, Sanborn fire insurance maps, and building department records.
- Reviewed user-provided information, as available.
- Interviewed the property owner representative and tenant regarding the environmental status of the site.
- Performed a preliminary vapor encroachment screen to evaluate the potential for vapor encroachment conditions.
- Prepared this Phase I ESA report, summarizing findings and providing opinions and conclusions regarding RECs at the site.

1.3 Significant Assumptions

Ninyo & Moore assumes the information sources from the third-party environmental database vendor, regulatory agencies, and interviewees utilized for this report provided adequate and accurate information. No other significant assumptions were made during the preparation of this report.

1.4 Limitations and Exceptions

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard of care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information or has questions regarding the content, interpretations presented, or completeness of this document.

The findings, opinions, and conclusions are based on an analysis of the observed site conditions and the referenced literature. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control. Ninyo & Moore cannot warrant or guarantee that not finding indicators of any particular hazardous material means that this particular hazardous material or any other hazardous materials do not exist on the site. Additional research, including invasive testing, can reduce the uncertainty, but no techniques now commonly employed can eliminate the uncertainty altogether.

1.5 Special Terms and Conditions

This study did not include an evaluation of geotechnical conditions or potential geologic hazards. In addition, unless otherwise indicated in this report, this Phase I ESA does not include analysis of the following, which is not intended to be all-inclusive: asbestos-containing materials, methane gas, radon, lead-based paint, lead-containing surfaces, lead in drinking water, underground pipelines, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, mold, or high voltage power lines.

1.6 User Reliance

This report may be relied upon by, and is intended exclusively for, the client and its assigns. Any use or reuse of the findings, opinions, and/or conclusions of this report by parties other than the above-referenced client is undertaken at said parties' sole risk.

1.7 Involved Parties

Mr. Adrian Olivares, Senior Environmental Scientist, conducted interviews and performed regulatory and historical research in March and April 2020. Mr. Erik Pavia, Senior Staff Geologist, conducted the site reconnaissance on April 24, 2020. Mr. Stephan Beck, Environmental Manager, performed project oversight and quality review.

2 SITE DESCRIPTION

The following table provides a general description of the subject site. Photographs taken during the site reconnaissance are provided in Appendix A.

Table 1 – General Site Setting

General Site Setting	Description
Location	The site is located in the Imperial Valley, approximately 4 miles southwest of the Salton Sea and 1-mile south of Highway 86. The City of Westmoreland is located approximately 12 miles to the east (Figure 1).
Assessor Parcel No. (APN)	019-100-004
Property Owner	Desert Valley Company
Size (approximate)	653 acres
Structures / Site Use / Occupants	The site is developed with the existing approximately 180 acre DVC Monofill, which is operated by CalEnergy Operating Corporation (CalEnergy) (Figures 2 and 3). The DVC Monofill is a Class 2 solid waste disposal facility that operates under Solid Waste Permit No. 13-AA-0022 and Conditional Use Permit (CUP) No. 05-0020. Accepted waste includes non-hazardous filter cake solids that precipitates out of geothermal brine that is used to generate power at CalEnergy-operated geothermal facilities. The DVC Monofill has two closed waste cells (Cells 1 and 2) and an active cell receiving waste (Cell 3). Each cell was constructed with two clay liners and two synthetic liners. Existing improvements at the DVC Monofill include a single-story office and administration building, equipment storage building, two leachate ponds, a water well, two groundwater storage tanks, 11 groundwater monitoring wells, and seven vadose zone monitoring wells (Figure 3). The remainder of the site is undeveloped.
Roads	An access road extends from Highway 86 to the north to the DVC Monofill.
Heating and Cooling Systems	An air conditioning unit was observed within the DVC Monofill office and administration building.
Electricity Provider	Imperial Irrigation District
Natural Gas Provider	None
Sewer Disposal Provider	Septic tank and leach field
Potable Water Provider	Onsite water well for sanitary uses and dust suppression. Drinking water is supplied by a commercial bottled water provider.
Site Vicinity Description	The site vicinity is primarily undeveloped desert land.

3 USER-PROVIDED INFORMATION

Ms. D. Anetha Lue, Director IPP Environmental Services with CalEnergy, completed the User Questionnaire on March 4, 2020. The following table summarizes information provided by Ms. Lue. A copy of the questionnaire is provided in Appendix B.

Table 2 – Summary of User-Provided Information

User's Responsibilities	User's Responses
Title Records	Title records were not provided by the User.
Environmental Liens or Activity and Use Limitations (AULs)	CalEnergy did not conduct a review of environmental liens or AULs.
Specialized Knowledge	No information provided. The client provided the facility's hazardous materials business plan (HMBP), storm water pollution prevention plan (SWPPP), and additional technical reports associated with the DVC Cell 4 Expansion application. Client-provided documents are discussed in Sections 4.2.1 and 4.5.

Table 2 – Summary of User-Provided Information	
User's Responsibilities	**User's Responses**
Commonly Known or Reasonably Ascertainable Information	The site was used as a landfill. Chemicals present at the site include used oil and gasoline. In 2018, a release of hazardous filter cake waste occurred at the DVC Monofill. The material was removed and cleanup was confirmed within 48 hours.
The degree of obviousness of the presence or likely presence of contamination at the site	No information provided.
Valuation Reduction for Environmental Issues	Not applicable; no property purchase at this time.
Reason for Performing Phase I ESA	No information provided.

4 RECORDS REVIEW

The following sections summarize records reviewed for the site.

4.1 Standard Environmental Record Source - Environmental Databases

A computerized, environmental information database search was performed by Environmental Data Resources, Inc. (EDR) on March 2, 2020. The search included federal, state, tribal, and local databases. A summary of the environmental databases searched, their corresponding search radii, and number of noted properties of potential environmental concern, is presented in the EDR report (Appendix C). The review was conducted to evaluate whether the site or properties within the site vicinity have been documented as having experienced significant unauthorized releases of hazardous substances or other events with potentially adverse environmental effects.

4.1.1 Geocoded (Mapped) Listings

Several site occupants / listings appeared on various environmental databases. A summary of the databases listings is provided in the table below.

Table 3 – Environmental Database Listings - Site		
Occupant Name	**Database**	**Summary**
Desert Valley Monofill / Monofill Facility	CERS CHMIRS ERNS Financial Assurance FINDS LDS SWF/LF	The facility is a permitted non-hazardous solid waste landfill (13-AA-0022 and L10003472657). The permitted landfill area is approximately 182 acres and the throughput is 750 tons per day. Compliance inspections are performed on a monthly basis. In July 2018, approximately 16 tons of filter cake / mining waste from geothermal energy production was mistakenly delivered to the facility. Due to the load being delivered to the incorrect facility, testing was performed and the material was found to be hazardous. The load was reportedly removed and waterways were not impacted.
DVC Cell 1 & 2 Closure	CIWQS	A storm water construction permit was issued for the closure of DVC Monofill Cells 1 and 2 in September 2007. The permit was terminated in August 2008.

Table 3 – Environmental Database Listings - Site		
Occupant Name	**Database**	**Summary**
Repaving of Access Road at DVC	NPDES	A storm water construction permit was issued for repaving of the access road at the DVC Monofill. The date of permit issuance was not listed; however, the permit expired in August 2014.
McLaughlin Engineering & Mining Inc.	HWTS	The business is listed at the site in the HWTS database The HWTS database is the California Department of Toxic Substances Control's repository for hazardous waste identification numbers and manifest information. The listing was created in December 2007 and inactivated in June 2008. No information related to whether hazardous waste was generated nor the amount.

Note:
- A complete description of each database is provided in the EDR Report (Appendix C).

The following table lists ASTM standard environmental databases that were searched and the number of listings (excluding unmapped properties).

Table 4 – ASTM Standard Environmental Databases		
Database Name	**Search Radius (mile)**	**Number of Listings**
FEDERAL DATABASES		
NPL (National Priority List)	1	0
Proposed NPL	1	0
NPL LIENS (Federal Superfund Liens)	site	0
Delisted NPL	1	0
FEDERAL FACILITY (Federal Facility Site Information listing)	1	0
SEMS (Superfund Enterprise Management System; formerly Comprehensive Environmental Response Compensation and Liability Information System)	0.5	0
SEMS-ARCHIVE (Superfund Enterprise Management System Archive)	0.5	0
CORRACTS (facilities subject to Corrective action under RCRA)	1	0
RCRA-TSDF (hazardous waste treatment, storage, or disposal facilities)	0.5	0
RCRA-LQG (large quantity generator)	0.25	0
RCRA-SQG (small quantity generator)	0.25	0
RCRA-CESQG (conditionally exempt SQG)	0.25	0
US ENGINEERING CONTROL (EC)	0.5	0
US INSTITUTIONAL CONTROL (IC)	0.5	0
ERNS (Emergency Notification System)	site	1
STATE/TRIBAL DATABASES		
RESPONSE (State Response Sites, State- and Tribal- equivalent NPL)	1	0
ENVIROSTOR (The DTSC's Site Mitigation and Brownfields Reuse Program; CERCLIS-equivalent)	1	0
SWF/LF (Solid Waste Information System)	0.5	1
LUST (Geotracker's Leaking Underground Fuel Tank Report)	0.5	0
SLIC (Spills, Leaks, Investigation and Cleanup database by the California Regional Water Quality Control Board)	0.5	0
UST (registered underground storage tanks [USTs])	0.25	0
AST (registered aboveground storage tanks [ASTs])	0.25	0
FEMA UST (Underground Storage Tank Listing)	0.25	0
VCP (Voluntary Cleanup Program Properties)	0.5	0

It is our opinion that the listings for off-site properties appearing in the database report do not represent a REC to the site at the current time. This opinion is based on the reported distance of the facility (El Centro Naval Auxiliary Air Station) from the site (approximately 1 mile) and case closed status.

4.1.2 Non-Geocoded (Unmapped) Listings

This portion of the regulatory database report includes properties for which regulatory agencies did not report sufficient address information to be plotted by EDR. The listings were reviewed to evaluate their potential impact to the site, based on their interpreted distance/direction from the site, and/or the nature of the database in which they were listed. It is our opinion that there is a low likelihood that the non-geocoded listings represent an environmental concern to the site at the current time.

4.2 Additional Environmental Record Sources

According to the ASTM Standard, “if the property or any of the adjoining properties is identified on one or more of the standard environmental record sources, pertinent regulatory files and/or records associated with the listing should be reviewed.” Adjoining properties were not identified in the standard environmental record sources. The review of regulatory agency records for the site is discussed in the following sections. Regulatory records for the site are provided in Appendix D.

4.2.1 Department Toxic Substances Control

The Department of Toxic Substances Control (DTSC) is the Certified Unified Program Agency (CUPA) in Imperial County and oversees the storage and handling of hazardous materials / wastes. The DVC Monofill maintains a Unified Program Certificate with the DTSC annually (Facility ID FA0000598). Program elements overseen by the DTSC include hazardous waste generation and the facility’s hazardous materials business plan (HMBP). According to the HMBP, chemicals / waste at the DVC Monofill include:

- aerosol
- soil seal concentrate
- drilling mud
- oil-contaminated debris
- BlueDef Diesel Exhaust Fluid
- 1,000-gallon diesel fuel aboveground storage tank (AST)
- Gasoline and oil
- 250-gallon used lubricating oils AST
- geothermal filter cake

The DTSC was contacted for information on permit compliance, outstanding violations, and notices to comply. According to a representative of the DTSC on April 27, 2020, the current Unified Program Certificate has not been generated and there were no recent inspections of the facility.

4.2.2 Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District (ICAPCD) issued an Authority to Construct and Permit to Operate (#2120B-3) to CalEnergy for the DVC Monofill. According to the permit, accepted waste include geothermal drilling mud and cuttings; geothermal filter cake, soils contaminated with geothermal material; and incidental plastic sheeting (truck bed liner) / materials. The annual total geothermal waste delivered to the facility shall not exceed 750 tons per day average. Equipment listed on the permit includes two front loaders, one water truck, one vibratory compactor, one motor grader, and 38 hauling trucks. Ninyo & Moore requested additional information from the ICAPCD related to violations and notices to comply; however, as of the date of this report, a response has not been received.

4.2.3 Regional Water Quality Control Board, Region 7

Regional Water Quality Control Board (RWQCB) records were reviewed online using the State Water Resources Control Board (SWRCB) GeoTracker database. Records pertain to DVC Monofill compliance documents including the post-closure land use plan, joint technical document, waste discharge orders, monitoring, annual compliance inspection reports, a notice of violations (NOV), and California Environmental Quality Act (CEQA)- documents for the Desert Valley Monofill. According to the NOV and related closure documentation, approximately 15.5 tons of unpermitted hazardous filter cake waste was improperly disposed of in July 2018 at the DVC Monofill. A notice of compliance letter was issued by the RWQCB in September 2018, after the waste was removed, and the NOV was closed.

In December 2019, an Initial Study and Environmental Analysis for the DVC Monofill Expansion Project was performed. The existing facility is permitted under CUP No. 05-0020, Solid Waste Facility Permit NO. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy is requesting an amendment to the CUP to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure, and post-closure of a new waste storage cell (Cell 4) (Figures 2 and 3).

The existing facility began in May 1991 and has three storage/disposal cells (Cells1 to 3). Existing improvements include Cells 1 to 3, a private single-lane road from State Route 86, office and administration building, equipment storage building, three leachate ponds, onsite septic tank / leach field, one potable water well, 11 groundwater monitoring wells, two aboveground water storage tanks, vadose zone monitoring wells, an aboveground fuel tank, and hazardous material storage containment structure. The non-hazardous geothermal waste streams and by products contain arsenic and other metals, salts, organic hydrocarbons, and naturally occurring radioactive materials (NORM).

The proposed expansion includes a 1.2-acre waste storage cell (Cell 4), extension of existing storm water diversion dikes, minor extensions / modifications to existing internal roads, installation of a new water well for use during construction, and additional air quality particulate sampling stations and groundwater monitoring wells. Cell 4 would be built in two phases and have a combined capacity of approximately 1.3 million cubic yards.

4.2.4 Imperial County Public Health Department

The DVC Monofill has an active Solid Waste Facility Permit (13-AA-0022) for a Class 2 Landfill. The permitted area is 181.5 acres, of which 28.9 acres is permitted for disposal. The Imperial County Public Health Department (ICPHD) is the designated solid waste local enforcement agency (LEA) and conducts compliance inspections at the facility. The next permit review date is September 28, 2020.

According to a representative of the ICPHD on March 24, 2020, available records include monthly disposal facility inspection reports from March 2019 to February 2020, and a 2019 annual analysis report for discrete composites of geothermal filter cake received. Violations were not reported in the inspection reports. Four samples were analyzed for metals, volatile organic compounds (VOCs), ignitability, corrosivity, reactivity, NORM, and hazardous waste bioassay. The report indicated that the samples did not exceed hazardous waste thresholds.

4.2.5 Online Regulatory Databases

Online regulatory databases were reviewed by Ninyo & Moore to supplement the environmental database search conducted by EDR. The following is a summary of pertinent information.

Table 5 – Online Regulatory Databases	
Online Database/Website	**Findings**
DTSC EnviroStor	Neither the site nor properties within 1,000 feet are listed.
State Water Resources Control Board (SWRCB) GeoTracker	Records for the site are summarized in Section 4.2.3. Properties within 1,000 feet of the site are not listed.
California Department of Resources Recycling and Recovery (CalRecycle) Solid Waste Information System	According to facility inspection reports, the landfill is operating in compliance with regulations. Documents available on the database are related to CEQA documents associated with the planned DVC Monofill Expansion Project, maintenance activities, and compliance-related records.
United States Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System Map Viewer	Pipelines are not depicted on or adjacent to the site.
US Army Corps of Engineers, Formerly Used Defense Sites (FUDS), Geographic Information System	The site is not listed. Kane Springs SBT was used for air-to-ground strafing and bombing from 1944 to 1946, when it was declared surplus land. The property is known or suspected to contain military munitions and unexploded ordinances The land is currently undeveloped desert, and the majority is owned by the Bureau of Land Management. The bombing target consists of approximately 678 acres and is located approximately 3.4 miles south of Kane Springs off of Highway 99. Based on the distance to the site, the FUDS property is not a concern at this time.

4.3 Physical Setting

The following table summarizes topographic, geologic, and hydrogeologic conditions in the site vicinity.

Table 6 – Physical Setting		
Physical Settings	**Reference**	**Summary**
Topography	A	The site elevation ranges from approximately 140 feet below mean sea level (msl) on the northeastern portion of the site to approximately 40 feet below msl on the southwestern portion. The topography at the site and vicinity slopes to the northeast toward the Salton Sea.
Site Geology	B	The site is underlain by Cahuilla Beds and the Brawley Formation. Cahuilla Beds are described as thin series of tan-gray claystones, sands, and gravels deposited in former Lake Cahuilla. The Brawley Formation is described as claystone, light gray, and thin sandstone strata with some pebbly beds locally.
Surface Water	A	Surface water is not present at the site. An intermittent creek is depicted on the southeastern portion of the site, which flows to the Salton Sea.
Groundwater	C, D	The site is located within the Anza-Borrego Planning Area and Hydrologic Unit (HU). The Anza-Borrego HU has beneficial uses of groundwater for municipal, industrial, and agricultural supplies. During the October 2019 monitoring event at the DVC Monofill, groundwater depths ranged from approximately 60 to 80 feet below the ground surface and flows to the east-northeast (Desert Valley Company, 2020).

References:
A – United States Geological Survey (USGS), Kane Spring, California, 7.5-minute quadrangle map (USGS, 2012)
B – Dibblee, T.W., and Minch, J.A., 2008, Geologic Map of the Kane Spring 15 minute-quadrangle, Imperial County, California, 1:62,500.
C – RWQCB Water Quality Control Plan for the Colorado River Basin (RWQCB, 2017)
D – DVC Quarterly Detection Monitoring Report (DVC, 2020)

4.4 Site Historical Use Information

Ninyo & Moore reviewed historical records for the site, which included city directories, fire insurance maps, aerial photographs, topographic maps, and building department records. The following sections summarize information obtained from the historical record review.

4.4.1 City Directories

Available historical reverse street directories from 1971 through 2017 were researched by EDR. No listings were found for the site. Addresses along State Highway 86 consisted primarily of commercial and residential listings. Environmental concerns were not found during the city directory review. The EDR City Directory Report is provided in Appendix E.

4.4.2 Sanborn® Fire Insurance Maps

Sanborn® fire insurance maps were requested from EDR; however, according to EDR's Certified Sanborn Map Report, there is no map coverage in the site vicinity (Appendix E).

4.4.3 Historical Aerial Photographs and Topographic Maps

Historical aerial photographs and topographic maps were provided by EDR for select years from 1937 through 2016. A listing of the sources reviewed and summary of notable observations from the review are provided in the table below. Photographs and maps are included in Appendix E.

Table 7 – Aerial Photographs and Topographic Map Summary

Date - Source	Summary
1937 – A 1940 – B 1944 – B 1947 – B 1949 – A 1953 – A 1956 – B 1976 – A 1984 – A	The site and adjacent properties are undeveloped. Intermittent streams, generally trending southwest to northeast, are visible across the site. Highway 86 is present approximately 1 mile north of the site.
1992 – A 1995 – B	The site is developed with the DVC Monofill on the northeastern portion of the site. An access road extends from the DVC Monofill to the north to Highway 86. The remainder of the site appears undeveloped.
2005 – A 2009 – A 2012 – A, B 2016 – A	The footprint of the DVC Monofill appears to have expanded. The adjacent properties are undeveloped.

Sources: A – EDR Aerial Photographs
B – EDR Topographic Maps

4.4.4 Building Department Records

Ninyo & Moore contacted Imperial County Planning and Development Services for building department records. Available building permits were related to the existing waste disposal facility, including:

- Grading permit for a non-hazardous landfill issued to Desert Valley Co. in March 2003.
- Construction of a new 1,020 square-foot office building and relocation of a 1,000 square foot shop building issued in November 2004.
- Report of well abandonment for four groundwater monitoring wells. Depth to water was listed at 55 to 75 feet below ground surface in June 2005.
- Building permit for a sun shade issued in August 2005.
- Grading permit for final closure of Cells 1 and 2 issued in September 2007.
- Construction of a storm water diversion wall issued in November 2011.
- Permit for geotechnical boring as part of a siting study for landfill expansion issued in October 2018.
- Permit for seismic survey trenching issued in January 2019.

4.5 Previous Reports

The client provided the following technical reports associated with the DVC Cell 4 Expansion application:

- Site Geologic Data Review and 3D Model by Fugro dated August 15, 2018
- Soils and Geology Report for the DVC Monofill Cell 4 Expansion Project by Terraphase Engineering Inc. dated July 29, 2019
- Geophysical Screening Campaign by Fugro dated January 4, 2019
- Calibration Boreholes Data Report by Fugro dated January 17, 2019
- Fault Trenching Investigation by Fugro dated June 14, 2019
- Fault Setbacks Map by Fugro dated May 17, 2019

The reports were reviewed for environmental issues; however, environmental concerns were not noted in the reports.

4.6 Adjacent Property History

The adjacent properties were undeveloped since at least 1937 through the present day.

5 SITE RECONNAISSANCE

The objective of the site reconnaissance was to obtain information indicating the potential for RECs in connection with the site. Mr. Erik Pavia conducted the reconnaissance on April 24, 2020. Site details are provided on Figures 2 and 3, and photographic documentation is provided in Appendix A.

5.1 Methodology and Limiting Conditions

The site reconnaissance consisted of walking on the site and along public roadways (for viewing of adjacent/nearby properties). Limiting conditions encountered during the site reconnaissance included limited visibility of the “vacant desert” portion of the site due to lack of access roads.

5.2 General Site Setting

At the time of the site reconnaissance, the site was occupied by the DVC Monofill, which accepts non-hazardous waste from CalEnergy facilities throughout Imperial County, California. The site was accessed via an asphalt-paved access road, which extends from Highway 86, approximately 1-mile south to the main entrance of the DVC Monofill. Topography at the site was generally flat, with the exception of the waste cells and leachate ponds. Surface drainage was expected to flow naturally, percolating into the native soil. An engineered storm water diversion berm, designed to protect the waste cells from a 100-year flood event, was located on the south side of Cells 1 and 2 and on the east side of Cell 3.

The site consisted of 653-acres; however, the existing DVC Monofill improvements are situated on the northeast 180-acres of the site. The remaining 473-acres of the site were generally undeveloped desert. The northeast corner of the DVC Monofill was occupied with an approximate 1,000 square-foot office building with restrooms and a breakroom. One 150-gallon and four 350-gallon potable water ASTs were located adjacent to the office building, which provided water to the breakroom sink and bathrooms within the office building. A shop/storage building was located east-adjacent to the office building and consisted of general equipment and tool storage, and two flammable storage cabinets. At the time of the reconnaissance, the flammable storage cabinets consisted of gasoline containers, motor oil, paints, aerosols, roof coating, and various cleaning solutions. Two, 5,000-gallon, non-potable water ASTs were located south-adjacent to the office building, and are used to fill water trucks for dust control purposes. A groundwater well was also located south-adjacent to the office building. A 150-gallon used oil AST and a 1,000-gallon diesel AST were located south-adjacent to the shop/storage building on the northeast portion of the DVC Monofill. Both ASTs were situated in a concrete basin acting as secondary containment.

Additionally, a non-hazardous waste storage area was situated adjacent to the used oil and diesel ASTs and consisted of approximately ten, 55-gallon drums of soil seal concentrate, used as a cover material for the waste cells. The non-hazardous waste storage area was also situated within a concrete basin secondary containment.

The remainder of the northeast portion of the site consisted of three waste cells. At the time of the reconnaissance, Cells 1 and 2 were no longer in use and have been capped and closed since approximately 2005. Cell 3 was opened in 2005 and is currently the active cell at the facility accepting non-hazardous geothermal filter cake and drilling mud. Two leachate ponds were observed at the site, one located on the north side of Cell 1, and one located on the east side of Cell 2. The proposed Cell 4 area was located to the west of Cell 3. At the time of the site reconnaissance, this area consisted of undeveloped desert land. Approximately eight groundwater monitoring wells were situated throughout the DVC Monofill.

5.3 Adjacent Property Observations

Adjacent properties were observed from the site and from publicly accessible vantage points (e.g., streets, sidewalks) during the site reconnaissance. The properties adjacent to the site are as follows and as depicted on Figure 2:

- **North:** Undeveloped land.
- **East:** Undeveloped desert land.
- **South:** Undeveloped desert land.
- **West:** Undeveloped desert land.

5.4 Site Observations

Ninyo & Moore evaluated the site for evidence of the following potential environmental concerns:

Table 8 – On-Site Observations

Conditions	Observed or Noted	Comments
Hazardous Substances/Petroleum Products	X	Small quantities of gasoline and motor oil were observed within a flammable storage cabinet within the shop/storage building on the northeast corner of the DVC Monofill. Additionally, a 150-gallon used oil AST and a 1,000-gallon diesel AST were situated within secondary containment on the northeast portion of the DVC Monofill. Leaks or spills of hazardous materials / petroleum products was not observed during the site reconnaissance. Approximately 10, 55-gallon steel drums of soil seal concentrate were situated within a non-hazardous waste storage area on the northeast portion of the DVC Monofill. Leaks or spills were not observed from this area during the site reconnaissance.

Table 8 – On-Site Observations		
Conditions	**Observed or Noted**	**Comments**
Waste Generation/Storage/Disposal	X	Currently, Cell 3 is the only area of the site where disposal of non-hazardous geothermal filter cake and drilling mud was occurring. Issues were not observed during the site reconnaissance that would negatively impact the integrity of Cell 3, including erosion or stormwater runoff onto adjacent properties.
ASTs	X	Five potable water ASTs (one 150-gallon and four 350-gallon) were observed on the exterior of the office building on the northeast corner of the DVC Monofill. Two 5,000-gallon non-potable water ASTs along with a 150-gallon used oil AST and a 1,000-gallon diesel AST were located on the northeast portion of the DVC Monofill. Leaks or spills were not observed from ASTs during the reconnaissance.
Potential Evidence of USTs		Not observed
Potential PCB-Containing Equipment	X	One pole-mounted transformer was located on the east side of the office building on the northeast corner of the DVC Monofill. Leaks or spills were not observed during the site reconnaissance.
Chemical/Petroleum Odors		Not observed
Concrete Patches/Pads		Not observed
Pools of Liquid		Not observed
Sewage Discharge Pipes		Not observed
Floor Drains/Sumps		Not observed
Elevator		Not observed
Wells	X	A groundwater supply well, along with approximately 8 groundwater monitoring wells are located throughout the site. Two vadose zone monitoring wells were also observed on top of Cells 1 and 2. The wells appeared to be in good condition at the time of the site reconnaissance.
Drums	X	Approximately 10, 55-gallon steel drums of non-hazardous soil seal concentrate were situated on the northeast portion of the DVC Monofill. No leaks or spills were observed from these drums during the site reconnaissance.
Unidentified Substance Containers		Not observed
Stained Soil or Pavement		Not observed
Stressed Vegetation		Not observed
Pits, Ponds, or Lagoons	X	Two leachate ponds, lined with an HDPE membrane, were observed at the DVC Monofill. The ponds appeared to be in good condition at the time of the site reconnaissance.
Wastewater Discharges Disposal Systems		Not observed
Septic Systems/Cesspools	X	The site is reportedly on a septic system; however, it was not observed.
Municipal Solid Waste Disposal Areas		Not observed

6 VAPOR ENCROACHMENT/INTRUSION

The purpose of the preliminary vapor encroachment screen is to identify a vapor encroachment condition (VEC), which is the presence or likely presence of potential contaminants of concern (COC) vapors in subsurface soils at the site caused by the release of vapors from contaminated soil or groundwater either on or near the site. The potential for VECs beneath the site was evaluated using a Vapor Encroachment Screening Matrix (VESM) in accordance with ASTM E 2600-15 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions. The VESM included performing a Search Distance Test to identify if there are any known or suspect contaminated properties surrounding or upgradient of the site within specific search radii, a COC Test (for those known or suspect contaminated sites identified within the Search Distance Test) to evaluate whether or not COCs are likely to be present, and a Critical Distance Test to evaluate whether or not COCs in a contaminated plume may be within the critical distance of the site (100 feet for non-petroleum hydrocarbon contaminants and 30 feet for petroleum hydrocarbon contaminants).

Based on the waste disposal activities conducted at the DVC Monofill, the disposed waste may contain various VOCs at non-hazardous levels. The DVC Monofill does not accept material that will generate decomposition landfill gases; therefore, the DVC Monofill has not been required to have a gas management plan. On May 28, 2013, the LEA granted an extension exempting DVC from methane gas monitoring. The letter of concurrence states, “Due to the inorganic nature of these wastes, and as evidenced by the annual waste stream analyses submitted to our office on January 11, 2013, the LEA concurs that there are no wastes being accepted at this facility that will generate methane gas.” The exemption will be reviewed by LEA at least every five years (DVC, 2015). The waste disposal activities at the DVC Monofill represents a vapor encroachment condition; however, landfill gas wells, leachate detection systems, and liners are currently in place. A copy of the VESM is included in Appendix F.

7 INTERVIEWS

Interviews were conducted by Ninyo & Moore with the objective of obtaining information regarding potential RECs in connection with the site. Interviews with present owners, operators, and/or occupants of the site, as well as other knowledgeable parties as appropriate, is mandated by ASTM E 1527-13. A summary of the interviews conducted is provided in the table below.

Table 9 – Interviews	
Representative	**Summary**
Property Owner / Occupant	Ms. D. Anetha Lue, property owner representative with CalEnergy, completed the property background questionnaire on April 4, 2020. According to Ms. Lue, the site is used as a Class 2 waste disposal landfill that accepts only certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California. The site has only been used by CalEnergy for the current purpose. Ms. Lue is not aware of USTs at the site. Diesel fuel is stored at the site. Hazardous waste is not stored at the site. In 2018, a hazardous waste trailer (less than 20 tons) was accidently released at the site. The waste was immediately removed. A lined, subsurface, landfill leachate collection system is used to collect leachate from the non-hazardous geothermal waste that is disposed of in the landfill. The facility is permitted by a waste discharge permit issued by the Colorado River RWQCB. Stormwater from the site is discharged to the adjacent property under the National Pollution Discharge Elimination System general permit. There are three transformers at the site, which are not known to contain PCBs. Groundwater monitoring wells were installed to monitor impacts from the landfill. A water supply well was installed for use by the facility.
Past Owners	Past ownership entities were not made available to Ninyo & Moore during the preparation of this ESA. Therefore, interviews with past site owners were not conducted.

8 FINDINGS

Based upon the results of this Phase I ESA, the following findings are provided.

- The site is located in the Imperial Valley, approximately 4 miles southwest of the Salton Sea and 1-mile south of Highway 86. The City of Westmoreland is located approximately 12 miles to the east (Figure 1).

- The site is developed with the existing approximately 180 acre DVC Monofill, which is operated by CalEnergy Operating Corporation (CalEnergy) (Figures 2 and 3). The DVC Monofill is a Class 2 solid waste disposal facility that operates under Solid Waste Permit No. 13-AA-0022 and Conditional Use Permit (CUP) No. 05-0020. Accepted waste includes non-hazardous filter cake solids that precipitates out of geothermal brine that is used to generate power at CalEnergy- operated geothermal facilities. The DVC Monofill has two closed waste cells (Cells 1 and 2) and an active cell receiving waste (Cell 3). Each cell was constructed with two clay liners and two synthetic liners.

- Existing improvements at the DVC Monofill include a single-story office and administration building, equipment storage building, two leachate ponds, a water well, two groundwater storage tanks, 11 groundwater monitoring wells, and seven vadose zone monitoring wells (Figure 3). The remainder of the site is undeveloped.

- At the time of the site reconnaissance, the site was accessed via an asphalt-paved access road, which extends from Highway 86, approximately 1-mile south to the main entrance of the DVC Monofill. Small quantities of gasoline and motor oil were observed within a flammable storage cabinet within the shop/storage building on the northeast corner of the DVC Monofill. Additionally, a 150-gallon used oil AST and a 1,000-gallon diesel AST were situated within secondary containment on the northeast portion of the DVC Monofill. Approximately 10, 55-gallon steel drums of soil seal concentrate were situated within a non-hazardous waste storage area on the northeast portion of the DVC Monofill. Five potable water ASTs (one 150-gallon and four 350-gallon) were observed on the exterior of the office building on the northeast corner of the DVC Monofill. Two 5,000-gallon non-potable water ASTs along with a 150-gallon used oil AST and a 1,000-gallon diesel AST were located on the northeast portion of the DVC Monofill. Leaks or spills were not observed during the site reconnaissance.

- Topography at the site was generally flat, with the exception of the waste cells and leachate ponds. Surface drainage was expected to flow naturally, percolating into the native soil. An engineered stormwater diversion berm, designed to protect the waste cells from a 100-year flood event, was located on the south side of Cells 1 and 2 and on the east side of Cell 3.

- The existing DVC Monofill began operations in May 1991 and has three storage/disposal cells (Cells1 to 3). Existing improvements include Cells 1 to 3, a private single-lane road from State Route 86, office and administration building, equipment storage building, three leachate ponds, onsite septic tank / leach field, one potable water well, 11 groundwater monitoring wells, two aboveground water storage tanks, vadose zone monitoring wells, an aboveground fuel tank, and hazardous material storage containment structure. The non-hazardous geothermal waste streams and by products contain arsenic and other metals, salts, organic hydrocarbons, and naturally occurring radioactive materials (NORM). The proposed expansion includes a 1.2-acre waste storage cell (Cell 4), extension of existing stormwater diversion dikes, minor extensions / modifications to existing internal roads, installation of a new water well for use during construction, and additional air quality particulate sampling stations and groundwater monitoring wells.

- The DTSC is the CUPA in Imperial County and oversees the storage and handling of hazardous materials / wastes. The DVC Monofill maintains a Unified Program Certificate with the DTSC annually (Facility ID FA0000598). Program elements overseen by the DTSC include hazardous waste generation and the facility's HMBP. The DTSC was contacted for information on permit compliance, outstanding violations and notices to comply. According to a representative of the DTSC on April 27, 2020, the current Unified Program Certificate has not been generated and there were no recent inspections of the facility.

- The ICAPCD issued an Authority to Construct and Permit to Operate (#2120B-3) to CalEnergy for the DVC Monofill. According to the permit, accepted waste include geothermal drilling mud and cuttings; geothermal filter cake, soils contaminated with geothermal material; and incidental plastic sheeting (truck bed liner) / materials. Equipment listed on the permit includes two front loaders, one water truck, one vibratory compactor, one motor grader, and 38 hauling trucks. Ninyo & Moore requested additional information from the ICAPCD related to violations and notices to comply; however, as of the date of this report, a response has not been received.

- RWQCB records pertain to DVC Monofill compliance documents including the post-closure land use plan, joint technical document, waste discharge orders, monitoring, annual compliance inspection reports, a notice of violations (NOV) and California Environmental Quality Act (CEQA)- documents for the Desert Valley Monofill. According to the NOV and related closure documentation, approximately 15.5 tons of unpermitted hazardous filter cake waste was improperly disposed of in July 2018 at the DVC Monofill. A notice of compliance letter was issued by the RWQCB from September 2018, which closed the NOV. In December 2019, an Initial Study and Environmental Analysis for the DVC Monofill Expansion Project was performed. The existing facility is permitted under CUP No. 05-0020, Solid Waste Facility Permit NO. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016. CalEnergy is requesting an amendment to CUP to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure, and post-closure of a new waste storage cell (Cell 4) (Figures 2 and 3).

- According to a representative of the ICPHD on March 24, 2020, available records include monthly disposal facility inspection reports from March 2019 to February 2020, and a 2019 annual analysis report for discrete composites of geothermal filter cake received. Violations were not reported in the inspection reports. Four samples were analyzed for metals, VOCs, ignitability, corrosivity, reactivity, NORM analysis, and hazardous waste bioassay. The report indicated that the samples did not exceed hazardous waste thresholds.

- Based on the waste disposal activities conducted at the DVC Monofill, the disposed waste may contain various VOCs at non-hazardous levels. The DVC Monofill does not accept material that will generate decomposition landfill gases; therefore, the DVC Monofill has not been required to have a gas management plan. On May 28, 2013, the LEA granted an extension exempting DVC from methane gas monitoring. The letter of concurrence states, “Due to the inorganic nature of these wastes, and as evidenced by the annual waste stream analyses submitted to our office on January 11, 2013, the LEA concurs that there are no wastes being accepted at this facility that will generate methane gas.” The exemption will be reviewed by LEA at least every five years (DVC, 2015). The waste disposal activities at the DVC Monofill represents a vapor encroachment condition; however, landfill gas wells, leachate detection systems, and liners are currently in place and are routinely monitored.

9 OPINIONS

Opinions are proved below.

9.1 RECs

The rationale for concluding whether the conditions listed in Section 8, above, represent RECs, HRECs, or CRECs (i.e., the presence or likely presence of hazardous substances or petroleum products on a property due to any release to the environment, under conditions indicative of a release, or a material threat of a future release of hazardous substances, pollutants, contaminants, and/or petroleum/petroleum products at the site) is provided below.

It is our opinion that the disposal of non-hazardous filter cake solids that precipitates out of geothermal brine is considered a REC. Although the facility appears to be operating in compliance with regulatory agency requirements and environmental controls are in place, the disposal operations meet the definition of a REC. The non-hazardous geothermal waste streams and by products contain arsenic and other metals, salts, organic hydrocarbons, and NORM.

9.2 CRECs

CRECs were not identified.

9.3 HRECs

HRECs were not identified.

9.4 De Minimis Conditions

De minimis conditions were not identified.

9.5 Data Gaps

The request for records from the ICAPCD is current pending; however, the data gap is not considered a significant data gap that would affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases were not encountered.

9.6 Additional Appropriate Investigation

It is our opinion that additional appropriate investigation to evaluate RECs at the site is not required.

10 CONCLUSIONS

We have performed a Phase I ESA, in conformance with the scope and limitations of the ASTM Practice E 1527-13, of the DVC Monofill Expansion Project property, located at 3301 West Highway 86, Imperial County, California. Any exceptions to, or deletions from, this practice are described in Section 1.4 and in the body of this report. This assessment has revealed no evidence of RECs in connection with the property, except for the following:

REC - The disposal of non-hazardous filter cake solids that precipitates out of geothermal brine is considered a REC. Although the facility appears to be operating in compliance with regulatory agency requirements and environmental controls are in place, the disposal operations meet the definition of a REC. The non-hazardous geothermal waste streams and by products contain arsenic and other metals, salts, organic hydrocarbons, and NORM.

11 RECOMMENDATIONS

Based on the results of the Phase I ESA, no additional assessment activities are warranted at this time.

12 REFERENCES

Army Corps of Engineers, 2020, Formerly Used Defense Sites Geographic Information System website, https://rsgis.crrel.usace.army.mil/publicfuds: accessed in April.

ASTM International, 2013, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E-1527-13.

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California Integrated Waste Management Board, 2020, Solid Waste Information System database, http://www.ciwmb.ca.gov/SWIS: accessed in April.

Desert Valley Company, 2015, Desert Valley Company, Amendments to the Joint Technical Document for the Desert Valley Company Monofill Facility Solid Waste Permit 13-AA-002: dated December 22, 2015.

Desert Valley Company, 2020, Desert Valley Company Class II Solid Waste Management Facility Quarterly Detection Monitoring Report for October - December 2019: dated January 27.

Dibblee, T.W., and Minch, J.A., 2008, Geologic Map of the Kane Spring 15 minute-quadrangle, Imperial County, California, Dibblee Geological Foundation, Dibblee Foundation Map DF-408, scale 1:62,500.

Environmental Data Resources Inc., 2020, Certified Sanborn Map Report, 3301 W Hwy 86, Thermal, CA 92274: dated February 28.

Environmental Data Resources Inc., 2020, The EDR Aerial Photograph Decade Package, 3301 W Hwy 86, Thermal, CA 92274: dated March 2.

Environmental Data Resources Inc., 2020, EDR Historical Topo Map Report, 3301 W Hwy 86, Thermal, CA 92274: dated February 28.

Environmental Data Resources Inc., 2020, The EDR-City Directory Image Report, 3301 W Hwy 86, Thermal, CA 92274: dated March 27.

Environmental Data Resources Inc., 2020, The EDR Radius Map Report with GeoCheck, 3301 W Hwy 86, Thermal, CA 92274: dated March 2.

State Water Resources Control Board, 2020, Geotracker Online Database: http://geotracker.swrcb.ca.gov: accessed in April.

Terraphase Engineering, 2019, Soils and Geology Report for the Desert Valley Company Monofill Expansion Project, Brawley, Imperial County, California: July 29.

United States Geological Survey, 2012, Kane Spring Quadrangle, California: 7.5-Minute series (topographic), Scale 1:24,000.

13 PROFESSIONAL STATEMENT

As required by 40 CFR §312.21(d) and Section 12.13 of ASTM 1527-13, the following statement is included:

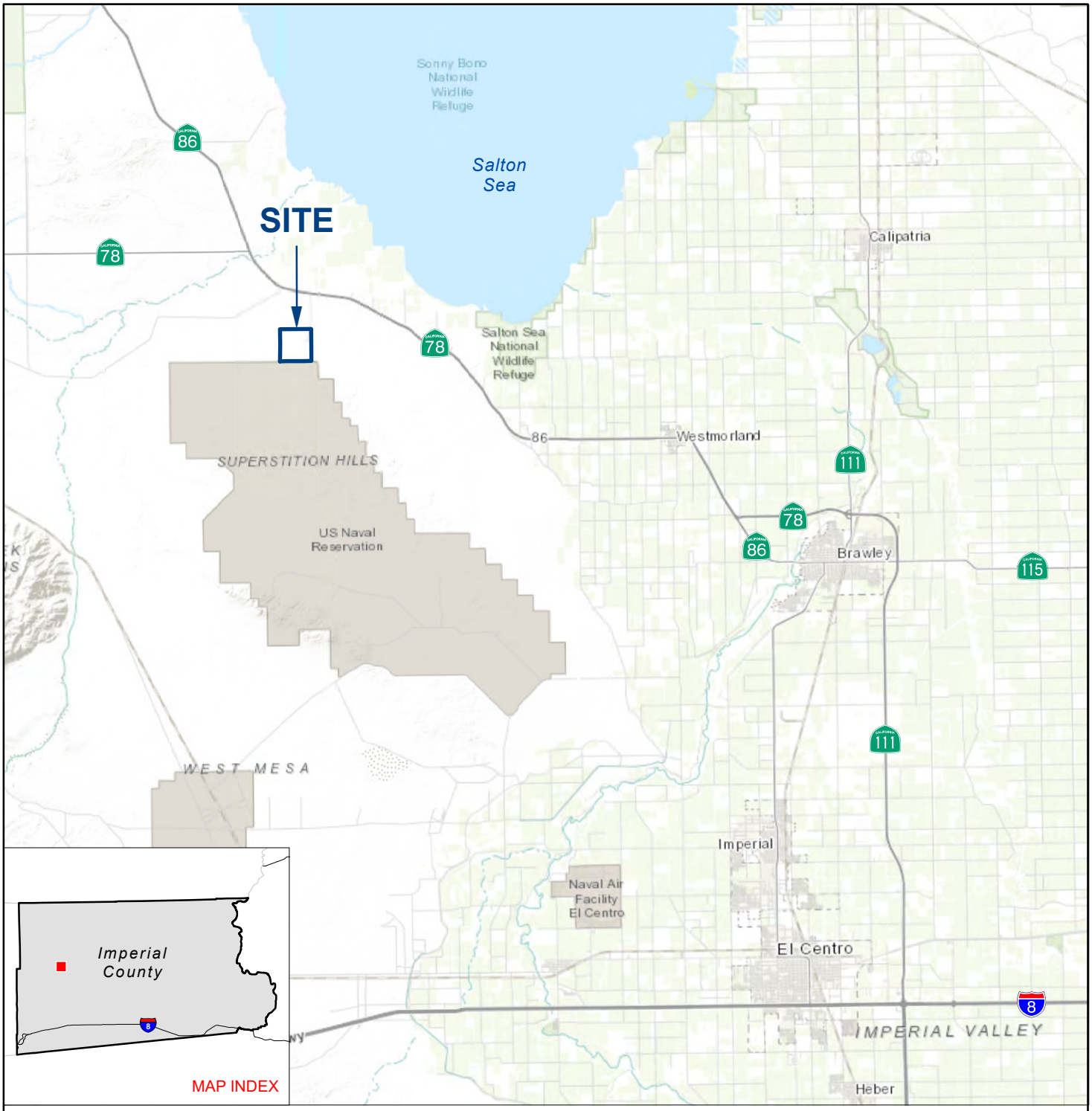
> *I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined by §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.*

Adrian Olivares
Senior Environmental Scientist

14 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

Resumes, which document the professional qualifications, pursuant to 40 CFR §312.10(b)(2), of the persons that prepared and reviewed this report are provided as Appendix G.

FIGURES



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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2020

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FEET

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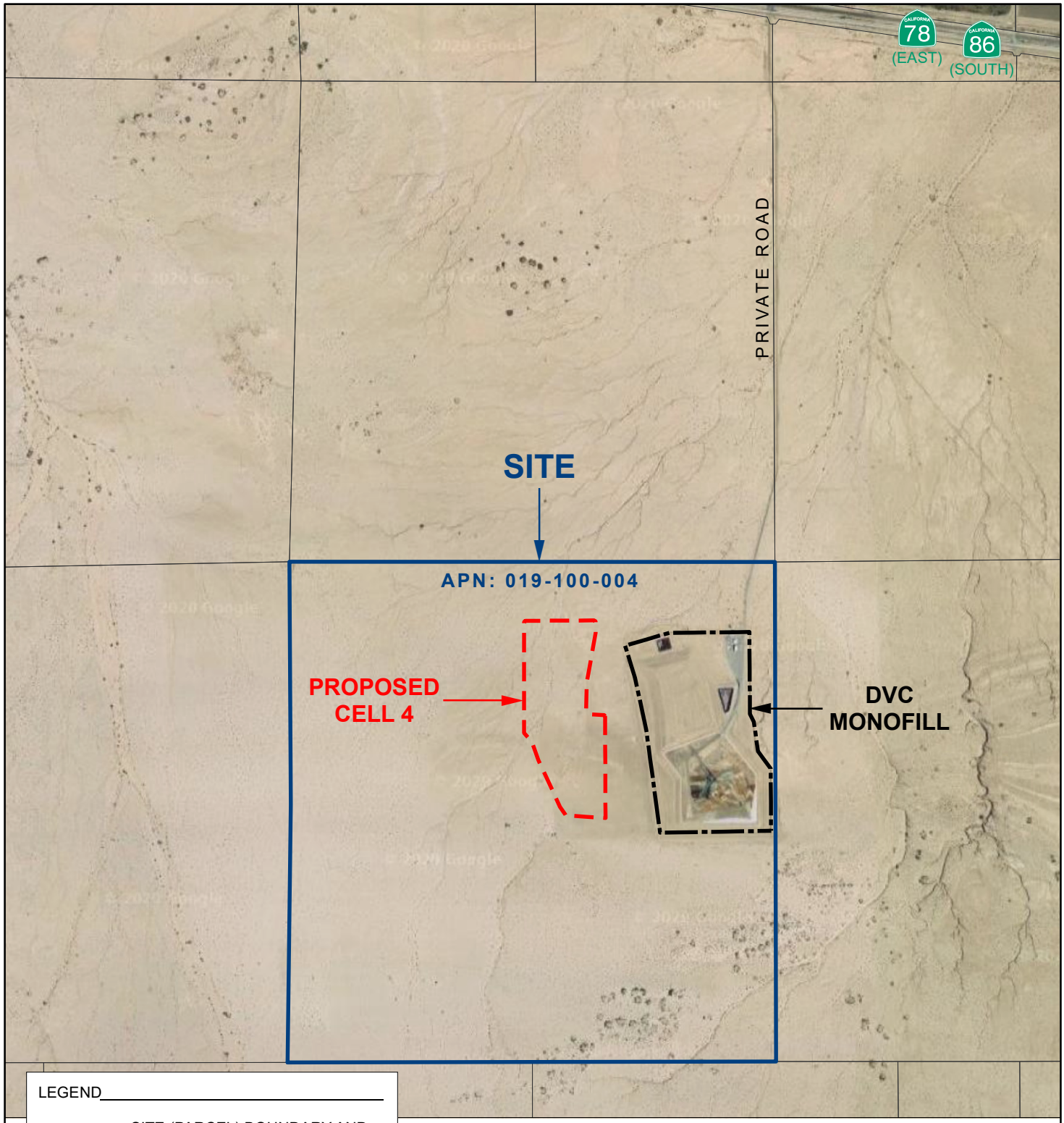
FIGURE 1

SITE LOCATION

3301 WEST HIGHWAY 86
BRAWLEY, CALIFORNIA

109005001 | 5/20

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

- SITE (PARCEL) BOUNDARY AND APN NUMBER
- PROPOSED CELL 4 BOUNDARY
- DVC MONOFILL BOUNDARY

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCES: PARCEL BOUNDARIES - IMPERIAL COUNTY (ARCGIS.COM), 2020; GOOGLE EARTH, 2020

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0 1,500 3,000

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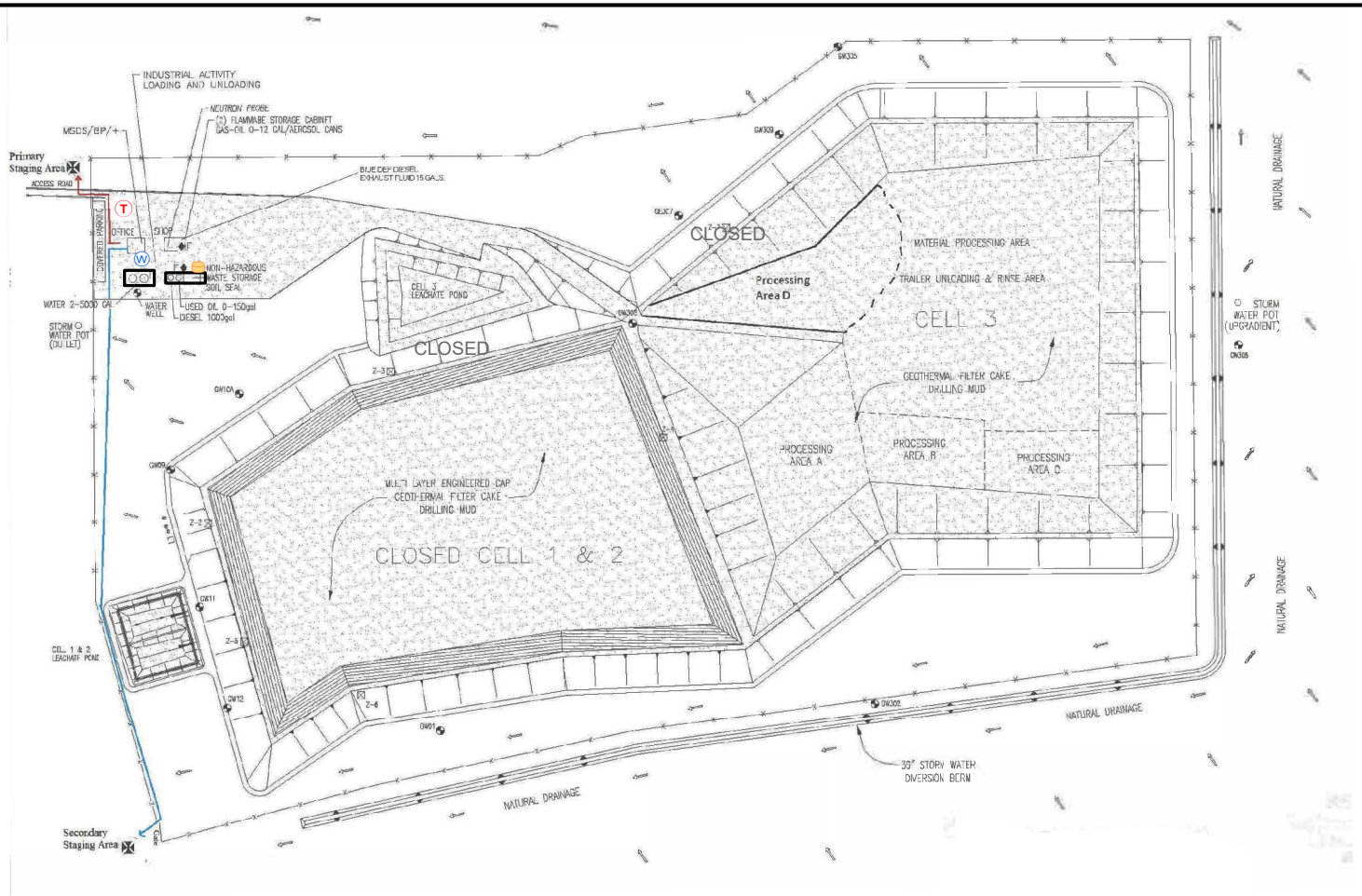
FIGURE 2

SITE AND VICINITY

3301 WEST HIGHWAY 86
BRAWLEY, CALIFORNIA

109005001 | 8/20

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



PROPOSED CELL 4

LEGEND

- ~10, 55-GALLON DRUMS OF SOIL SEAL CONCENTRATE
- POLE-MOUNTED TRANSFORMER
- WATER TANKS
- PROPOSED CELL 4 BOUNDARY

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: SITE PLAN (SWPPP/HMBP MAP) - CALENERGY OPERATING CORP, DATED: 9/27/2012

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FIGURE 3

DVC MONOFILL

3301 WEST HIGHWAY 86
BRAWLEY, CALIFORNIA

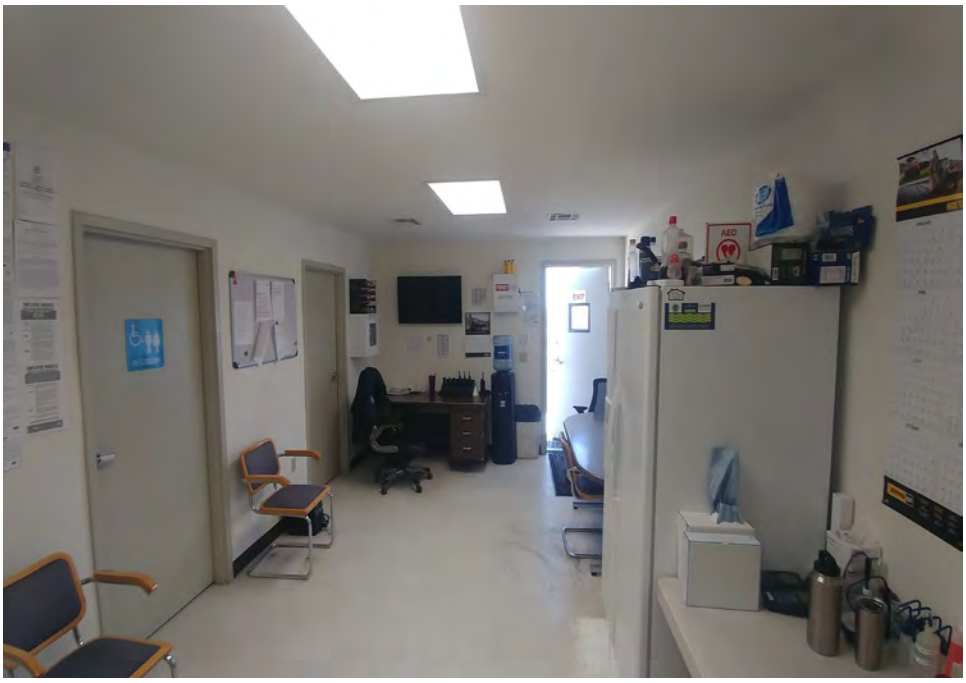
109005001 | 8/20

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

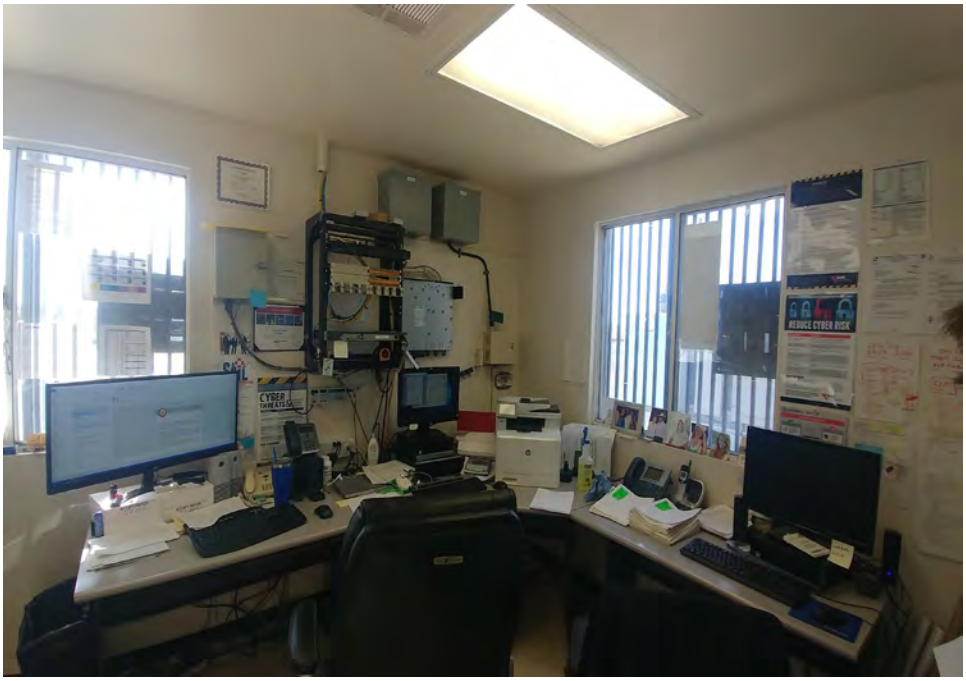
APPENDIX A

Photographic Documentation

Photograph 1: **Office and administration building on the northeast corner of the DVC Monofill. A hot water tank and the potable water ASTs are visible on the exterior of the building.**



Photograph 2: **Interior of the office and administration building, with the breakroom visible.**



Photograph 3: **Interior of the office and administration building, with the office space visible.**

Photograph 4: **Two 5,000-gallon non-potable water ASTs situated on the northeast portion of the DVC Monofill.**

Photograph 5: **Groundwater well situated adjacent to the non-potable water ASTs.**

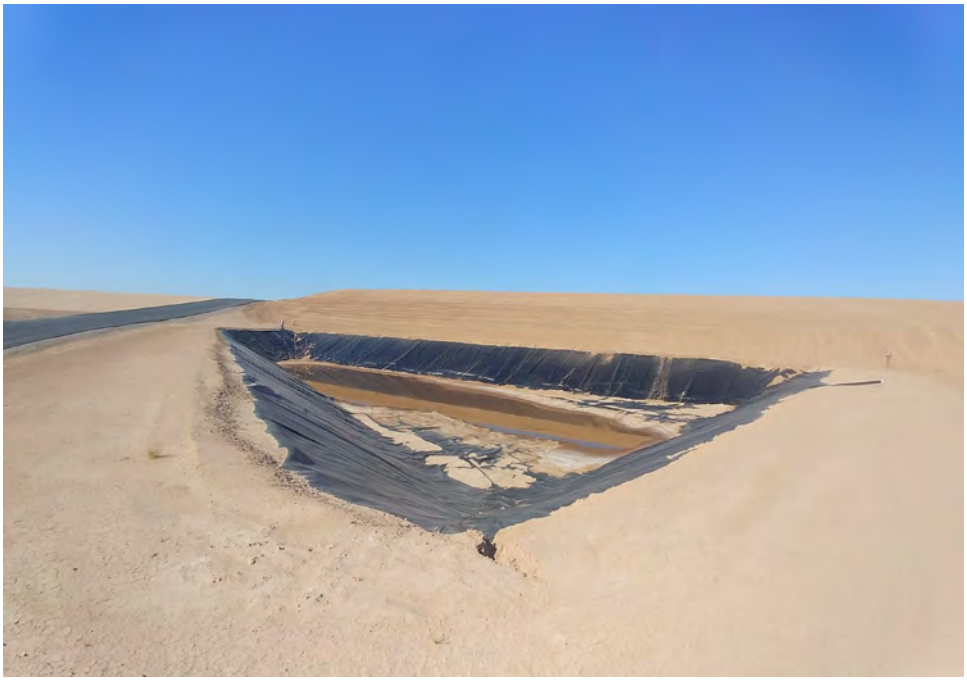
Photograph 6: **The 1,000-gallon diesel and 150-gallon used oil ASTs within secondary containment on the northeast portion of the DVC Monofill.**

Photograph 7: **The 55-gallon drums of soil seal concentrate situated on the northeast portion of the DVC Monofill.**

Photograph 8: **Exterior of the shop/storage building on the northeast portion of the DVC Monofill.**

Photograph 9: **Interior of the shop/storage building.**

Photograph 10: **Flammable storage cabinet within the shop/storage building.**



Photograph 11: **Cell 3 leachate pond situated on the east side of Cell 2.**

Photograph 12: **View of closed Cells 1 and 2 on the northern portion of the DVC Monofill, taken from the exterior of the shop/storage building.**

Photograph 13: **Main entrance to the DVC Monofill, taken from Cell 1, looking north towards the office and administration building.**

Photograph 14: **Proposed Cell 4 area, situated west-adjacent to Cell 3.**

Photograph 15: View of Cell 3, looking north, taken from an access road on the south side of Cell 3.

Photograph 16: View of the east side of Cells 1 and 2, looking north towards the Cell 3 leachate pond and the DVC Monofill entrance.

Photograph 17: View of active Cell 3, looking east, taken from atop closed Cell 2.

Photograph 18: View of the remainder of the undeveloped desert land portion of the site, taken from atop closed Cell 2, looking west.

APPENDIX B

User and Property Owner Provided Information

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

USER QUESTIONNAIRE

Project Name: **Desert Valley Company Monofill Expansion Project**

Property Address: **3301 West Highway 86**
Imperial County, California
APN: 019-100-004

Please respond to all of the following questions to the best of your knowledge. The purpose of this questionnaire is to assist the user (the client or party seeking to use the Phase I ESA) and the environmental professional in gathering information from the user that may be material to documenting Recognized Environmental Conditions (RECs) at the site. Please note that the user of the Phase I ESA (the client), if seeking protection from CERCLA liability, must adhere to a set of user responsibilities as defined by the ASTM International (ASTM) Standard Practice E1527-13 and the United States Environmental Protection Agency (EPA) 40 Code of Federal Regulations Part 312 titled "Standards and Practices for all Appropriate Inquiries (AAI)". Failure to provide this information could result in a determination that AAI is not complete.

Per Section 6 of ASTM Standard E1527-13 and 40 CFR Part 312 of the AAI rule, the user's responsibilities include, but are not limited to, the following:

- review reasonably ascertainable land title records, lien records, and/or judicial records to search for environmental cleanup liens or activity and use limitations (AULs) against the site filed or recorded under federal, tribal, state, or local law, or engage a title company to review such records. Evidence of environmental liens and/or activity and use limitations on the site, if discovered, must be provided to the environmental consultant;
- report to the environmental professional specialized knowledge or experience material to RECs in connection with the property;
- report to the environmental professional knowledge of environmental liens or AULs encumbering or in connection with the property;
- consider the relationship of the purchase price of the property to its fair market value and whether a lower purchase price is related to potential contamination;
- report to the environmental professional commonly known or reasonably ascertainable information material to RECs; and
- report to the environmental professional the reason for conducting the Phase I ESA.

User responsibilities, CERCLA liability relief, and AAI components are discussed in the AAI rule and in the ASTM E1527-13 standard.

1) Environmental cleanup liens that are filed or recorded against the property (40 CFR 312.25).

Did a search of recorded land title records (or judicial records where appropriate) identify environmental liens filed or recorded against the property under federal, tribal, state or local law?

☐Yes ☐No

No information available - CalEnergy did not conduct this review

2) Activity and use limitations (AULs) that are in place on the property or that have been filed or recorded against the property (40 CFR 312.26(a)(1)(v) and (vi).

Did a search of recorded land title records (or judicial records where appropriate) identify any AULs, such as engineering controls, land use restrictions or institutional controls, that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?

☐Yes ☐No No information available - CalEnergy did not conduct this review

3) Specialized knowledge or experience of the person seeking to qualify for the liability protections (40 CFR 312.28).

As the user of this Phase I ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

☐Yes ☐No If yes, please describe:

No information available - CalEnergy did not conduct this review

4) Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).

a) Does the purchase price being paid for this property reasonably reflect the fair market value of the property?

No information available - CalEnergy is not engaged in this activity

☐Yes ☐No ☐Not applicable (No Property Purchase Involved)

b) If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

☐Yes ☐No ☐Not applicable No information available - CalEnergy is not engaged in this activity

c) If there is a price difference, please describe: No information available - CalEnergy is not engaged in this activity

5) Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as the user,

a) Do you know the past uses of the property?

☒Yes ☐No If yes, please describe: The site was used as a landfill

b) Do you know of specific chemicals that are present or once were present at the property?

☒Yes ☐No If yes, please describe: - Used oil and gasoline. Refer to the Hazardous Materials Business Plan for a list of chemicals

c) Do you know of spills or other chemical releases that have taken place at the property?

☒Yes ☐No If yes, please describe: - One release occurred in 2018 of hazardous filter cake waste. The material was removed and cleanup confirmed within 48 hours.

d) Do you know of any environmental cleanups that have taken place at the property?

☒Yes ☐No If yes, please describe: - See Item 5c.

6) The degree of obviousness of the presence of likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

☐Yes ☐No If yes, please describe: No information available - CalEnergy has not conducted this research

7) What is the reason for having the Phase I ESA performed (ASTM 1527-13, Section 6.8)?

No information available - CalEnergy has not conducted this research

8) Are you aware of any previously prepared documentation for the site, such as:

- previous Phase I ESA or Phase II ESA reports - Unknown
- environmental sampling, compliance audit, or assessment reports - Internal compliance audits have been conducted
- environmental permits - Yes, See Table B-1
- registrations for aboveground or underground storage tanks - Yes, See Hazardous Materials Business Plan
- registrations for underground injections systems - No
- material safety data sheets (MSDS) - Yes, for chemical listed in the Hazardous Material Business Plan
- community right-to-know plans, - Yes, training is done on Hazardous Materials Business Plan
- safety plans; preparedness and prevention plans; spill prevention, countermeasure, and control plans - Yes, Safety Plan is part of Hazardous Materials Busienss Plan
- geotechnical or hydrogeologic reports - Yes, See DVC Cell 4 expansion application
- storm water documents - Yes , site has Stormwater Pollution Prevention Plan
- risk assessments - No
- hazardous waste generator notices - The site was an incidental generator of hazardous waste for the waste that was accidentally disposed of at the site in 2018.

☒Yes ☐No If yes, please describe: see descriptions above.

Completed By:

Signature	Date
D. Anetha Lue	Director IPP Environmental Services
Printed Name	Title

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

PROPERTY BACKGROUND QUESTIONNAIRE

Project Name: **Desert Valley Company Monofill Expansion Project**

Property Address: **3301 West Highway 86**
Imperial County, California
APN: 019-100-004

***Please answer *in good faith and to the best of your ability* and elaborate as much as possible on any question answered "yes."**

General Information

1) Describe the current uses of the site. How long has the site been used for these purposes?
Class 2 waste disposal landfill that can only accept certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California

2) Describe the structures previously present at the site and their usage/occupants and age.
See Section 3.4 of attached application

3) When were the structures constructed, if known?
See Section 4.1 of attached application

4) What is the historical land use of the site? Describe the past uses, owners, and operators of the site. (Be as detailed as possible and note approximate time periods, if known.)
The site has only been used by CalEnergy for the current purpose

5) Are there currently, or were there previously any underground storage tanks (USTs) at the site? If so, please describe their capacities and contents.
No

6) Have all USTs been removed from the site? If so, when?
Not applicable

7) Was associated underground piping associated with the USTs removed?
Not applicable

8) Was soil and/or groundwater sampling conducted at the time of UST removal? If so, please describe.
Not applicable

9) Are you aware of any environmental issues associated with the site or of potential soil and/or groundwater contamination?

[ ] Yes [X] No

10) Have fill soils been brought to the property?

[ ] Yes [ ] No [x] Unknown

11) Has there been storage of hazardous materials or wastes on the property?

[x] Yes [ ] No [ ] Unknown Diesel Fuel only. The site does not store any hazardous waste.

12) Have any of the following items been stored on the site in containers greater than 5 gallons?

Paint [x] Yes [ ] No [ ] Unknown
Chemicals [x] Yes [ ] No [ ] Unknown
Pesticides/Herbicides [ ] Yes [x] No [ ] Unknown
Automotive-Related Oils/Fuels [x] Yes [ ] No [ ] Unknown

13) Have there been any spills or releases of chemicals, hazardous substances, or wastes on the property?

[x] Yes [ ] No [ ] Unknown One hazardous waste trailer (less than 20 tons) was accidentally released at the site in 2018. The waste was removed immediately.

14) Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped aboveground, buried, or burned on the site?

[ ] Yes [x] No [ ] Unknown

15) Is the site hooked up to a municipal sanitary sewer system or is there a septic tank/system?

[ ] Sanitary Sewer [x] Septic

16) Are/were there any subsurface wastewater features, such as sumps, clarifiers, discharge systems, at the site?

[x] Yes [ ] No [ ] Unknown A lined subsurface landfill leachate collection is used to collect leachate from the non-hazardous geothermal waste that is disposed of in the landfill. The surface is permitted by a waste discharge permit issued by the Colorado River Regional Water Quality Control Board.

17) Does the site discharge wastewater, other than domestic wastewater or storm water, into the sewer or onto another property? Stormwater from the site is discharge to the adjacent property under the state's general State Pollution Discharge Elimination System permit.

[x] Yes [ ] No [ ] Unknown

18) Other than permission for domestic hookup, have any city, county, or other permits for wastewater discharge been issued to the site?

See Questions 16 & 17. See Supplement 1 of attached permit.

[X] Yes [ ] No [ ] Unknown

19) Is there a transformer, capacitor, or other equipment that may contain PCBs on the site?

[ ] Yes [ ] No [X] Unknown There are 3 transformers on site. These transformers are not known to contain PCBs.

20) Other than small quantities of legal pesticides used for landscape maintenance (e.g., Roundup), have pesticides, herbicides, or insecticides been applied on the site?

[ ] Yes [x] No [ ] Unknown

21) Are/were there any wells on the site (e.g., water supply wells, groundwater monitoring wells, etc.)

[x] Yes [ ] No [ ] Unknown

- Groundwater monitoring wells are installed to monitor impacts from the landfill - See Section 5.5.3 of attachment
- A water supply well is installed for water use - see Section 5.3 of attachment

22) Are there currently, or were there previously, any pits, ponds, or lagoons on the site?

[ ] Yes [X] No [ ] Unknown

23) Are there currently, or were there previously, areas on the site with stained soil?

[ ] Yes [x] No [ ] Unknown

24) To your knowledge, have adjoining properties been used for industrial activities, such the following? (Please note that an adjoining property is a property that is contiguous with, or directly across the street from the site.)

Gasoline Station [ ] Yes [x] No [ ] Unknown
Printing Facility [ ] Yes [x] No [ ] Unknown
Metal Plating/Manufacturing [ ] Yes [x] No [ ] Unknown
Landfill [ ] Yes [x] No [ ] Unknown
Auto Repair Facility [ ] Yes [x] No [ ] Unknown
Dry Cleaners [ ] Yes [x] No [ ] Unknown
Junkyard [ ] Yes [x] No [ ] Unknown
Waste or Wastewater Treatment [ ] Yes [x] No [ ] Unknown
Storage, Disposal, or Recycling Facility [ ] Yes [x] No [ ] Unknown

25) Are there any known issues related to spills/contamination with adjoining or nearby properties?

[ ] Yes [x] No [ ] Unknown

26) Are you aware of any previously prepared documentation for the site, such as:

- environmental sampling, compliance audit, or assessment reports -Environmental reporting of air and groundwater is required by permits
- environmental permits - See Table B-1 & Table B-2
- registrations for aboveground or underground storage tanks - Used oil, and diesel tank are registered with the DTSC (HMBP) program
- material safety data sheets (MSDS) - Yes, see HMBP
- community right-to-know plans - Yes, see HMBP
- safety plans; preparedness and prevention plans; spill prevention, countermeasure, and control plans - Safety Plan is part of HMBP. The site does not have a SPCC
- geotechnical or hydrogeologic reports -Yes, See DVC Cell 4 Application (via BRG)
- storm water documents - Yes, SWPP
- risk assessments - No

(If so, are they available for review?) - Yes, Refer to attached application for summaries.

Footnotes:
HMBP - Hazardous Materials Business Plan
DTSC - Department of Toxic Substances Control
SWPPP - Stormwater Pollution Prevention Plan

Legal/Activity and Use Limitations

27) Are you aware of any environmental cleanup liens or activity and use limitations such as engineering controls, land use or deed restrictions or institutional controls associated with the site that are filed or recorded under federal, tribal, state, or local law?

[ ] Yes [x] No

28) Are you aware of any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property?

[ ] Yes [x] No

29) Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?

[ ] Yes [x] No

D. Anetha Lue _____ April 4, 2020 _____

NAME (IN PRINT) DATE

_____

SIGNATURE

[ ] Owner [ ] Occupant [x] Owner Representative [ ] Other:

***When complete, return questionnaire via email, fax, and/or mail to the following:**

Mr. Adrian Olivares
Senior Environmental Scientist
Ninyo and Moore
5710 Ruffin Road
San Diego, California 92123
aolivares@ninyoandmoore.com
(858) 576-1000 Office
(858) 576-9600 FAX

APPENDIX C

Environmental Database Report

3301 W HWY 86 HWY
3301 W HWY 86 HWY
Thermal, CA 92274

Inquiry Number: 5990802.2s
March 02, 2020

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Detail Map	3
Map Findings Summary	4
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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

3301 W HWY 86 HWY
THERMAL, CA 92274

COORDINATES

Latitude (North):	33.0823170 - 33° 4' 56.34''
Longitude (West):	115.8306480 - 115° 49' 50.33''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	609139.9
UTM Y (Meters):	3660829.2
Elevation:	81 ft. below sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640294 KANE SPRING, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140519
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
3301 W HWY 86 HWY
THERMAL, CA 92274

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	DESERT VLY MONOFILL	3301 WEST HWY 86	FINDS		TP
A2	DESERT VLY MONOFILL	3301 WEST HWY 86	FINDS		TP
A3		3301 WEST HWY 86	ERNS		TP
A4	DESERT VALLEY MONOFI	3301 WEST HWY 86	SWF/LF, LDS, Financial Assurance		TP
A5	DVC CELL 1 & 2 CLOSU	3301 W HWY 86	CIWQS		TP
A6	REPAVING OF ACCESS R	3301 W HWY 86	NPDES		TP
A7		DESERT VALLEY COMPAN	CHMIRS		TP
A8	DESERT VALLEY MONOFI	3301 WEST HWY 86	CERS		TP
A9	MONOFILL FACILITY	3301 WEST HIGHWAY 86	CERS		TP
A10	MCLAUGHLIN ENGINEERI	3301 W HWY 86	HWTS		TP
Reg	EL CENTRO NAVAL AUXI		DOD	Same	1 ft.

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
DESERT VLY MONOFILL 3301 WEST HWY 86 BRAWLEY, CA 92227	FINDS Registry ID:: 110065052294	N/A
DESERT VLY MONOFILL 3301 WEST HWY 86 BRAWLEY, CA 92227	FINDS Registry ID:: 110065151659	N/A
3301 WEST HWY 86 3301 WEST HWY 86 BRAWLEY, CA	ERNS Incident Date Time: 2018-07-10 17:00:00 NRC Report #: 1218008	N/A
DESERT VALLEY MONOFI 3301 WEST HWY 86 BRAWLEY, CA 92227	SWF/LF Database: SWF/LF (SWIS), Date of Government Version: 11/11/2019 Facility ID: 13-AA-0022 Operational Status: Active Regulation Status: Permitted LDS Global Id: L10003472657 Status: Open Financial Assurance Database: Financial Assurance 2, Date of Government Version: 11/08/2019 SWIS No: 13-AA-0022	N/A
DVC CELL 1 & 2 CLOSU 3301 W HWY 86 BRAWLEY, CA 92227	CIWQS	N/A
REPAVING OF ACCESS R 3301 W HWY 86 BRAWLEY, CA 92227	NPDES	N/A
DESERT VALLEY COMPAN DESERT VALLEY COMPAN BRAWLEY, CA	CHMIRS OES Incident Number: 18-4574	N/A
DESERT VALLEY MONOFI 3301 WEST HWY 86 BRAWLEY, CA 92227	CERS	N/A
MONOFILL FACILITY 3301 WEST HIGHWAY 86 BRAWLEY, CA	CERS	N/A

EXECUTIVE SUMMARY

MCLAUGHLIN ENGINEERI
3301 W HWY 86
BRAWLEY, CA 92227

HWTS

N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program

CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	CERS HAZ WASTE
US CDL	National Clandestine Laboratory Register
PFAS	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites

LEAD SMELTERS - Lead Smelter Sites
US AIRS - Aerometric Information Retrieval System Facility Subsystem
US MINES - Mines Master Index File
ABANDONED MINES - Abandoned Mines
ECHO - Enforcement & Compliance History Information
UXO - Unexploded Ordnance Sites
DOCKET HWC - Hazardous Waste Compliance Docket Listing
FUELS PROGRAM - EPA Fuels Program Registered Listing
CA BOND EXP. PLAN - Bond Expenditure Plan
Cortese - "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings - CUPA Resources List
DRYCLEANERS - Cleaner Facilities
EMI - Emissions Inventory Data
ENF - Enforcement Action Listing
HAZNET - Facility and Manifest Data
ICE - ICE
HIST CORTESE - Hazardous Waste & Substance Site List
HWP - EnviroStor Permitted Facilities Listing
HWT - Registered Hazardous Waste Transporter Database
MINES - Mines Site Location Listing
MWMP - Medical Waste Management Program Listing
PEST LIC - Pesticide Regulation Licenses Listing
PROC - Certified Processors Database
Notify 65 - Proposition 65 Records
UIC - UIC Listing
UIC GEO - UIC GEO (GEOTRACKER)
WASTEWATER PITS - Oil Wastewater Pits Listing
WDS - Waste Discharge System
WIP - Well Investigation Program Case List
MILITARY PRIV SITES - MILITARY PRIV SITES (GEOTRACKER)
PROJECT - PROJECT (GEOTRACKER)
WDR - Waste Discharge Requirements Listing
NON-CASE INFO - NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS - OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS - PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT - SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ - Well Stimulation Project (GEOTRACKER)
MINES MRDS - Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP - EDR Proprietary Manufactured Gas Plants
EDR Hist Auto - EDR Exclusive Historical Auto Stations
EDR Hist Cleaner - EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF - Recovered Government Archive Solid Waste Facilities List
RGA LUST - Recovered Government Archive Leaking Underground Storage Tank

EXECUTIVE SUMMARY

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

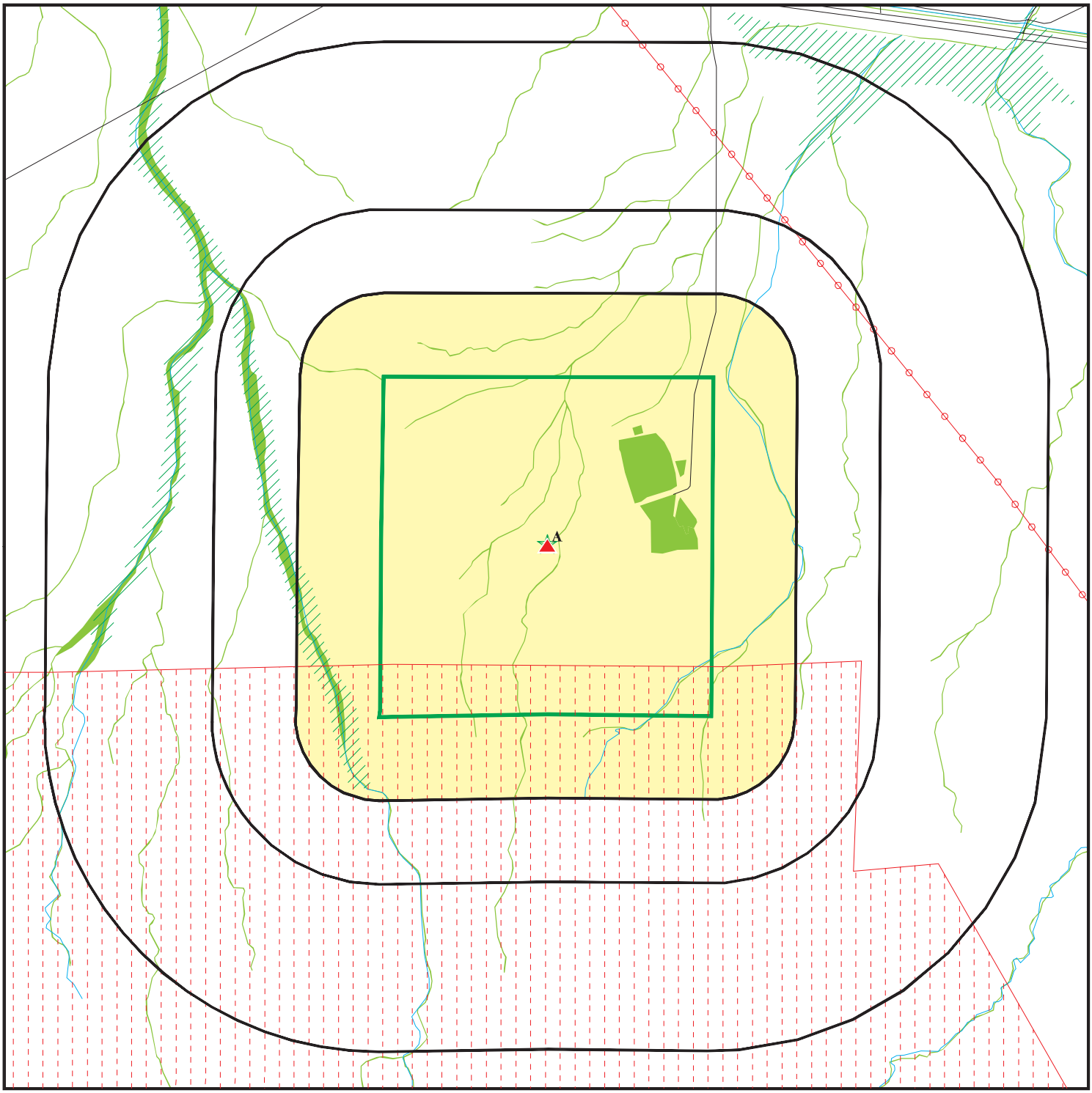
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EL CENTRO NAVAL AUXI		0 - 1/8 (0.000 mi.)	0	20

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
TORRES MARTINEZ PESTICIDE SITE	SEMS
BRAWLEY DRUM SITE	SEMS-ARCHIVE

OVERVIEW MAP - 5990802.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 3301 W HWY 86 HWY	CLIENT: Ninyo & Moore
ADDRESS: 3301 W HWY 86 HWY Thermal CA 92274	CONTACT: Adrian Olivares INQUIRY #: 5990802.2s
LAT/LONG: 33.082317 / 115.830648	DATE: March 02, 2020 9:35 am

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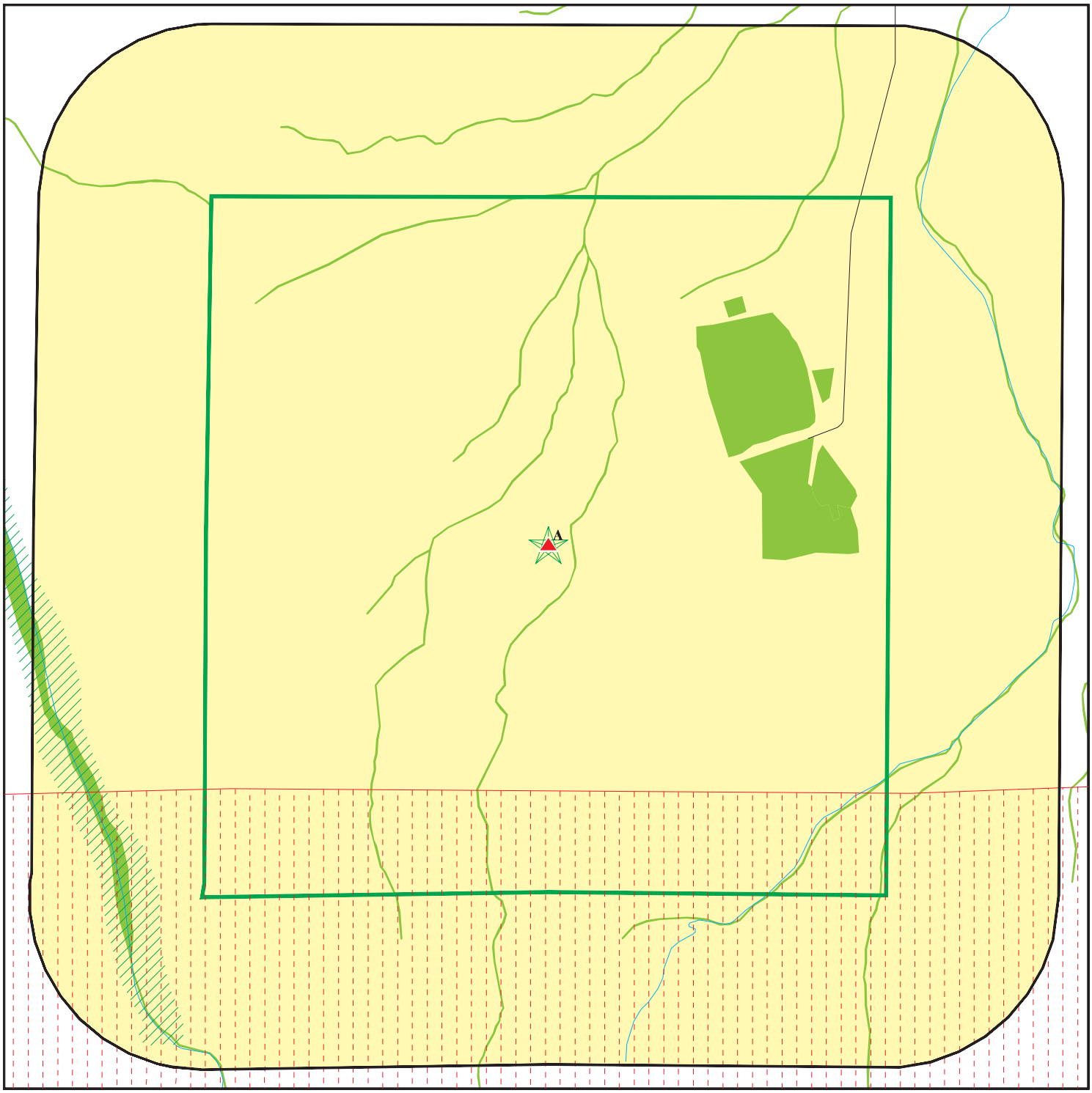
DETAIL MAP - 5990802.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA
Special Flood Hazard Area (1%)
0.2% Annual Chance Flood Hazard
National Wetland Inventory
State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 3301 W HWY 86 HWY	CLIENT: Ninyo & Moore
ADDRESS: 3301 W HWY 86 HWY Thermal CA 92274	CONTACT: Adrian Olivares INQUIRY #: 5990802.2s
LAT/LONG: 33.082317 / 115.830648	DATE: March 02, 2020 9:36 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP	1	NR	NR	NR	NR	NR	1
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500	1	0	0	0	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP	1	NR	NR	NR	NR	NR	1
LDS	TP	1	NR	NR	NR	NR	NR	1
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		1	0	0	0	NR	1
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	2	NR	NR	NR	NR	NR	2
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP	1	NR	NR	NR	NR	NR	1
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP	1	NR	NR	NR	NR	NR	1
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP	1	NR	NR	NR	NR	NR	1
CERS	TP	2	NR	NR	NR	NR	NR	2
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
HWTS	TP	1	NR	NR	NR	NR	NR	1
MINES MRDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		12	1	0	0	0	0	13

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **DESERT VLY MONOFILL 03-075** **FINDS** **1023219149**
Target **3301 WEST HWY 86** **N/A**
Property **BRAWLEY, CA 92227**

Site 1 of 10 in cluster A

Actual: FINDS:
-81 ft.

Registry ID: 110065052294

Environmental Interest/Information System
STATE MASTER

Click this hyperlink while viewing on your computer to access
additional FINDS: detail in the EDR Site Report.

A2 **DESERT VLY MONOFILL 98-024** **FINDS** **1023228271**
Target **3301 WEST HWY 86** **N/A**
Property **BRAWLEY, CA 92227**

Site 2 of 10 in cluster A

Actual: FINDS:
-81 ft.

Registry ID: 110065151659

Environmental Interest/Information System
STATE MASTER

Click this hyperlink while viewing on your computer to access
additional FINDS: detail in the EDR Site Report.

A3 **ERNS** **2018218008**
Target **3301 WEST HWY 86** **N/A**
Property **BRAWLEY, CA**

Site 3 of 10 in cluster A

Actual: Incident Commons:
-81 ft.

NRC Report #:	1218008
Description of Incident:	CALLER STATED THAT 30920 POUNDS OF FILTER CAKE (RESIDUE FROM GEOTHERMAL BRINE/MINING WASTE) WAS RELEASED ONTO THE GROUND AT A LANDFILL. MATERIAL WAS MISTAKENLY TRANSPORTED TO A NON HAZARDOUS MATERIAL LANDFILL WHEN IT SHOULD HAVE BEEN TRANSPORTED TO A HAZARDOUS MATERIAL LANDFILL.
Type of Incident:	MOBILE
Incident Cause:	UNKNOWN
Incident Date Time:	2018-07-10 17:00:00
Incident DTG:	OCCURRED
Incident Location:	Not reported
Loaction Address:	3301 WEST HWY 86
Location Street 1:	Not reported
Location Street 2:	Not reported
Location Nearest City:	BRAWLEY
Location State:	CA
Location County:	IMPERIAL
Location Zip:	Not reported
Distance From City:	Not reported

(Continued) **2018218008**

Distance Units:	Not reported
Direction From City:	Not reported
Lat Deg:	Not reported
Lat Min:	Not reported
Lat Sec:	Not reported
Lat Quad:	Not reported
Long Deg:	Not reported
Long Min:	Not reported
Long Sec:	Not reported
Long Quad:	Not reported
Location Section:	Not reported
Location Township:	Not reported
Location range:	Not reported
Potential Range:	N

Incidents:

NRC Report #:	1218008
Aircraft Type:	Not reported
Aircraft Model:	Not reported
Aircraft ID:	Not reported
Aircraft Fuel Capacity:	Not reported
Aircraft Fuel Capacity Units:	Not reported
Aircraft Fuel on Board:	Not reported
Aircraft Fuel on Board Units:	Not reported
Aircraft Spot Number:	Not reported
Aircraft Hanger:	Not reported
Aircraft Runway Number:	Not reported
Road Mile Marker:	Not reported
Building ID:	Not reported
Type of Fixed Object:	Not reported
Power Generating Facility:	U
Generating Capacity:	Not reported
Type of Fuel:	Not reported
NPDES:	Not reported
NPDES Compliance:	U
Pipeline Type:	Not reported
DOT Regulated:	U
Pipeline Above Ground:	ABOVE
Exposed Underwater:	N
Pipeline Covered:	U
Railroad Hotline:	Not reported
Grade Crossing:	U
Location Subdivision:	Not reported
Railroad Milepost:	Not reported
Type Vehicle Involved:	Not reported
Crossing Device Type:	Not reported
Device Operational:	U
DOT Crossing Number:	Not reported
Brake Failure:	U
Description of Tank:	Not reported
Tank Above Ground:	ABOVE
Transportable Container:	U
Tank Regulated:	U
Tank Regulated By:	Not reported
Tank ID:	Not reported
Capacity of Tank:	Not reported
Capacity of Tank Units:	Not reported
Actual Amount:	Not reported

(Continued) **2018218008**

Actual Amount Units:	Not reported
Platform Rig Name:	Not reported
Platform Letter:	Not reported
Location Area ID:	Not reported
Location Block ID:	Not reported
OCSG Number:	Not reported
OCSP Number:	Not reported
State Lease Number:	Not reported
Pier Dock Number:	Not reported
Berth Slip Number:	Not reported
Continuous Release Type:	Not reported
Initial Continuous Release No:	Not reported
Continuous Release Permit:	Not reported
Allision:	U
Type of Structure:	Not reported
Structure Name:	Not reported
Structure Operational:	U
Airbag Deployed:	U
Date Tiem Normal Service:	Not reported
Service Disruption Time:	Not reported
Service Disruption Units:	Not reported
Transit Bus Flag:	Not reported
CR Begin Date:	Not reported
CR End Date:	Not reported
CR Change Date:	Not reported
FBI Contact:	Not reported
FBI Contact Date Time:	Not reported
Sub Part C Testing Req:	XXX
Conductor Testing:	Not reported
Engineer Testing:	Not reported
Trainman Testing:	Not reported
Yard Foreman Testing:	Not reported
RCL Operator Testing:	Not reported
Brakeman Testing:	Not reported
Train Dispatcher Testing:	Not reported
Signalman Testing:	Not reported
Other Employee Testing:	Not reported
Unknown Testing:	Not reported
Passenger Handling:	Not reported
Passenger Route:	XXX
Passenger Delay:	XXX

Incident Details:

NRC Report #:	1218008
Fire Involved:	N
Fire Extinguished:	U
Any Evacuations:	N
Number Evacuated:	Not reported
Who Evacuated:	Not reported
Radius of Evacuation:	Not reported
Any Injuries:	N
Number Injured:	Not reported
Number Hospitalized:	Not reported
Any Fatalities:	N
Number Fatalities:	Not reported
Any Damages:	N
Damage Amount:	Not reported

(Continued) **2018218008**

Air Corridor Closed:	N
Air Corridor Desc:	Not reported
Air Closure Time:	Not reported
Waterway Closed:	N
Waterway Desc:	Not reported
Waterway Closure Time:	Not reported
Road Closed:	N
Road Desc:	Not reported
Road Closure Time:	Not reported
Closure Direction:	Not reported
Major Artery:	N
Track Closed:	N
Track Desc:	Not reported
Track Closure Time:	Not reported
Media Interest:	UNKNOWN
Medium Desc:	LAND
Additional Medium Info:	LANDFILL
Body of Water:	Not reported
Tributary of:	Not reported
Release Secured:	Y
Estimated Duration of Release:	Not reported
Release rate:	Not reported
Desc Remedial Action:	RECOVERY OF MATERIAL UNDERWAY
State Agency on Scene:	Not reported
State Agency Report Number:	18-4574
Other Agency Notified:	Not reported
Weather Conditions:	Not reported
Air Temperature:	Not reported
Wind Speed:	Not reported
Wind Direction:	Not reported
Water Supply Contaminated:	U
Sheen Size:	Not reported
Sheen Color:	Not reported
Direction of Sheen Travel:	Not reported
Sheen Odor Description:	Not reported
Wave Condition:	Not reported
Current Speed:	Not reported
Current Direction:	Not reported
Water Temperature:	Not reported
Track Close Dir:	Not reported
Empl Fatality:	Not reported
Pass Fatality:	Not reported
Community Impact:	Not reported
Wind Speed Unit:	Not reported
Employee Injuries:	Not reported
Passenger Injuries:	Not reported
Occupant Fatality:	Not reported
Current Speed Unit:	Not reported
Road Closure Units:	Not reported
Track CLosure Units:	Not reported
Sheen Size Units:	Not reported
Additional Info:	Not reported
State Agency Notified:	CA OES, IMPERIAL CO
Federal Agency Notified:	Not reported
nearest River Mile Marker:	Not reported
Sheen Size Length:	Not reported
Sheen Size Length Units:	Not reported

(Continued) **2018218008**

Sheen Size Width:	Not reported
Sheen Size Width Units:	Not reported
Offshore:	N
Duration Unit:	Not reported
Release Rate Unit:	Not reported
Release Rate Rate:	Not reported
Passengers Transferred:	NO

Mobile Detail:

NRC Report #:	1218008
Vehicle Number:	1363
Trailer Number:	Not reported
Vehicle Own Fuel Capacity:	Not reported
Cargo Capacity:	Not reported
Amount of Cargo on Board:	Not reported
Hazmat Carrier:	U
Carrier Licensed:	U
Noncompliance With Hazmat:	U
Mobile Type:	DUMP TRUCK
Cargo Capacity Units:	Not reported
Amount of Cargo on Board Units:	Not reported
Vehicle Year:	Not reported
Vehicle Make:	Not reported
Vehicle Model:	Not reported

Calls:

NRC Report #:	1218008
Site ID:	20181218008
Date Time Received:	2018-07-11 11:37:12
Date Time Complete:	2018-07-11 11:50:09
Call Type:	INC
Responsible Company:	CAL ENERGY
Responsible Org Type:	PRIVATE ENTERPRISE
Responsible City:	CALIPATRIA
Responsible State:	CA
Responsible Zip:	Not reported
On Behalf:	Not reported
Source:	TELEPHONE

Material Involved:

NRC Report #:	1218008
Chris Code:	NCC
Case Number:	000000-00-0
UN Number:	Not reported
Amount of Material:	30920
Unit of Measure:	POUND(S)
Name of Material:	FILTER CAKE (RESIDUE FROM GEOTHERMAL BRINE/MINING WASTE)
If Reached Water:	NO
Amount in Water:	Not reported
Unit of Measure Reach Water:	Not reported

A4 **DESERT VALLEY MONOFILL** **SWF/LF** **S102360232**
Target **3301 WEST HWY 86** **LDS** **N/A**
Property **BRAWLEY, CA 92227** **Financial Assurance**

Site 4 of 10 in cluster A

Actual:
-81 ft.

SWF/LF (SWIS):

Name:	MONOFILL FACILITY
Address:	3301 WEST HIGHWAY 86
City,State,Zip:	BRAWLEY, CA
Facility ID:	13-AA-0022
Lat/Long:	33.08472 / -115.82444
Owner Name:	Desert Valley Co.
Owner Telephone:	7603484096
Owner Address:	Cal Energy - Desert Valley Co
Owner Address2:	7030 Gentry Road
Owner City,St,Zip:	Calipatria, CA 92233
Operational Status:	Active
Operator:	Desert Valley Co.
Operator Phone:	7603484096
Operator Address:	Cal Energy - Desert Valley Co
Operator Address2:	7030 Gentry Road
Operator City,St,Zip:	Calipatria, CA 92233
Permit Date:	09/14/2010
Permit Status:	Permitted
Permitted Acreage:	$181.50
Activity:	Solid Waste Landfill
Regulation Status:	Permitted
Landuse Name:	Not reported
GIS Source:	GPS
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Industrial
Closure Date:	01/31/2025
Closure Type:	Estimated
Disposal Acreage:	$28.90
SWIS Num:	13-AA-0022
Waste Discharge Requirement Num:	II
Program Type:	BOE Reporting Disposal Facility,Financial Assurance Responsibilities
Permitted Throughput with Units:	750
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	1729800
Remaining Capacity:	1058252
Remaining Capacity with Units:	Cubic Yards
Lat/Long:	33.08472 / -115.82444

LDS:

Name:	DESERT VALLEY MONOFILL
Address:	3301 WEST HWY 86
City,State,Zip:	BRAWLEY, CA 92227
Global Id:	L10003472657
Latitude:	33.08448
Longitude:	-115.8243
Case Type:	Land Disposal Site
Status:	Open
Status Date:	01/01/1965
Lead Agency:	COLORADO RIVER BASIN RWQCB (REGION 7)

DESERT VALLEY MONOFILL (Continued) **S102360232**

Caseworker:	ZO
Local Agency:	Not reported
RB Case Number:	7A132197001
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Not reported
EDR Link ID:	L10003472657
Potential Contaminants of Concern:	Not reported
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

CA Financial Assurance 2:

Name:	MONOFILL FACILITY
Address:	3301 WEST HIGHWAY 86
City,State,Zip:	BRAWLEY, CA
Region:	2
SWIS_NO:	13-AA-0022
Closure Approved:	Yes
Closure Inf Coverage Date:	05/05/2016
Closure Plan Coverage:	5576736
Closure Plan Date:	03/01/2015
PostClose Approved:	Yes
PostClose Adequacy Date:	03/01/2015
PostClose Inf Coverage:	2880439
PostClose Inf Coverage Date:	05/05/2016
CorActCoverage:	281790
CorActApproved:	Yes
CorAct Mec Adequacy Date:	Not reported
CorAct Inf Coverage:	281790
CorActPlanCoverage:	0
CorAct Plan Date:	Not reported
Lia Coverage:	2500000
Lia Approved:	Yes
Review:	12/08/2016
Closure Mechanism A:	SURETY BOND
Closure Mechanism B:	Not reported
Closure Coverage:	5632503
Closure Adequacy:	Not reported
Closure Inflation Estimate:	5632503
Post Closure Mechanism A:	SURETY BOND
Post Closure Established A:	07/23/2001
Post Closure Mechanism B:	Not reported
Post Closure Coverate:	2880439
Post Closure Adequacy:	Not reported
Corrective Action Extablished A:	11/04/2002
Corrective Actiont Coverage:	281790
Corrective Action Approved:	Yes
Corrective Action Inflation Estimate:	281790
Corrective Action Inflationdate:	05/05/2016
Corrective Action Plan Estimate:	0
Liability Mechanism A:	INSURANCE
Liability Established A:	08/28/2016
Liability Mechanism B:	Not reported
CostAnniversary:	05/05/2016
ClosureEstablishedA:	07/23/2001

DESERT VALLEY MONOFILL (Continued) **S102360232**

ClosureEstablishedB:	Not reported
ClosureDisbursement:	0
PostClosureEstablishedB:	Not reported
PostClosureDisbursement:	0
CorrectiveActionMechanismA:	SURETY BOND
CorrectiveActionMechanismB:	Not reported
CorrectiveActionExtablishedB:	Not reported
CorrectiveActiontDisbursement:	0
LiabilityEstabllishedB:	Not reported
LiabilityAdequacy:	Not reported
Responsible Party:	St. Paul Fire and Marine Insurance Co
Provider:	Desert Valley Co.
Contact:	Not reported

A5 **DVC CELL 1 & 2 CLOSURE** **CIWQS** **S121635321**
Target **3301 W HWY 86** **N/A**
Property **BRAWLEY, CA 92227**

Site 5 of 10 in cluster A

Actual:
-81 ft.

CIWQS:

Name:	DVC CELL 1 & 2 CLOSURE
Address:	3301 W HWY 86
City,State,Zip:	BRAWLEY, CA 92227
Agency:	Desert Valley Co
Agency Address:	7030 Gentry Rd, Calipatria, CA 92233
Place/Project Type:	Construction - Industrial
SIC/NAICS:	Not reported
Region:	7
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	99-08DW
WDID:	7 13C349109
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	09/28/2007
Termination Date:	08/14/2008
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33
Longitude:	Error

A6 **REPAVING OF ACCESS ROAD AT DVC** **NPDES** **S122248982**
Target Property **3301 W HWY 86** **N/A**
BRAWLEY, CA 92227

Site 6 of 10 in cluster A

Actual: NPDES:
-81 ft.

Name:	REPAVING OF ACCESS ROAD AT DVC
Address:	3301 W HWY 86
City,State,Zip:	BRAWLEY, CA 92227
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	7 13W001534
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Expired
Status Date:	04/30/2014
Operator Name:	CalEnergy Operating Co
Operator Address:	7030 Gentry Rd
Operator City:	Calipatria
Operator State:	California
Operator Zip:	92233

A7 **CHMIRS** **S123297759**
Target Property **DESERT VALLEY COMPANY LANDFILL, 3301 HWY 86** **N/A**
BRAWLEY, CA

Site 7 of 10 in cluster A

Actual: CHMIRS:
-81 ft.

Name:	Not reported
Address:	DESERT VALLEY COMPANY LANDFILL, 3301 HWY 86
City,State,Zip:	BRAWLEY, CA
OES Incident Number:	18-4574
OES notification:	07/11/2018
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported

(Continued) **S123297759**

More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Other
Cleanup By:	Responsible Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Type:	OTHER
Measure:	Ton(s)
Other:	mining waste, geothermal energy production
Date/Time:	1700
Year:	2018
Agency:	CalEnergy
Incident Date:	07/10/2018
Admin Agency:	Imperial County Health Services Department
Amount:	Not reported
Contained:	Contained
Site Type:	Not reported
E Date:	Not reported
Substance:	Filter Cake, solid material, mining waste, geothermal energy production
Quantity Released:	15.5
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	No
#2 Pipeline:	No
#3 Pipeline:	No
#1 Vessel >= 300 Tons:	No
#2 Vessel >= 300 Tons:	No
#3 Vessel >= 300 Tons:	No
Evacs:	No
Injuries:	No
Fatals:	No
Comments:	Not reported
Description:	Caller states a load of 15.5 tons of Filter Cake

(Continued) **S123297759**

was accidentally delivered to the Desert Valley Company Landfill. Due to this load being delivered to the wrong facility, new testing was performed and was determined to be hazardous therefore the load is in the process of being removed. No waterways impacted.

A8 **DESERT VALLEY MONOFILL** **CERS** **S123505696**
Target **3301 WEST HWY 86** **N/A**
Property **BRAWLEY, CA 92227**

Site 8 of 10 in cluster A

Actual: **-81 ft.**

CERS:

Name:	DESERT VALLEY MONOFILL
Address:	3301 WEST HWY 86
City,State,Zip:	BRAWLEY, CA 92227
Site ID:	241489
CERS ID:	L10003472657
CERS Description:	Land Disposal Site

Affiliation:

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	ZAKARY OWENS - COLORADO RIVER BASIN RWQCB (REGION 7)
Entity Title:	Not reported
Affiliation Address:	73-720 FRED WARING DR. STE 100
Affiliation City:	PALM DESERT
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

A9 **MONOFILL FACILITY** **CERS** **S123530653**
Target **3301 WEST HIGHWAY 86** **N/A**
Property **BRAWLEY, CA**

Site 9 of 10 in cluster A

Actual: **-81 ft.**

CERS:

Name:	MONOFILL FACILITY
Address:	3301 WEST HIGHWAY 86
City,State,Zip:	BRAWLEY, CA
Site ID:	510274
CERS ID:	13-AA-0022
CERS Description:	Solid Waste and Recycle Sites

Affiliation:

Affiliation Type Desc:	Legal Operator
Entity Name:	Desert Valley Co.
Entity Title:	Not reported
Affiliation Address:	Cal Energy - Desert Valley Co7030 Gentry Road
Affiliation City:	Calipatria
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92233
Affiliation Phone:	7603484096

MONOFILL FACILITY (Continued) **S123530653**

Affiliation Type Desc:	Legal Owner
Entity Name:	Desert Valley Co.
Entity Title:	Not reported
Affiliation Address:	Cal Energy - Desert Valley Co7030 Gentry Road
Affiliation City:	Calipatria
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92233
Affiliation Phone:	7603484096

A10 **MCLAUGHLIN ENGINEERING & MINING INC** **HWTS** **S124595262**
Target **3301 W HWY 86** **N/A**
Property **BRAWLEY, CA 92227**

Site 10 of 10 in cluster A

Actual: **-81 ft.**

HWTS:

Name:	MCLAUGHLIN ENGINEERING & MINING INC
Address:	3301 W HWY 86
Address 2:	Not reported
City,State,Zip:	BRAWLEY, CA 92227
EPA ID:	CAC002624596
Inactive Date:	06/03/2008
Create Date:	12/05/2007
Last Act Date:	06/11/2008
Mailing Name:	Not reported
Mailing Address:	PO BOX 892347
Mailing Address 2:	Not reported
Mailing City,State,Zip:	TEMECULA, CA 92589
Owner Name:	MCLAUGHLIN ENG & MINING INC
Owner Address:	41934 MAIN ST STE 107
Owner Address 2:	Not reported
Owner City,State,Zip:	TEMECULA, CA 925902714
Contact Name:	SCOTT PERKINS
Contact Address:	PO BOX 892347
Contact Address 2:	Not reported
City,State,Zip:	TEMECULA, CA 92589

DOD **EL CENTRO NAVAL AUXILIARY AIR STATION** **DOD** **CUSA145017**
Region **N/A**

EL CENTRO NAVAL AUXILIARY (County), CA

< 1/8
1 ft.

DOD:

Feature 1:	Navy DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	El Centro Naval Auxiliary Air Station
Name 2:	Not reported
Name 3:	Not reported
State:	CA
DOD Site:	Yes
Tile name:	CAIMPERIAL

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRAWLEY	1003879057	BRAWLEY DRUM SITE	ST HWY 111 NEXT/4705 HWY 111	92227	SEMS-ARCHIVE
THERMAL	1015730669	TORRES MARTINEZ PESTICIDE SITE	EAST OF OF HWY 195 AND 68TH ST	92274	SEMS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: N/A
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: N/A
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: N/A
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/04/2019
Date Data Arrived at EDR: 11/13/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 76

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/10/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/22/2019
Date Data Arrived at EDR: 11/22/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/20/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/22/2019
Date Data Arrived at EDR: 11/22/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/20/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/09/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 14

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/28/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/07/2020
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/28/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/28/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/07/2020
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/28/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/11/2019
Date Data Arrived at EDR: 11/12/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 57

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/11/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 66

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/04/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/27/2020
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/02/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/15/2019
Date Data Arrived at EDR: 12/17/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 55
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/10/2019
Date Data Arrived at EDR: 12/05/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 67
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/11/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 72
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 08/27/2019
Date Data Arrived at EDR: 08/28/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 75
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/21/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 12/06/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/25/2020
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 73

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/11/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/11/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/10/2019
Date Data Arrived at EDR: 12/05/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 67

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/02/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/11/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 68

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 72

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/04/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/27/2020
Number of Days to Update: 85

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/28/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/07/2020
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/28/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/18/2019
Date Data Arrived at EDR: 12/19/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 62

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/16/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 11/15/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 69

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/27/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/28/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/07/2020
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/28/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 09/24/2019
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/21/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 72

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/22/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/19/2019
Date Data Arrived at EDR: 12/23/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 60

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/11/2019
Number of Days to Update: 70

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/21/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/03/2020
Number of Days to Update: 73

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/22/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/05/2019
Date Data Arrived at EDR: 12/06/2019
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 70

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/06/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/15/2019
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 58

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/22/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 66

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/16/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 4

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 11/12/2019
Date Data Arrived at EDR: 11/19/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 70

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/19/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/10/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/09/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/13/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/16/2019
Date Data Arrived at EDR: 12/19/2019
Date Made Active in Reports: 02/27/2020
Number of Days to Update: 70

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 11/21/2019
Number of Days to Update: 370

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 10/23/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 84

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/21/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/06/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 8
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/06/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 70
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/10/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 10/25/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 82
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/21/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 42
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 78

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/28/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2019
Date Data Arrived at EDR: 10/09/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 72

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 02/14/2020
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 02/05/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/06/2019
Date Data Arrived at EDR: 11/25/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 64

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/25/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 12/03/2019
Date Data Arrived at EDR: 12/03/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 56
Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 12/02/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49
Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/28/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97
Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/28/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/11/2019
Date Made Active in Reports: 02/27/2020
Number of Days to Update: 78
Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/12/2019
Date Data Arrived at EDR: 09/04/2019
Date Made Active in Reports: 12/03/2019
Number of Days to Update: 90
Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 10/06/2019
Date Data Arrived at EDR: 10/08/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 86
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/13/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/19/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 70
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/19/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/18/2019
Date Data Arrived at EDR: 12/20/2019
Date Made Active in Reports: 02/20/2020
Number of Days to Update: 62
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 10/31/2019
Date Data Arrived at EDR: 11/01/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 40

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 09/27/2019
Date Data Arrived at EDR: 10/01/2019
Date Made Active in Reports: 11/07/2019
Number of Days to Update: 37

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/06/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/12/2019
Number of Days to Update: 62

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/03/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 63

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 59

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 03/29/2020
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/22/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 66

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/22/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/17/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/08/2019
Date Data Arrived at EDR: 11/12/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 57

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 54

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/19/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 65

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/19/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/19/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/19/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/07/2019
Date Data Arrived at EDR: 10/08/2019
Date Made Active in Reports: 11/07/2019
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/24/2020
Number of Days to Update: 76
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/22/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/11/2019
Date Data Arrived at EDR: 11/12/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 57
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/11/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 71
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/11/2019
Date Data Arrived at EDR: 12/12/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 71
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/11/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 12/06/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 71
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/19/2020
Number of Days to Update: 71
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 12/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/21/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/03/2020
Number of Days to Update: 73
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/22/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/18/2020
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3
Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/28/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
The Hazardous Waste Tracking System (HWTS) is the Department of Toxic Substances Control?s data repository for hazardous waste Identification (ID) numbers and manifest information. HWTS generates reports on hazardous waste shipments for generators, transporters, and TSDFs.

Date of Government Version: 10/15/2019
Date Data Arrived at EDR: 11/14/2019
Date Made Active in Reports: 02/07/2020
Number of Days to Update: 85
Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 10/02/2019
Date Data Arrived at EDR: 10/03/2019
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 34

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 09/06/2019
Date Data Arrived at EDR: 09/10/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 51

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/03/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 63

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/03/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/27/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 10/11/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 43

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 09/06/2019
Date Data Arrived at EDR: 09/12/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 49

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/08/2019
Date Data Arrived at EDR: 10/10/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 62

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/03/2020
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/13/2019
Date Data Arrived at EDR: 11/14/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 70

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/18/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/17/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 72

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/13/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 10/28/2019
Date Data Arrived at EDR: 11/05/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 64

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/25/2019
Date Data Arrived at EDR: 12/05/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 61

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/13/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List

Cupa facility list

Date of Government Version: 08/16/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 10/18/2019
Number of Days to Update: 59

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/08/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List

Cupa facility list

Date of Government Version: 07/22/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/11/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/15/2020
Date Data Arrived at EDR: 01/16/2020
Date Made Active in Reports: 02/07/2020
Number of Days to Update: 22

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/15/2019
Date Data Arrived at EDR: 10/16/2019
Date Made Active in Reports: 12/12/2019
Number of Days to Update: 57

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/14/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/13/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/20/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 10/29/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 71
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/14/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/13/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/27/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 64
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/20/2019
Date Made Active in Reports: 01/27/2020
Number of Days to Update: 68
Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29
Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/20/2019
Date Made Active in Reports: 01/03/2020
Number of Days to Update: 44

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/13/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 11/20/2019
Date Data Arrived at EDR: 12/02/2019
Date Made Active in Reports: 02/07/2020
Number of Days to Update: 67

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 11/06/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 62

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/30/2019
Date Data Arrived at EDR: 10/30/2019
Date Made Active in Reports: 12/11/2019
Number of Days to Update: 42

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/24/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 10/04/2019
Date Data Arrived at EDR: 12/02/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 64

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/03/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 10/04/2019
Date Data Arrived at EDR: 12/02/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 64

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/03/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 10/04/2019
Date Data Arrived at EDR: 11/05/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 64

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/04/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/03/2019
Date Made Active in Reports: 02/07/2020
Number of Days to Update: 66

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/17/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 12/13/2019
Number of Days to Update: 52
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 02/10/2020
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/17/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/03/2020
Number of Days to Update: 73
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 02/10/2020
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/14/2019
Date Data Arrived at EDR: 12/23/2019
Date Made Active in Reports: 02/20/2020
Number of Days to Update: 59
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/23/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/14/2019
Date Data Arrived at EDR: 12/23/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 60
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/23/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 11/14/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 69
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/26/2019
Date Data Arrived at EDR: 11/27/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 69

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/03/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 12/03/2019
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 62

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/04/2019
Next Scheduled EDR Contact: 03/16/2020
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 10/16/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 12/13/2019
Number of Days to Update: 52

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 08/01/2019
Date Data Arrived at EDR: 08/02/2019
Date Made Active in Reports: 10/08/2019
Number of Days to Update: 67

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/11/2019
Next Scheduled EDR Contact: 03/30/2020
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 12/12/2019
Date Data Arrived at EDR: 12/13/2019
Date Made Active in Reports: 02/20/2020
Number of Days to Update: 69

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 09/03/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 11/05/2019
Number of Days to Update: 57

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 02/20/2020
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/05/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 11/18/2019
Date Data Arrived at EDR: 11/19/2019
Date Made Active in Reports: 01/23/2020
Number of Days to Update: 65

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/21/2020
Next Scheduled EDR Contact: 06/08/2020
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 10/30/2019
Date Data Arrived at EDR: 11/01/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 68

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/13/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/14/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/09/2019
Date Data Arrived at EDR: 12/11/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 72

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 06/18/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 29

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 01/07/2020
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/01/2019
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 11/07/2019
Number of Days to Update: 36

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/17/2019
Next Scheduled EDR Contact: 04/06/2020
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2019
Date Data Arrived at EDR: 11/07/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 62

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/13/2020
Next Scheduled EDR Contact: 04/27/2020
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2019
Date Data Arrived at EDR: 12/03/2019
Date Made Active in Reports: 02/07/2020
Number of Days to Update: 66

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/27/2020
Next Scheduled EDR Contact: 06/15/2020
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/23/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/17/2019
Date Data Arrived at EDR: 10/22/2019
Date Made Active in Reports: 01/02/2020
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 11/25/2019
Date Data Arrived at EDR: 11/27/2019
Date Made Active in Reports: 02/04/2020
Number of Days to Update: 69

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 02/03/2020
Next Scheduled EDR Contact: 05/18/2020
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/17/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 63

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/21/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2019
Date Data Arrived at EDR: 10/23/2019
Date Made Active in Reports: 12/13/2019
Number of Days to Update: 51

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/21/2020
Next Scheduled EDR Contact: 05/04/2020
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/26/2019
Date Data Arrived at EDR: 12/10/2019
Date Made Active in Reports: 02/21/2020
Number of Days to Update: 73

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/10/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/25/2019
Date Data Arrived at EDR: 10/01/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 30

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/19/2019
Next Scheduled EDR Contact: 04/13/2020
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 11/04/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 01/08/2020
Number of Days to Update: 63

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 02/07/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/14/2019
Date Data Arrived at EDR: 12/05/2019
Date Made Active in Reports: 02/03/2020
Number of Days to Update: 60

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 01/30/2020
Next Scheduled EDR Contact: 05/25/2020
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/06/2020
Next Scheduled EDR Contact: 04/20/2020
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/21/2019
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/31/2020
Next Scheduled EDR Contact: 05/11/2020
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/14/2020
Next Scheduled EDR Contact: 04/07/2020
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/18/2020
Next Scheduled EDR Contact: 06/01/2020
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/18/2019
Next Scheduled EDR Contact: 03/23/2020
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

3301 W HWY 86 HWY
3301 W HWY 86 HWY
THERMAL, CA 92274

TARGET PROPERTY COORDINATES

Latitude (North):	33.082317 - 33° 4' 56.34''
Longitude (West):	115.830648 - 115° 49' 50.33''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	609139.9
UTM Y (Meters):	3660829.2
Elevation:	81 ft. below sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640294 KANE SPRING, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

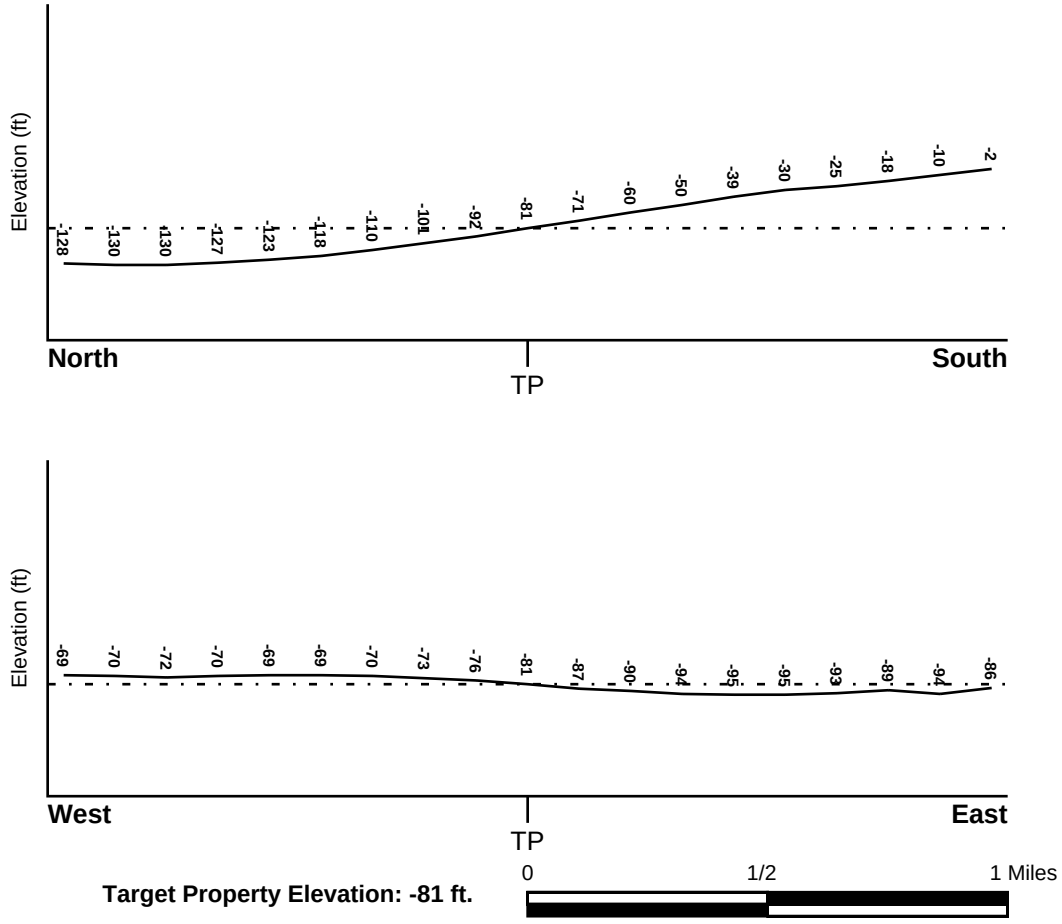
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06025C0975C	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
KANE SPRING	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	MELOLAND
Soil Surface Texture:	very fine sandy loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	HIGH
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	12 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 8.40 Min: 7.40
2	12 inches	26 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 8.40 Min: 7.40
3	26 inches	71 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.20 Min: 0.06	Max: 8.40 Min: 7.40

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:
loam
loamy very fine sand
fine sandy loam
silty clay
fine sand
loamy fine sand

Surficial Soil Types:
loam
loamy very fine sand
fine sandy loam
silty clay
fine sand
loamy fine sand

Shallow Soil Types:
No Other Soil Types

Deeper Soil Types:
stratified
loamy fine sand
silty clay loam
loamy very fine sand
clay loam
sand

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

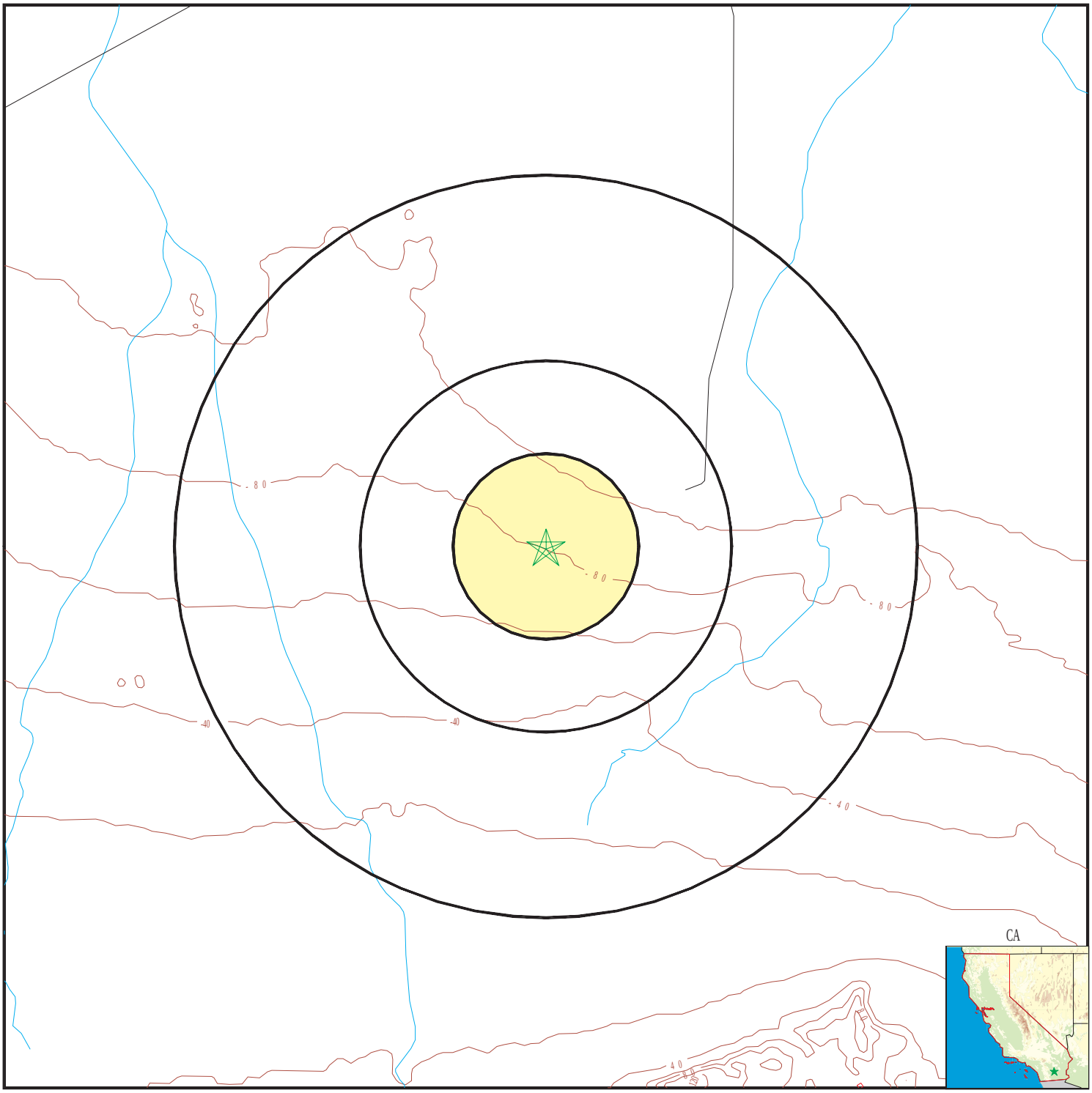
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5990802.2s



0 1/4 1/2 1 Miles

N

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	3301 W HWY 86 HWY	CLIENT:	Ninyo & Moore
ADDRESS:	3301 W HWY 86 HWY Thermal CA 92274	CONTACT:	Adrian Olivares
LAT/LONG:	33.082317 / 115.830648	INQUIRY #:	5990802.2s
		DATE:	March 02, 2020 9:36 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92274	1	0

Federal EPA Radon Zone for IMPERIAL County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for IMPERIAL COUNTY, CA

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.450 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D

Regulatory Documentation

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
Certified Unified Program Agency
DTSC IMPERIAL CUPA
627 WAKE AVENUE
EL CENTRO, CA 92243
(760)352-0381
Toll Free (866)357-3990

UNIFIED PROGRAM CERTIFICATE

Business Name:	CALENERGY OPERATING CORPORATION - DESERT VALLEY COMPANY (DVC)	Facility ID:	FA0000598
Site Address:	3301 W HIGHWAY 86 BRAWLEY, CA 92227	Issue Date:	03/05/2018
Mailing Address:	7030 GENTRY RD CALIPATRIA, CA 92233	From:	03/01/2018
Owner:	CALENERGY OPERATING CORPORATION	To:	03/01/2019
		EPA ID No:	CAL000057678

The required fees of $922 were paid in full on 01/19/2018.

TO BE RENEWED ANNUALLY

The following Unified Program element(s) are covered.

PROGRAM ELEMENT	DESCRIPTION
Haz Waste	HAZ WASTE GENERATOR < 1TON
Business Plan	HAZARDOUS MATERIALS BUSINESS PLAN

- This certificate is issued based on the condition that the facility is in compliance with all applicable rules, regulations and laws pertaining to the Unified Program.

- YOU MAY CONTINUE TO OPERATE UNTIL 03/01/2019, CONTINGENT ON CONTINUED COMPLIANCE WITH ALL REQUIREMENTS FOR OPERATION.

DESERT VALLEY COMPANY
BUSINESS PLAN
(HMBP)

PART 1 – HMBP SUBMITTED ONLINE TO THE CERTIFIED UNIFIED PROGRAM AGENCY, FOR IMPERIAL VALLEY

PART II – INTERNAL HMBP SOP

December 2017 Revision

24

DESERT VALLEY COMPANY
BUSINESS PLAN
(HMBP)

PART 1 – HMBP SUBMITTED ONLINE TO THE CERTIFIED UNIFIED PROGRAM AGENCY, FOR IMPERIAL VALLEY

Part I – CERS ONLINE CONTENTS

PLAN PURPOSE TAB 1

BUSINESS ACTIVITIES INFORMATION TAB 2

BUSINESS OWNER IDENTIFICATION & REGULATORS TAB 3

CHEMICAL INVENTORY TAB 4

SITE MAP & EVACUATION PLAN TAB 5

EMERGENCY RESPONSE/CONTINGENCY PLANS TAB 6

EMPLOYEE TRAINING PLAN TAB 7

ABOVEGROUND STORAGE TANK STATUS TAB 8

PLAN PURPOSE -TAB 1

PLAN PURPOSE

The following document is a print-out of the official Hazardous Materials Business Plan (HMBP) for the Administration complex at CalEnergy. The online version is located in the California Environmental Reporting System at https://cersbusiness.calepa.ca.gov/22561/Facility/10121749/.

The online submittal is updated annually is keeping with the requirements of the Certified Unified Program Agency (CUPA) under Part 19 Section 2729 of the California Code of Regulations; which governs emergency planning requirements for businesses handling hazardous materials in excess of certain threshold quantities.

Internal procedures related to the online HMBP submittals are found in the facility's standard operating procedures for the HMBP. These internal procedures provide additional details that are not required to be submitted for the HMBP, but which help to clarify implementation steps. The internal SOP is the second tab of this document and it is located on the Environmental section of CalEnergy's Sharepoint server.

For questions regarding this emergency plan contact the Environmental Contact shown in the Business Owner/Operator Identification section (Tab2) of this plan.

(Note that this page is not included in the online submittal in CERS).

BUSINESS ACTIVITIES INFORMATION- TAB 2

Site Identification

CalEnergy Operating Corporation-Desert Valley Company(DVC)
3301 West Highway 86
Brawley, CA 92227
County
Imperial

CERS ID
10121743
EPA ID Number
CAL000057678

Submittal Status

Submitted on 4/26/2017 by *Marie DeYesso* of CalEnergy Operating Corporation-Desert Valley Company(DVC) (Brawley, CA)
Submittal was ***Accepted***; Processed on 4/30/2017 by *Raquel Fimbres* for Imperial CUPA - DTSC

Hazardous Materials

Does your facility have on site (for any purpose) at any one time, hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or is regulated under more restrictive inventory local reporting requirements (shown below if present); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	**Yes**

Underground Storage Tank(s) (UST)

Does your facility own or operate underground storage tanks?	**No**

Hazardous Waste

Is your facility a Hazardous Waste Generator?	**Yes**
Does your facility treat hazardous waste on-site?	**No**
Is your facility's treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	**No**
Does your facility consolidate hazardous waste generated at a remote site?	**No**
Does your facility need to report the closure/removal of a tank that was classified as hazardous waste and cleaned on-site?	**No**
Does your facility generate in any single calendar month 1,000 kilograms (kg) (2,200 pounds) or more of federal RCRA hazardous waste, or generate in any single calendar month, or accumulate at any time, 1 kg (2.2 pounds) of RCRA acute hazardous waste; or generate or accumulate at any time more than 100 kg (220 pounds) of spill cleanup materials contaminated with RCRA acute hazardous waste.	**No**
Is your facility a Household Hazardous Waste (HHW) Collection site?	**No**

Excluded and/or Exempted Materials

Does your facility recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	**No**
Does your facility own or operate ASTs above these thresholds? Store greater than 1,320 gallons of petroleum products (new or used) in aboveground tanks or containers.	**No**
Does your facility have Regulated Substances stored onsite in quantities greater than the threshold quantities established by the California Accidental Release prevention Program (CalARP)?	**No**

Additional Information

No additional comments provided.

BUSINESS OWNER/OPERATOR IDENTIFICATION & REGULATORS - TAB 3

Facility/Site

CalEnergy Operating Corporation-Desert Valley Company(DVC)
3301 West Highway 86
Brawley, CA 92227

CERS ID
10121743

Submittal Status

This was a ***Draft*** submittal as of 10/18/2017; Last updated by *Nicole White* on 10/18/2017 1:11 AM

Identification

CalEnergy Operating Corporation

Operator Phone	Business Phone	Business Fax
(760) 348-4200	(760) 348-4200	(760) 348-2714

Beginning Date	Ending Date	
Dun & Bradstreet	**SIC Code**	**Primary NAICS**
193000734	4953	221116

Facility/Site Mailing Address

3301 West Highway 86
Brawley, CA 92227

Primary Emergency Contact

Sam Rubin
Title
Site Supervisor

Business Phone	24-Hour Phone	Pager Number
(760) 351-1525	(760) 348-4255	N/A

Owner

CalEnergy Operating Corporation
(760) 348-4200
7030 Gentry Road
Calipatria, CA 92233

Secondary Emergency Contact

Lenie Sarion
Title
General Manager

Business Phone	24-Hour Phone	Pager Number
(760) 348-4261	(760) 348-4255	N/A

Billing Contact

CalEnergy Operating Corporation
(760) 348-4200 osvaldo.flores@calenergy.com
7030 Gentry Road
Calipatria, CA 92233

Environmental Contact

Anetha Lue
(760) 348-4200 anetha.lue@calenergy.com
7030 Gentry Road
7030 Gentry Road, CA 92233

Name of Signer	Signer Title	Document Preparer
Lenie Sarion	General Manager	Nicole White

Additional Information

Locally-collected Fields

Some or all of the following fields may be required by your local regulator(s).

Property Owner

CalEnergy Operating Corporation
Phone
(760) 348-4200
Mailing Address
7030 Gentry Road
7030 Gentry Road, CA 92233

Assessor Parcel Number (APN)

Number of Employees
220
Facility ID
13-000-0598

CHEMICAL INVENTORY- TAB 4

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
Facility Name **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
3301 West Highway 86, Brawley 92227

Chemical Location **DVC Map B-4**

CERS ID **10121743**
Facility ID **13-000-0598**
Status **Submitted** on 4/26/2017 11:36 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS CAS No.
DOT: 3 - Flammable and Combustible Liquids Flammable Liquid, Class I-B	**Misc Aerosols** CAS No N/A	**Cu. Feet** State: Liquid Type: Mixture	**24** Storage Container: Can Days on Site: 365	**0.5**	24 Pressue: > Ambient Temperature: Ambient	18 Waste Code: 211	- Fire - Pressure Release	Ethanol Acetone Butane Propane Titanium Dioxide	35 % 25 % 10 % 10 % 6 %	64-17-5 67-64-1 106-97-8 74-98-6 13463-67-7
	Soil Seal Concentrate CAS No N/A Map: B-4	**Gallons** State: Liquid Type: Mixture	**1000** Storage Container: Steel Drum Days on Site: 365	**55**	400 Pressue: Ambient Temperature: Ambient	0 Waste Code		Water Acrylic Polymer Ammonia	54 % 46 % 0 %	7732-18-5 N/A 7664-41-47

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. CalEnergy Operating Corporation-Desert Valley Company(DVC)
Facility Name CalEnergy Operating Corporation-Desert Valley Company(DVC)
3301 West Highway 86, Brawley 92227

Chemical Location DVC Map E-6, H-5

CERS ID 10121743
Facility ID 13-000-0598
Status **Submitted** on 4/26/2017 11:36 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No.
DOT: 9 - Misc. Hazardous Materials	**Drilling Mud**	**Tons**	**103500**	**300000**	103500	660		Bentonite	1 %		1302-78-9
	CAS No: N/A	State: Solid	Storage Container: Other		Pressue: Ambient	Waste Code: 521		Leonardite	0 %		N/A
		Type: Waste			Temperature: Ambient			Sodium Carbonate	0 %		497-19-8
								Sodium Hydroxide	0 %		1310-73+2
								Sodium Bicarbonate	0 %		144-19-8

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
Facility Name **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
3301 West Highway 86, Brawley 92227

Chemical Location **DVC Mao B-4**

CERS ID **10121743**
Facility ID **13-000-0598**
Status **Submitted** on 4/26/2017 11:36 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No.
DOT: 9 - Misc. Hazardous Materials	**Oil Contaminated Debris (Oil Contaminated Items)**	**Pounds**	**400**	**200**	200	400	- Fire	Petroleum Hydrocarbon	10 %		None

CAS No: N/A
State: Solid
Type: Waste
Storage Container: Steel Drum
Days on Site: 365
Pressue: Ambient
Temperature: Ambient
Waste Code: 223

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **CalEnergy Operating Corporation-Desert Valley Company(DVC)** Chemical Location CERS ID **10121743**

Facility Name **CalEnergy Operating Corporation-Desert Valley Company(DVC)** **DVC Map B-4** Facility ID **13-000-0598**

3301 West Highway 86, Brawley 92227 Status **Submitted** on 4/26/2017 11:36 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No.
	BlueDEF Diesel Exhaust Fluid	**Gallons**	**15**	**2.5**	10	0		water	68 %		7732-18-5
	CAS No 57-13-6	State: Liquid	Storage Container: Plastic Bottle or Jug		Pressue: Ambient	Waste Code		urea	33 %		57-13-6
		Type: Mixture	Days on Site: 365		Temperature: Ambient						
DOT: 3 - Flammable and Combustible Liquids	**Diesel Fuel No. 2**	**Gallons**	**1000**	**1000**	400	0	- Fire - Acute Health	Petroleum Hydrocarbon	100 %		68476-34-6
	CAS No 68476-34-6 Map: B-4	State: Liquid	Storage Container: Aboveground Tank		Pressue: Ambient	Waste Code 213		Biodiesel - Fatty acid methyl esters	5 %		67762-38-3
Combustible Liquid, Class II		Type: Mixture			Temperature: Ambient			Octane (All isomers)	2 %		111-65-9
								Fuels, diesel, C9-18-alkane branched and linear	5 %		1159170-26-9
								n-Nonane			111-84-2
DOT: 3 - Flammable and Combustible Liquids	**Gasoline (Unleaded)**	**Gallons**	**10**	**10**	10	40	- Fire - Chronic health	Gasoline	100 %		8006-61-9
	CAS No 8006-61-9	State: Liquid	Storage Container: Carboy		Pressue: Ambient	Waste Code 213		Toluene	10 %		108-88-3
Flammable Liquid, Class I-B, Other Health Hazard, Irritant		Type: Pure	Days on Site: 365		Temperature: Ambient			Ethyl Alcohol	10 %		64-17-5
								Trimethyl Benzene	7 %		25551-13-7
								Xylene	7 %		1330-20-7
DOT: 3 - Flammable and Combustible Liquids	**Oil**	**Gallons**	**15**	**10**	15	50	- Fire	VARIOUS LUBRICATING BASE OILS	85 %		6474X-XX-X
	CAS No N/A	State: Liquid	Storage Container: Carboy		Pressue: Ambient	Waste Code 221		ADDITIVE PACKAGE, INCLUDING	15 %		MIXTURE
Combustible Liquid, Class III-B		Type: Mixture	Days on Site: 365		Temperature: Ambient			ZINC ALKYLDITHIOPHOSPHATE	2 %		68649-42-3
DOT: 3 - Flammable and Combustible Liquids	**Used lubricating oils**	**Gallons**	**90**	**250**	10	50	- Fire	Used Oil	100 %		None
	CAS No 70514-12-4	State: Liquid	Storage Container: Aboveground Tank		Pressue: Ambient	Waste Code 221		Water	20 %		007732-18-5
Combustible Liquid, Class III-B		Type: Mixture	Days on Site: 365		Temperature: Ambient			Diesel	5 %		68476-34-6
								Gasoline	1 %		6474-46-4
								Solvent	1 %		6472-47-8

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
Facility Name **CalEnergy Operating Corporation-Desert Valley Company(DVC)**
3301 West Highway 86, Brawley 92227

Chemical Location **DVC Map E-6, E-7 ,H-5, J-5**

CERS ID **10121743**
Facility ID **13-000-0598**
Status **Submitted** on 4/26/2017 11:36 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only) Component Name	% Wt	EHS	CAS No.
DOT: 9 - Misc. Hazardous Materials	**Geothermal Filter Cake**	**Tons**	**2262480**	**1584000**	2262480	38252		Silicon	62 %		7440-21-3
	CAS No N/A	State Solid	Storage Container Other		Pressue Ambient	Waste Code		Iron	15 %		7439-89-6
		Type Waste	Days on Site: 365		Temperature Ambient			Barium	4 %		7440-39-3
								Calcium	3 %		7440-70-2
								Sodium	1 %		7440-23-5

		Chemical Identification					
201	201	205	207*	217	218*	219	
ChemicalLocation	**ChemicalLocation**	**ChemicalName**	**CommonName**	**AverageDailyAmount**	**MaximumDailyAmount**	**AnnualWasteAmount**	**Units**
DVC Map B-4	DVC Map B-4	Diesel Fuel No. 2	Diesel Fuel No. 2	400	1000	0	gallons
DVC Map B-4	DVC Map B-4	Soil Seal Concentrate	Soil Seal Concentrate	400	1000	0	gallons
DVC Map E-6, H-5	DVC Map E-6, H-5	Drilling Mud	Drilling Mud	103500	103500	660	tons
DVC Map E-6, E-7 ,H-5, J-5	DVC Map E-6, E-7 ,H-5, J-5	Geothermal Filter Cake	Geothermal Filter Cake	2262480	2262480	38252	tons
DVC Mao B-4	DVC Mao B-4	Unspecified Oil Contaminated Items	Oil Contaminated Debris (Oil Contaminated Items)	200	400	400	pounds
DVC Map B-4	DVC Map B-4	Lubricating oils, used	Used lubricating oils	10	90	50	gallons
DVC Map B-4	DVC Map B-4	Gasoline	Gasoline (Unleaded)	10	10	40	gallons
DVC Map B-4	DVC Map B-4	Oil	Oil	15	15	50	gallons
DVC Map B-4	DVC Map B-4	Misc Aerosols	Misc Aerosols	24	24	18	Cubic feet

SITE MAP & EVACUATION PLAN – TAB 5

EVACUATION PLANS, ROUTES & FACILITY DIAGRAMS

TITLE: Building Evacuation Procedure

SCOPE: This standard covers the building evacuation procedures in the event of an emergency.

POLICY: It is the policy of CalEnergy Operating Corporation to prevent accidents and injury as a result of emergencies that may arise at the work place due to acts of God or process equipment failures.

Reference: CalEnergy HMBP SOP, Section 4.

PROCEDURES:

The evacuation plan for the various buildings at CalEnergy Operating Corporation will be governed by a common evacuation procedure philosophy for the various events that would occur such as a fire, earthquake or brine spill.

The evacuation philosophy is to execute a safe and quick evacuation. Any person noticing an event that could or should require the evacuation of a facility is responsible to notify all other persons in that building with the use of any emergency signaling device such as a paging system, fire alarms, word of mouth, hand held radios, etc. Evacuation would then proceed as shown on the evacuation plan maps that are located throughout the buildings. These maps show the closest route of egress from all points in the building. In the event that fire or some other obstacle is blocking the intended evacuation route, the evacuee will proceed to the next nearest point of egress, as indicated on the maps.

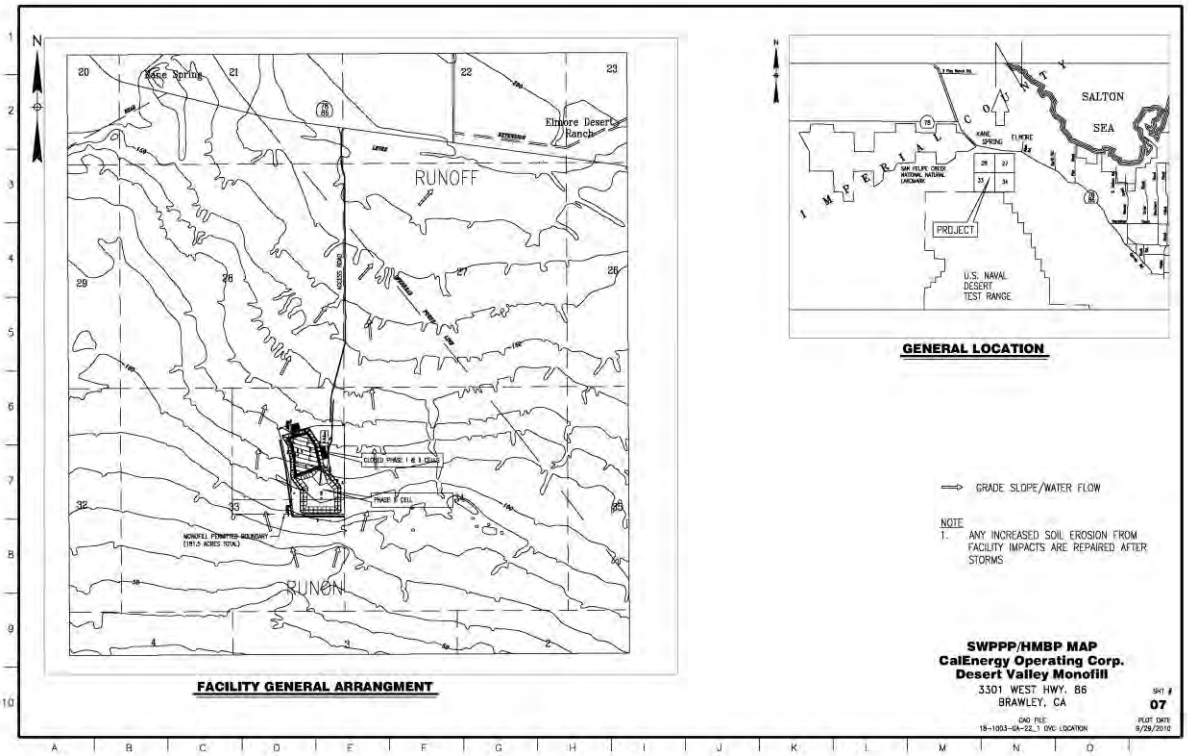
A designated person in each building or each area of a building is assigned to verify that occupants of the building have evacuated. Evacuees will be accounted for at the staging area away from the facility as shown on the following maps. The designated person conducts a roll call and accounts for personnel.

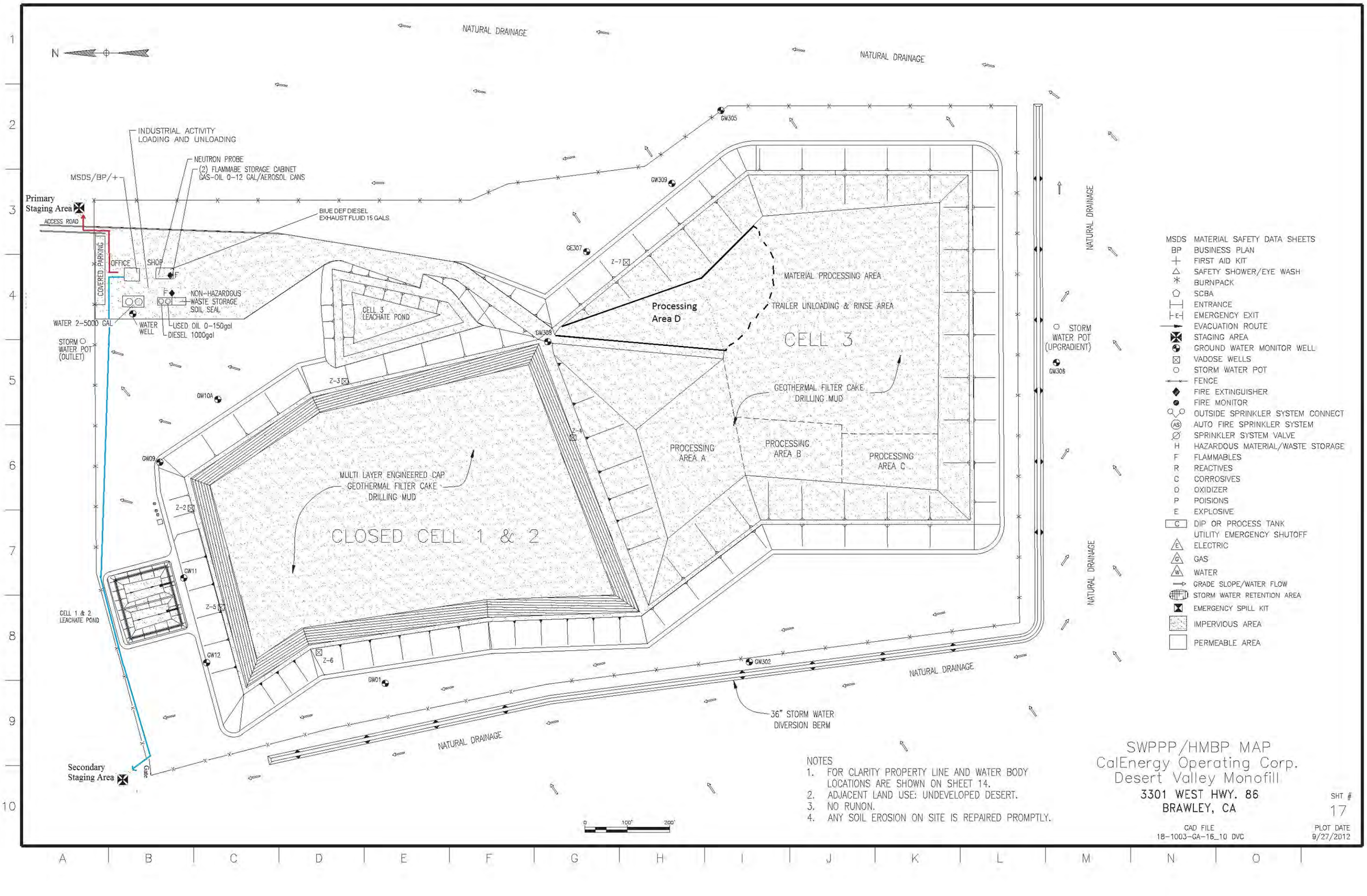
The person at the site with the highest authority level is to contact emergency response personnel (fire department, paramedics, etc.).

The control operator and the operations staff shall take steps to safeguard the well-being of the plant before evacuating, if it is safe to do so. Employee safety always comes first.

Be aware of potential hazards posed by transformer fires and explosions. High-voltage equipment is located throughout the power plants. Extreme caution shall be observed when exiting towards an emergency staging area. Avoid evacuation routes where health and safety are at risk due to spreading fire, spills or any other event caused by an emergency situation.

URL:
https://cersbusiness.calepa.ca.gov/22551/Facility/10121743/Submittal/Draft/HMI/103166/SiteMap/Detail/340534


N
Kane Spring
Elmore Desert Ranch
RUNOFF
CLOSED PHASE I & II CELL
PHASE II CELL
MONOFILL PERMITTED BOUNDARY
(181.5 ACRES TOTAL)
RUNON
SALTON
SEA
IMPERIAL
PROJECT
U.S. NAVAL
DESERT
TEST RANGE
GENERAL LOCATION
FACILITY GENERAL ARRANGMENT
GRADE SLOPE/WATER FLOW
NOTE
1. ANY INCREASED SOIL EROSION FROM FACILITY IMPACTS ARE REPAIRED AFTER STORMS
SWPPP/HMBP MAP
CalEnergy Operating Corp.
Desert Valley Monofill
3301 WEST HWY. 86
BRAWLEY, CA
SHT #
07
CAD FILE:
18-1003-GA-22_1 DVC LOCATION
PLOT DATE
9/29/2010



NOTES
1. FOR CLARITY PROPERTY LINE AND WATER BODY LOCATIONS ARE SHOWN ON SHEET 14.
2. ADJACENT LAND USE: UNDEVELOPED DESERT.
3. NO RUNON.
4. ANY SOIL EROSION ON SITE IS REPAIRED PROMPTLY.

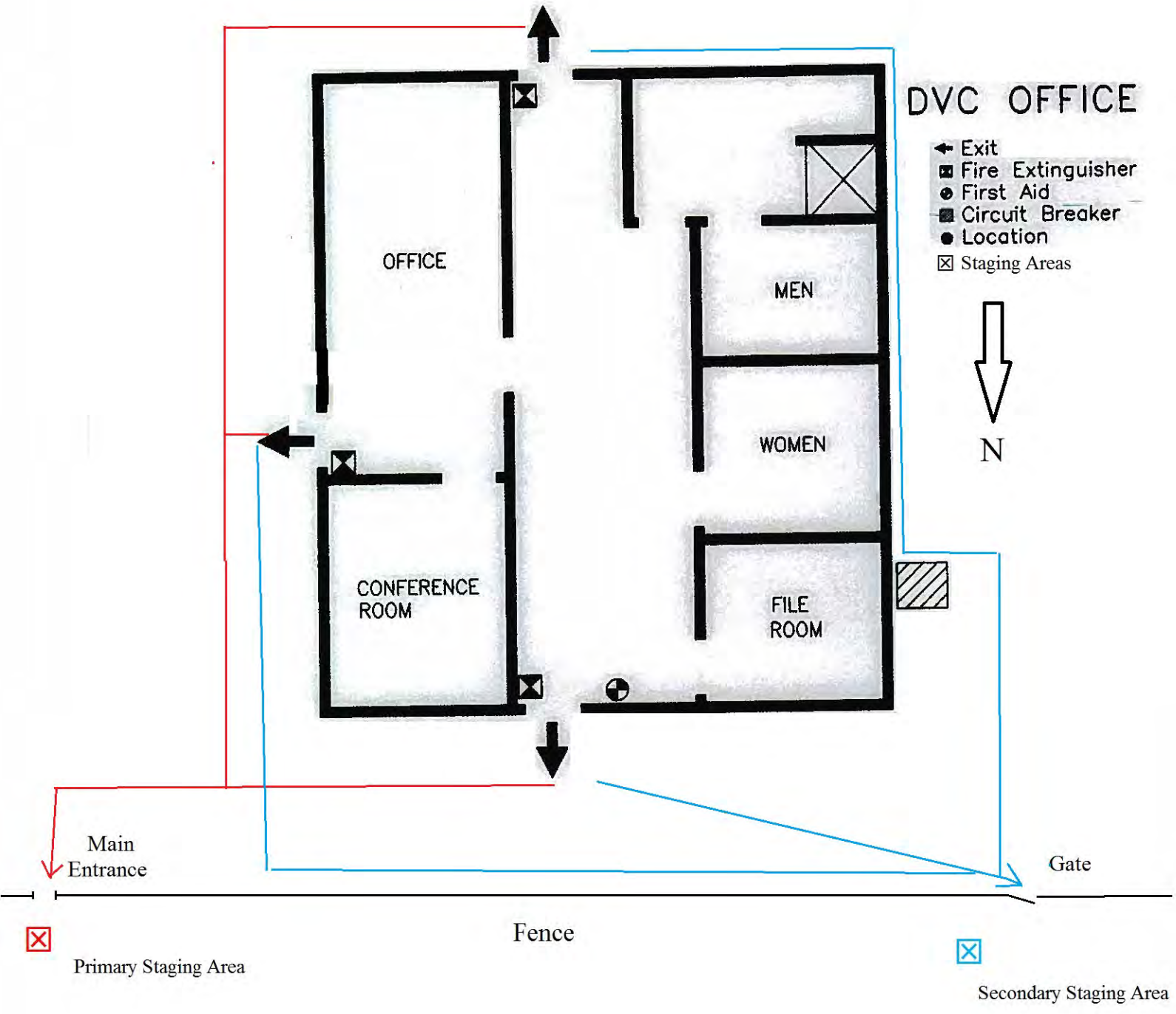
SWPPP/HMBP MAP

CalEnergy Operating Corp.
Desert Valley Monofill
3301 WEST HWY. 86
BRAWLEY, CA

SHT # 17

CAD FILE
18-1003-GA-16_10.DVC

PLOT DATE
9/27/2012


DVC OFFICE
Exit
Fire Extinguisher
First Aid
Circuit Breaker
Location
Staging Areas
OFFICE
MEN
WOMEN
CONFERENCE ROOM
FILE ROOM
N
Main Entrance
Gate
Fence
Primary Staging Area
Secondary Staging Area

EMERGENCY RESPONSE/CONTINGENCY PLANS -TAB 6

CALIFORNIA ENVIRONMENTAL REPORTING SYSTEM (CERS)

CONSOLIDATED EMERGENCY RESPONSE / CONTINGENCY PLAN

Prior to completing this Plan, please refer to the INSTRUCTIONS FOR COMPLETING A CONSOLIDATED CONTINGENCY PLAN

A. FACILITY IDENTIFICATION AND OPERATIONS OVERVIEW

FACILITY ID #	CERS ID (A1.)	DATE OF PLAN PREPARATION/REVISION (A2.)
1 3 — 0 0 0 — 0 5 9 8 (1.)	10121743	9/12/2017

BUSINESS NAME *(Same as Facility Name or DBA - Doing Business As)* (3.)
CalEnergy Operating Corporation- Desert Valley Company(DVC)

BUSINESS SITE ADDRESS (103.)
3301 West Highway 86

BUSINESS SITE CITY (104.)		ZIP CODE (105.)
Brawley	CA	92227

TYPE OF BUSINESS (e.g., Painting Contractor) (A3.)	INCIDENTAL OPERATIONS (e.g., Fleet Maintenance) (A4.)
Geothermal Powerplant	Landfill

THIS PLAN COVERS CHEMICAL SPILLS, FIRES, AND EARTHQUAKES INVOLVING: (Check all that apply) (A5.)

☒ 1. HAZARDOUS MATERIALS; ☒ 2. HAZARDOUS WASTES

B. INTERNAL RESPONSE

INTERNAL FACILITY EMERGENCY RESPONSE WILL OCCUR VIA: (Check all that apply) (B1.)

☒ 1. CALLING PUBLIC EMERGENCY RESPONDERS (i.e., 9-1-1)
☒ 2. CALLING HAZARDOUS WASTE CONTRACTOR
☒ 3. ACTIVATING IN-HOUSE EMERGENCY RESPONSE TEAM

C. EMERGENCY COMMUNICATIONS, PHONE NUMBERS AND NOTIFICATIONS

Whenever there is an imminent or actual emergency situation such as an explosion, fire, or release, the Emergency Coordinator (or his/her designee when the Emergency Coordinator is on call) shall:

1. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
2. Notify appropriate local authorities (i.e., call 9-1-1) when appropriate
3. Notify the California Emergency Management Agency at (800) 852-7550 when required - as shown in the Attached Release Reporting Guideline.

Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall notify the California Department of Toxic Substances Control (DTSC), the local Unified Program Agency (UPA), and the local fire department's hazardous materials program that the facility is in compliance with the following requirements (as and when requested by the agencies to provide this information):

1. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from an explosion, fire, or release at the facility; and
2. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.

INTERNAL FACILITY EMERGENCY COMMUNICATIONS OR ALARM NOTIFICATION WILL OCCUR VIA: (Check all that apply) (C1.)

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☒ 6. PORTABLE RADIO

NOTIFICATIONS TO NEIGHBORING FACILITIES THAT MAY BE AFFECTED BY AN OFF-SITE RELEASE WILL OCCUR BY: (Check all that apply) (C2.)

☒ 1. VERBAL WARNINGS;	☐ 2. PUBLIC ADDRESS OR INTERCOM SYSTEM;	☒ 3. TELEPHONE;
☐ 4. PAGERS;	☐ 5. ALARM SYSTEM;	☒ 6. PORTABLE RADIO

EMERGENCY RESPONSE PHONE NUMBERS:		
	AMBULANCE, FIRE, POLICE AND CHP	9-1-1
	CALIFORNIA OFFICE OF EMERGENCY SERVICES (CAL/OES)	(800) 852-7550
	NATIONAL RESPONSE CENTER (NRC)	(800) 424-8802
	POISON CONTROL CENTER	(800) 222-1222
	LOCAL UNIFIED PROGRAM AGENCY (UPA/CUPA) /DTSC.	(760) 352-0381 (C3.)
	OTHER (Specify): California Division of Oil, Gas and Geothermal Resour (C4.)	(760) 353-9900 (C5.)
NEAREST MEDICAL FACILITY / HOSPITAL NAME:	Pioneers Memorial Hospital (C6.)	(760) 351-3333 (C7.)
AGENCY NOTIFICATION PHONE NUMBERS:	CALIFORNIA DEPT. OF TOXIC SUBSTANCES CONTROL (DTSC)	(916) 255-3545
	REGIONAL WATER QUALITY CONTROL BOARD	(760) 346-7491 (C8.)
	U.S. ENVIRONMENTAL PROTECTION AGENCY (US EPA)	(800) 300-2193
	CALIFORNIA DEPT OF FISH AND GAME (DFG)	(916) 358-2900
	U.S. COAST GUARD . ((NATIONAL RESPONSE CENTER)	(202) 267-2180
	CAL/OSHA	(916) 263-2800
	STATE FIRE MARSHAL	(916) 445-8200
	OTHER (Specify): (C9.)	(C10.)
	OTHER (Specify): Imperial Irrigation District (Hazmat Res (C11.)	(760) 339-9380 (C12.)

D. EMERGENCY CONTAINMENT AND CLEANUP PROCEDURES

SPILL PREVENTION, CONTAINMENT, AND CLEANUP PROCEDURES: (Check all boxes that apply to indicate your procedures for containing spills, releases, fires or explosions; and. preventing and mitigating associated harm to persons, property, and the environment.)

D1.

- [x] 1. MONITOR FOR LEAKS, RUPTURES, PRESSURE BUILD-UP, ETC.;
- [x] 2. PROVIDE STRUCTURAL PHYSICAL BARRIERS (e.g., Portable spill containment walls);
- [x] 3. PROVIDE ABSORBENT PHYSICAL BARRIERS (e.g., Pads, pigs, pillows);
- [x] 4. COVER OR BLOCK FLOOR AND/ OR STORM DRAINS;
- [x] 5. BUILT-IN BERM IN WORK / STORAGE AREA;
- [x] 6. AUTOMATIC FIRE SUPPRESSION SYSTEM;
- [x] 7. ELIMINATE SOURCES OF IGNITION FOR FLAMMABLE HAZARDS (e.g. Flammable liquids, Propane);
- [x] 8. STOP PROCESSES AND/OR OPERATIONS;
- [x] 9. AUTOMATIC / ELECTRONIC EQUIPMENT SHUT-OFF SYSTEM;
- [x] 10. SHUT-OFF WATER, GAS, ELECTRICAL UTILITIES AS APPROPRIATE;
- [x] 11. CALL 9-1-1 FOR PUBLIC EMERGENCY RESPONDER ASSISTANCE / MEDICAL AID;
- [x] 12. NOTIFY AND EVACUATE PERSONS IN ALL THREATENED AREAS;
- [x] 13. ACCOUNT FOR EVACUATED PERSONS IMMEDIATELY AFTER EVACUATION CALL;
- [x] 14. PROVIDE PROTECTIVE EQUIPMENT FOR ON-SITE RESPONSE TEAM;
- [x] 15. REMOVE OR ISOLATE CONTAINERS / AREA AS APPROPRIATE;
- [x] 16. HIRE LICENSED HAZARDOUS WASTE CONTRACTOR;
- [x] 17. USE ABSORBENT MATERIAL FOR SPILLS WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- [x] 18. SUCTION USING SHOP VACUUM WITH SUBSEQUENT PROPER LABELING, STORAGE, AND HAZARDOUS WASTE DISPOSAL AS APPROPRIATE;
- [x] 19. WASH / DECONTAMINATE EQUIPMENT W/ CONTAINMENT and DISPOSAL OF EFFLUENT / RINSATE AS HAZARDOUS WASTE;
- [x] 20. PROVIDE SAFE TEMPORARY STORAGE OF EMERGENCY-GENERATED WASTES;
- [ ] 21. OTHER (Specify):

D2.

E. FACILITY EVACUATION

THE FOLLOWING ALARM SIGNAL(S) WILL BE USED TO BEGIN EVACUATION OF THE FACILITY (CHECK ALL THAT APPLY): E1.

- [ ] 1. BELLS;
- [x] 2. HORNS/SIRENS;
- [x] 3. VERBAL (I.E., SHOUTING);
- [x] 4. OTHER (Specify): Cell Phones and two-way radios

E2.

THE FOLLOWING LOCATION(S) IS/ARE EVACUEE EMERGENCY ASSEMBLY AREA(S) (i.e., Front parking lot, specific street corner, etc.) E3.

North East of office by Parking Lot

Note: The Emergency Coordinator must account for all on site employees and/or site visitors after evacuation.

- [x] EVACUATION ROUTE MAP(S) POSTED AS REQUIRED

E4.

Note: The map(s) must show primary and alternate evacuation routes, emergency exits, and primary and alternate staging areas, and must be prominently posted throughout the facility in locations where it will be visible to employees and visitors.

F. ARRANGEMENTS FOR EMERGENCY SERVICES

Explanation of Requirement: Advance arrangements with local fire and police departments, hospitals, and/or emergency services contractors should be made as appropriate for your facility. You may determine that such arrangements are not necessary.

ADVANCE ARRANGEMENTS FOR LOCAL EMERGENCY SERVICES (Check one of the following) F1.

- [x] 1. HAVE BEEN DETERMINED NOT NECESSARY; *or*
- [ ] 2. THE FOLLOWING ARRANGEMENTS HAVE BEEN MADE (Specify):

F2.

G. EMERGENCY EQUIPMENT

Check all boxes that apply to list emergency response equipment available at the facility and identify the location(s) where the equipment is kept and the equipment's capability, if applicable. [e.g., ☒ CHEMICAL PROTECTIVE GLOVES | Spill response kit | One time use, Oil & solvent resistant only.]

TYPE	EQUIPMENT AVAILABLE	LOCATION	CAPABILITY *(If applicable)*
Safety and First Aid	1. ☒ CHEMICAL PROTECTIVE SUITS, APRONS, OR VESTS	G2. Warehouse	G3. One time use.
	2. ☒ CHEMICAL PROTECTIVE GLOVES	G4. Warehouse	G5. One time use. Depends on material being handled.
	3. ☒ CHEMICAL PROTECTIVE BOOTS	G6. Warehouse	G7. Multiple use.
	4. ☒ SAFETY GLASSES / GOGGLES / SHIELDS	G8. Warehouse	G9. Multiple use. Depends on level of PPE required.
	5. ☒ HARD HATS	G10. Warehouse	G11. Multiple use.
	6. ☒ CARTRIDGE RESPIRATORS	G12. Safety and Lab Buidling	G13.
	7. ☒ SELF-CONTAINED BREATHING APPARATUS (SCBA)	G14. Control Rooms and Safety Response Vehicle	G15. Multiple use. 30 minute grade D air
	8. ☒ FIRST AID KITS / STATIONS	G16. Control Rooms	G17. Multiple use
	9. ☒ PLUMBED EYEWASH FOUNTAIN / SHOWER	G18. Throughout facilities	G19. Multiple use
	10. ☐ PORTABLE EYEWASH KITS	G20.	G21.
	11. ☐ OTHER	G22.	G23.
	12. ☐ OTHER	G24.	G25.
Fire Fighting	13. ☒ PORTABLE FIRE EXTINGUISHERS	G26. Throughout the Facilities	G27. One time use.
	14. ☒ FIXED FIRE SYSTEMS / SPRINKLERS / FIRE HOSES	G28. Throughout the Facilities	G29. Multiple use
	15. ☐ FIRE ALARM BOXES OR STATIONS	G30.	G31.
	16. ☒ OTHER	G32. Burn kits- Control Rooms	G33. One time use.
Spill Control and Clean-Up	17. ☒ ALL-IN-ONE SPILL KIT	G34. Waste Storage Areas	G35. One time use.
	18. ☒ ABSORBENT MATERIAL	G36. Warehouse	G37. One time use.
	19. ☒ CONTAINER FOR USED ABSORBENT	G38. Warehouse	G39. One time use.
	20. ☒ BERMING / DIKING EQUIPMENT	G40. Warehouse	G41. One time use.
	21. ☒ BROOM	G42. Warehouse	G43. One time use.
	22. ☒ SHOVEL	G44. Warehouse	G45. Multiple use.
	23. ☒ SHOP VAC	G46. Maintenance Shops	G47. Multiple use.
	24. ☒ EXHAUST HOOD	G48. Facilitiy's Chemistry Lab	G49. Multiple use.
	25. ☒ EMERGENCY SUMP / HOLDING TANK	G50. MAC Holding Tank Storage	G51. Multiple use.
	26. ☒ CHEMICAL NEUTRALIZERS	G52. Warehouse	G53. One time use.
	27. ☐ GAS CYLINDER LEAK REPAIR KIT	G54.	G55.
	28. ☒ SPILL OVERPACK DRUMS	G56. Warehouse	G57. One time use.
	29. ☐ OTHER	G58.	G59.
Communi-cations and Alarm Systems	30. ☒ TELEPHONES (Includes cellular)	G60. Mobile phones for employees	G61. Multiple use.
	31. ☐ INTERCOM / PA SYSTEM	G62.	G63.
	32. ☒ PORTABLE RADIOS	G64. Control Room	G65. Multiple Use
	33. ☐ AUTOMATIC ALARM CHEMICAL MONITORING EQUIPMENT	G66.	G67.
Other	34. ☐ OTHER	G68.	G69.
	35. ☐ OTHER	G70.	G71.

H. EARTHQUAKE VULNERABILITY

Identify areas of the facility that are vulnerable to hazardous materials releases / spills due to earthquake-related motion. These areas require immediate isolation and inspection.

VULNERABLE AREAS: (Check all that apply)	H1.	LOCATIONS (e.g., shop, outdoor shed, forensic lab)	
☒ 1. HAZARDOUS MATERIALS / WASTE STORAGE AREA		Throughout the facilities	H2.
☒ 2. PROCESS LINES / PIPING		Throughout the facilities	H3.
☐ 3. LABORATORY			H4.
☐ 4. WASTE TREATMENT AREA			H5.

Identify mechanical systems vulnerable to releases / spills due to earthquake-related motion. These systems require immediate isolation and inspection.

VULNERABLE SYSTEMS: (Check all that apply)	H6.	LOCATIONS	
☒ 1. SHELVES, CABINETS AND RACKS		Throughout the facilities.	H7.
☒ 2. TANKS (EMERGENCY SHUTOFF)		Throughout the facilities.	H8.
☒ 3. PORTABLE GAS CYLINDERS		Throughout the facilities.	H9.
☒ 4. EMERGENCY SHUTOFF AND/OR UTILITY VALVES		Throughout the facilities.	H10.
☐ 5. SPRINKLER SYSTEMS			H11.
☒ 6. STATIONARY PRESSURIZED CONTAINERS (e.g., Propane dispensing tank)		Throughout the facilities.	H12.

I. EMPLOYEE TRAINING

Explanation of Requirement: Employee training is required for all employees handling hazardous materials and hazardous wastes in day-to-day or clean-up operations including volunteers and/or contractors. Training must be:

- Provided within 6 months for new hires;
- Amended as necessary prior to change in process or work assignment;
- Given upon modification to the Emergency Response / Contingency Plan, and updated/refreshed annually for all employees.

Required content includes all of the following:

- Material Safety Data Sheets;
- Hazard communication related to health and safety;
- Methods for safe handling of hazardous substances;
- Fire hazards of materials / processes;
- Conditions likely to worsen emergencies;
- Coordination of emergency response;
- Notification procedures;
- Applicable laws and regulations;
- Communication and alarm systems;
- Personal protective equipment;
- Use of emergency response equipment (e.g. Fire extinguishers, respirators, etc.);
- Decontamination procedures;
- Evacuation procedures;
- Control and containment procedures;
- UST monitoring system equipment and procedures (if applicable).

INDICATE HOW EMPLOYEE TRAINING PROGRAM IS ADMINISTERED (Check all that apply) I1.

☒ 1. FORMAL CLASSROOM; ☒ 2. VIDEOS; ☒ 3. SAFETY / TAILGATE MEETINGS;

☒ 4. STUDY GUIDES / MANUALS (Specify): In class hand-outs on company electronic drives (Simplified Guide, SPCC Plan, SWPPP Plan etc.) I2.

☒ 5. OTHER (Specify): Computer Based Training (CBT) I3.

☐ 6. NOT APPLICABLE BECAUSE FACILITY HAS NO EMPLOYEES

Large Quantity Generator (LQG) Training Records: Large quantity hazardous waste generators (i.e., who generate more than 270 gallons/1,000 kilograms of hazardous waste per month) must retain written documentation of employee hazardous waste management training sessions which includes:

- A written outline/agenda of the type and amount of both introductory and continuing training that will be given to persons filling each job position having responsibility for the management of hazardous waste (e.g., labeling, manifesting, compliance with accumulation time limits, etc.).
- The name, job title, and date of training for each hazardous waste management training session given to an employee filling such a job position; and
- A written job description for each of the above job positions that describes job duties and the skills, education, or other qualifications required of personnel assigned to the position.
- Current employee training records must be retained until closure of the facility.
- Former employee training records must be retained at least three years after termination of employment.

J. LIST OF ATTACHMENTS

(Check one of the following) J1.

☐ 1. NO ATTACHMENTS ARE REQUIRED; *or*

☒ 2. THE FOLLOWING DOCUMENTS ARE ATTACHED: J2.

California Office of Emergency Services - Release Reporting Matrix

K. SIGNATURE / CERTIFICATION

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete, and that a copy is available on site.

SIGNATURE OF OWNER/OPERATOR	DATE SIGNED K1.
Lenie Sarion	9/12/2017
NAME OF SIGNER (print) K2.	TITLE OF SIGNER K3.
Lenie Sarion	General Manager

Attachment to CalEnergy Emergency Response Plan

RELEASE REPORTING REQUIREMENTS MATRIX

This matrix summarizes pertinent emergency notification requirements and may not be all inclusive.
For precise legal requirements, review specific laws and regulations.

OIL SPILLS

TYPES OF RELEASES	AMOUNT	WHO REPORTS?	TO WHOM	WHEN	LEGAL AUTHORITY
(Federal) Navigable Waters*	Any Amount "Harmful quantity"***	Any person in charge of a vessel or facility (offshore or onshore)	NRC *(800) 424-8802 or (202) 267-2675*	Immediately, when it can be done safely	Federal Water Pollution Control Act (FWPCA) §311 33 CFR 153.203 40 CFR 110.6
(State of California) Marine Waters*	Any amount	Any party responsible for the discharge/threatened discharge; Responding local or state agency	Cal OES *(800) 852-7550* *NRC*	Immediately, but not later than 15 minutes after discovery of the spill or threatened release	California Government Code CGC 8670.25.5; 8670.26 *California State Oil Spill Contingency Plan* FWPCA §311 33 CFR 153.203 40 CFR 302.6
(State of California) State Waters*	Any amount of oil or petroleum product	Any person	Cal OES or RWQCB	Immediately upon knowledge of a release.	California Water Code CWC 13272 (a) CGC 8670.25.5; 8670.26 *California State Oil Spill Contingency Plan*
Oil Discharges to Land (Including Onshore drilling, exploration, or production operation)	≥ 1 barrel (42 gallons) 5 barrels or more uncontained in certain San Joaquin Valley oil fields - if no threat to state waters; 10 barrels or more contained in certain San Joaquin Valley oil fields if identified in spill contingency plan - if no threat to state waters.	Facility owner or operator	Cal OES	Immediately upon knowledge of a release.	Public Resources Code (PRC) 3233 San Joaquin Valley Field Rule (August 1998) CWC 13272 (f) *California State Oil Spill Contingency Plan*
Aboveground Storage Tanks (ASTs)	≥ 1 barrel (42 gallons)	Facility owner or operator of a tank facility	Cal OES, CUPA, and/or 911	Immediately upon knowledge of a release.	HSC 25270.8

RELEASE REPORTING REQUIREMENTS MATRIX

HAZARDOUS MATERIALS INCIDENTS (*may include oil & radioactive materials*)					
TYPES OF RELEASES	**AMOUNT**	**WHO REPORTS?**	**TO WHOM**	**WHEN**	**LEGAL AUTHORITY**
CERCLA HS Release	≥ RQ	Person in charge of a facility	NRC	Immediately upon knowledge of a release. Written report to follow.	CERCLA §103 (a) 40 CFR 302.6
EPCRA EHS Release	≥ RQ	Owner/Operator of facility	NRC SERC and LEPC CUPA/FD (In CA)	Immediately upon knowledge of a release. Written report to follow.	EPCRA §304 40 CFR 355
Release or Threatened Release (except transporting on highway)	If there is a reasonable belief that the release poses a significant hazard to human health & safety, property, or environment.**	Handler	Cal OES, CUPA, and/or 911	Immediately upon knowledge of a release.	HSC 25510
Illegal Discharges or Threatened Discharges of Hazardous Waste	Any amount that is observed or has knowledge of likely to cause injury to public health and safety.	Designated Government Employee	Local Health Officer or local Board of Supervisors	Within 72 hours	HSC 25180.7(b)
Highways	Any transportation release.	Any person who causes the spill.	CHP (who then notifies Cal OES)	Immediately upon knowledge of a release.	California Vehicle Code (CVC) 23112.5
Railroads	Release/threatened release that may harm person, property, or environment.**	Railroads regulated by the State PUC & FRA	Appropriate emergency response agency and Cal OES	Immediately upon knowledge of a release.	PUC General Order No. 161, Rule #3, 8-7-91
Hazardous Waste Discharge Transporters	Any spill in CA Federal notification: A situation carrier deems appropriate; person hospitalized or killed; public evacuation ≥ 1hr; operational flight pattern or route of aircraft is altered; major transp. artery or facility closed ≥ 1 hr; infectious or radioactive materials involved; marine pollutant > 119 gals or > 882 lbs	Transporter who discharged waste	CHP NRC	Immediately upon knowledge of a release. As soon as practical, but no later than 12 hours after accident occurs Written Report: to DTSC and DOT within 30 days.	CVC 23112.5; 2453 22 CCR 66263.15 22 CCR 66263.30 49 CFR 171.15 49 CFR 171.16

RELEASE REPORTING REQUIREMENTS MATRIX

HAZARDOUS MATERIALS INCIDENTS (CONTINUED) (*may include oil & radioactive materials*)					
TYPES OF RELEASES	**AMOUNT**	**WHO REPORTS?**	**TO WHOM**	**WHEN**	**LEGAL AUTHORITY**
Pipelines	Every rupture, explosion or fire ≥ 5 barrels	Pipeline operator	Fire Dept Cal OES	Immediately Written report: to State Fire Marshal within 30 days	CGC 51018(c)
ASTs	Any release or threatened release	Facility owner or operator	Cal OES, CUPA	Immediately upon knowledge of a release.	HSC 25510
Underground Storage Tanks (USTs)	Any release, if it poses significant hazard	Facility owner or operator	Cal OES, CUPA	Immediately upon knowledge of a release.	HSC 25510
	Into secondary containment – no fire or explosion hazard and no deterioration	Facility owner or operator	Cal OES, CUPA	Do not have to report BUT do need to record on the *Operator's Monitoring Report*.	HSC 25294
	Escapes from secondary containment; **or** from a primary containment if no secondary containment; **or** if there's a fire or explosion hazard or deterioration	Facility owner or operator	Cal OES, CUPA	Within 24 hours after the release has been detected Full written report within 5 working days	HSC 25295 HSC 25510
Releases beyond TSD Facility Boundary	A harmful quantity that could threaten human health or environment.	Facility owner or operator; TSDF Emergency Coordinator	Cal OES NRC	Immediately upon knowledge of a release.	CERCLA §103 (b) 22 CCR 66264.56(d) HSC 25510
Releases within TSD Facility Boundary	Any release that poses a significant hazard. Imminent or actual emergency situation that could threaten human health or environment.	Owner/Operator of facility TSDF Emergency Coordinator (designated in the Contingency Plan).	Cal OES, CUPA Local ER agencies	Immediately upon knowledge of a release. Written report: to DTSC within 15 days.	HSC 25510 22 CCR 66264.51 22 CCR 66264.52 22 CCR 66264.56

RELEASE REPORTING REQUIREMENTS MATRIX

Types of Releases	Amount	Who Reports?	To Whom	When	Legal Authority
Air Incidents					
Stationary Sources	Any release that poses a significant hazard. Exceeds emission standards	Operator of the source	Cal OES Air Pollution Control District's (APCD) or Air Quality Management District's (AQMD)	Immediately upon knowledge of a release. Within 96 hours	HSC 25510 HSC 42706
Proximity to Schools	A release within ½ mile of a school.	Emergency rescue personnel	Superintendent of affected school district	Immediately upon knowledge of a release.	HSC 25510.3
	A threat of an air contaminant within 1000 feet of a school.	Air Pollution Control Officer	CUPA, Local Fire Dept	Within 24 hours	HSC 42301.7
Sewage Spills					
Sewage to Waters and Other Sewage and Hazardous Substances	1000 Gallons unauthorized discharge into State waters. * Any hazardous substance and sewage that needs to be reported. If not in compliance with the Waste Discharge Requirements CWC 13271(b) **	Any person	Cal OES	Immediately upon knowledge of a release.	23 CCR 2250 (a) HSC 5411 CWC 13271 (a)

* **NOTE:** The terms navigable waters, state waters, and marine waters are used according to the applicable laws & regulations. Navigable waters could also include state waters and marine waters; State waters could include navigable and marine waters; and marine waters could include navigable and state waters.

** **NOTE:** Even if the quantities or situations that are outlined above have not been met, and you still believe that the release poses a significant hazard to human health & safety, or the environment -- then report it to Cal OES Warning Center.

*** **NOTE:** "Harmful quantity" is any quantity of discharged oil that violates state water quality standards, causes a film or sheen on the water's surface, or leaves sludge or emulsion beneath the surface.

Finally, it should be noted that intentionally false or misleading reports are a crime and legal matters may be enforced. (PC §148.3; HSC §25515.3; GC §8670.64)

RELEASE REPORTING REQUIREMENTS MATRIX

Federal Contact Numbers

National Response Center (NRC)*	(800) 424-8802 or (202) 267-2675
United States Environmental Protection Agency (USEPA), Regional Response Center http://www.epa.gov/osweroe1/content/reporting/index.htm	(800) 321-7349 or (415) 947-8000 *(General number)* (415) 947-4400 *(Spill Phone)* (800) 424-9346 *(SARA Title III Hotline)* (800) 300-2193 *(Region IX Duty Officer)*
Occupational Safety & Health Administration (OSHA)	(800) 321-OSHA (415) 625-2547 *(main public number – Region IX)*
United States Coast Guard (USCG) Captain of the Port/Federal On-Scene Coordinator (FOSC)	(310) 521-3805 (Sector *Los Angeles/Long Beach*) (619) 278-7033 (Sector *San Diego*) (415) 399-3547 (*Sector San Francisco*)
United States Department of Transportation (USDOT)	Contact -via- National Response Center (NRC)

*** Note:** One call to the NRC fulfills the requirement to report releases of hazardous substances under CERCLA and several other regulatory programs, including those under CWA § 311, RCRA, and the USDOT's Hazardous Materials Transportation Act (HMTA). Anybody who discovers a hazardous substance release or oil spill is encouraged to contact the federal government, regardless of whether they are the responsible party.

State Contact Numbers

California Governor's Office of Emergency Services (Cal OES) Warning Center	(800) 852-7550 or (916) 845-8911
California Highway Patrol (CHP)	**911**
State Fire Marshall (SFM)	(916) 323-7390 *(Emergencies only)*
CA Dept. of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR)	See attached list (Page 7) San Joaquin Valley Field Rule ftp://ftp.consrv.ca.gov/pub/oil/regulations/field_rule.pdf

RELEASE REPORTING REQUIREMENTS MATRIX

Department of Fish & Wildlife - Office Of Spill Prevention and Response (OSPR)	(800) OILS-911 ((800) 645-7911) (916) 445-9338 (Office of Spill Prevention and Response – Sacramento)
Regional Water Quality Control Board (RWQCB)	See attached list (Page 8)

Local Contact Numbers

ALL SPILLS SHOULD FIRST BE REPORTED to 911

CUPA	**For up-to-date contacts, refer to the Cal/EPA Unified Program website directory at:** **www.calepa.ca.gov/CUPA/Directory/default.aspx**
Local Sheriff/Police	
Local Fire Department	
Local Health Department	

Department of Conservation/Division of Oil, Gas & Geothermal Resources (DOGGR)

- California Regional Offices -

Region	Location	Contact #
District #1	**(Cypress)**	**(714) 816-6847**
District #2	**(Ventura)**	**(805) 654-4761**
District #3	**(Santa Maria)**	**(805) 937-7246**
District #4	**(Bakersfield)**	**(661) 322-4031**
District #5	**(Coalinga)**	**(559) 935-2941**
District #6	**(Sacramento - Headquarters)**	**(916) 322-1110**

RELEASE REPORTING REQUIREMENTS MATRIX

These numbers are included for reference purposes only. The RWQCB is contacted through the local CUPA and/or Cal OES, when these offices determine that it is necessary.

Regional Water Quality Control Boards - California Regional Offices -		
Region	**Location**	**Contact #**
Region 1 – North Coast	(Santa Rosa)	(707) 576-2220
Region 2 – San Francisco Bay	(Oakland)	(510) 622-2300
Region 3 – Central Coast	(San Luis Obispo)	(805) 549-3147
Region 4 – Los Angeles	(Los Angeles)	(213) 576-6600
Region 5a – Central Valley	(Rancho Cordova)	(916) 464-3291
Region 5b – Central Valley	(Fresno)	(559) 445-5116
Region 5c – Central Valley	(Redding)	(530) 224-4845
Region 6a – Lahontan	(South Lake Tahoe)	(530) 542-5400
Region 6b – Lahontan	(Victorville)	(760) 241-6583
Region 7 – Colorado River	(Palm Desert)	(760) 346-7491
Region 8 – Santa Ana	(Riverside)	(951) 782-4130
Region 9 – San Diego	(San Diego)	(858) 467-2952

EMPLOYEE TRAINING PLAN - TAB 7

.

HAZARDOUS MATERIALS BUSINESS PLAN TRAINING

ALL EMPLOYEES

All CalEnergy employees are provided with basic Hazardous Materials/Emergency Response training that enables them to recognize hazardous materials and situations they may encounter at the facility. This training equips all employees to recognize and react appropriately at level equal to a **First Responder Awareness Leve**l (under HAZWOPER rules - CCR Title 8 Section 5192 and 29 CFR 1910.120). First responders at the awareness level are workers who are likely to witness or discover a hazardous substance release. Their role is limited to notifying the proper authorities. Training or equivalent experience for first responders at the awareness level must allow for defensive actions only, where employees can:

- Recognize a chemical release
- Determine chemical's identity
- Protect themselves and others
- Call for help
- Secure the area

ALL FIELD PERSONNEL

All personnel who will work in the field are required to be qualified at a level equivalent to the **First Responder Operations Level** (under HAZWOPER rules), which requires an additional 8 hours of hazardous waste operations training (in addition to the First Responder Awareness training), which is given annually. These personnel respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. These individuals are trained to respond in a defensive fashion without necessarily trying to stop the release.

ACTING INCIDENT COMMANDERS/CONTROL ROOM OPERATORS

Employees who may be called upon to respond to chemical releases and provide active support in containing, controlling and cleaning up released materials are provided with a minimum of 24 hours of training geared towards specific hazard recognition and control, and acting as the incident commander (until the Incident Commander arrives on site). These employees fulfill the roles of **Hazardous Materials Technicians** (under HAZWOPER rules). For CalEnergy, these employees are primarily Control Room Operators and Supervisors, although this role is supplemented by contractors with 40-hours HAZWOPER training, these individuals assume a more aggressive role than a first responder at the operations level in that they will act to plug, patch, or stop the release of a hazardous substance, if possible.

INCIDENT COMMANDERS

Designated Emergency Coordinators receive 40-hour HAZWOPER training that qualifies them as **Incident Commanders** (under HAZWOPER rules). Training for Incident Commanders and Acting Incident Commanders can include drills.

The facility maintains a matrix of specific training programs required for employees in the internal procedures for the Hazardous Materials Business Plan.

ABOVEGROUND STORAGE TANK STATUS - TAB 8

Information on petroleum above ground storage tank status is kept in the SPCC plan at the facilities.

ADMINISTRATION COMPLEX BUSINESS PLAN (HMBP)

PART II – INTERNAL HMBP SOP
December 2017 REVISION 24

HAZARDOUS MATERIALS BUSINESS PLAN
Standard Operating Procedures
for
CalEnergy

Revised: 12/06/2017

Document History

Revision No.	Revision Date	Revised By	Changes Made
1 – 15	Various	Various	
16	5/25/12	L. Wyles	Personnel changes on distribution list. Updated hazardous materials inventory list and site map.
17	2/15/13	V Elliott & A. Lue	Personnel changes on distribution list and original document stored. Updated hazardous materials inventory list and site map. Sabotage Reporting Notification Roster. Emergency Notification Phone Roster (External). Document converted to an internal standard operating procedure, with the official Business Plan (submitted to the DTSC) linked to the attachment.
18	9/25/13	O. Flores & N. Karmeshu	• Personnel changes. • Added business activities form, business owner operator form, consolidated emergency response/contingency plan, CERS Hazardous Materials Business Plan Submittal for all the facilities.
19	5/7/2015	N. Stephenson	• Personnel changes. • Updated Chemical inventory list, business activities form, business owner operator form, consolidated emergency response/contingency plan.
20	12/10/2015	M. DeYesso	• Personnel changes
21	1/5/2016	M. DeYesso	• Personnel changes • Duties of onsite personnel incident commander
22	10/16/2016	K. West	• Personnel Changes

23	10/17/2017	N. White	• Personnel Changes • Updated Chemical inventory list, business activities form, business owner operator form, consolidated emergency response/contingency plan. Update of Incident Commanders.
24	12/06/2017	N. White	• Personnel Changes • Addition of the Release Reporting Matrix attachment to CalEnergy Emergency Response Plan

Approval

The following are authorized to approve issues of this document

Title	Name	Signature	Date
General Manager	Lenie Sarion	Digitally signed by Lenie A. Sarion Date: 2017.12.15 14:11:53 -08'00'	
Region 1 Manager	Janet Hagen	Janet Hagen Digitally signed by Janet Hagen DN: cn=Janet Hagen, o=Calenergy, ou=Site 1, email=janet.hagen@calenergy.com, c=US Date: 2017.12.15 14:08:30 -08'00'	
Region 2 Manager	Mike Lopez		12-2-2017
Director, IPP Environmental Services	Anetha Lue	D. Anetha Lue Digitally signed by D. Anetha Lue DN: cn=D. Anetha Lue, o=CalEnergy Operating Corporation, ou, email=anetha.lue@calenergy.com, c=US Date: 2017.12.21 11:56:24 -08'00'	
Maintenance Manager	Jesse Rivas	Jesse Rivas Digitally signed by Jesse Rivas Date: 2017.12.21 11:05:20 -08'00'	
Health & Safety Manager	Josh Hawk	Joshua HAWK Digitally signed by Joshua HAWK DN: cn=Joshua HAWK, o=CalEnergy, ou=BHE Geothermal, email=joshua.hawk@gmail.com, c=US Date: 2017.12.15 14:13:01 -08'00'	

The original signed copy of this document is stored in the Environmental Services Files.
The electronic copy of this document is stored on SharePoint at: CalEnergy > Imperial Valley > Environmental > Shared Documents > Business Plans

- **Employees who choose to print out this document are responsible for updating their copy when newer versions become available.**

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1 INTRODUCTION

1.1. HMBP Requirements

CalEnergy is required to prepare a Hazardous Materials Business Plan (HMBP or Business Plan) in order to document emergency response procedures for incidents that can be reasonably anticipated, as a result of the release or threatened release of hazardous materials. The requirements to develop a HMBP stem from Title 19 of California's Code of Regulations (CCR), Sections 2729 through 2732. The regulations require that a Business Plan be developed if hazardous materials –

- are handled in quantities equal to or greater than 500 pounds, 55 gallons, or 200 cubic feet of gas (calculated at standard temperature and pressure);
- are handled in quantities equal to or greater than the federal threshold planning quantity (TPQ) for an extremely hazardous substance (EHS) listed in Appendix A, 40 CFR 355; or
- are radioactive materials that are handled in quantities that require an emergency plan under state and/or federal

Other requirements related to the HMBP are found in other sections of the Health & Safety Code and the California Code of Regulations as referenced herein.

1.2. Purpose of HMBP Standard Operating Procedures

As of 2013, the HMBP has been converted to an electronic standardized format, which is required to be submitted electronically to the California Office of Emergency Services by March 1st each year at http://cers.calepa.ca.gov/ (unless another date or submittal format is specified by the regulatory agency). The electronic submittal has become the official HMBP that is available to the Imperial County Certified Unified Program Agency (which is the Department of Toxic Substances Control), the Fire Department, and other agencies. A print-out of the HMBP is contained in the supplement to this standard operating procedure (SOP). While the HMBP submittal contains the basic requirements of the regulation, this SOP contains details of all CalEnergy facilities with further instructions on implementing the HMBP

While this SOP ensures that all HMBP requirements are met, the emergency response procedures outlined herein reflect CalEnergy procedures for responding to general emergencies and should be used as such in addition to other safety procedures, operational instructions, and referenced environmental procedures (e.g. the facility's Safety Manual, operating instructions for loading and unloading chemicals, and the Risk Management Plan for 36 percent hydrochloric acid).

1.3. Facility Location

This SOP is for all CalEnergy facilities. The address and specific details for each facility is included in the Business Activities Form from the online HMBP – see Table 1.

1.4. Requirements to Update HMBP

In addition, to filing an annual update by March 1st, through the online California Environmental Reporting System, please note that the online HMBP must also be updated within 30 days if **any** of the following events occur:

1. A 100 percent or more increase in the quantity of a previously disclosed material.
2. The facility begins handling a previously undisclosed material at or above HMBP reporting thresholds;
3. Change of business address.
4. Change of business ownership
5. Change of business name
6. Additionally, if the local agency determines that the HMBP is deficient the plan must be revised and the revisions submitted to the local agency within 30 days of the notice to submit a corrected plan.

It should be noted that the entire HMBP must be reviewed every three years to determine whether revision is needed. The facility owner, operator, or designated representative must certify that the review was performed and any needed changes were made. This certification is accomplished by completing and submitting to the local agency a certification stating that no changes are needed, or a copy of the complete, updated, HMBP with the certification statement indicating that changes are being made. A checklist with the minimum requirements for performing the review is provided in the attachment to this SOP.

1.5 Recommendation to Update HMBP SOP

The Standard Operating Procedure for the HMBP should be updated whenever there are significant changes that affect the SOPs, and the procedures should be also reviewed every three years (when the official HMBP recertification is being performed).

Table 1 – Business Activities Form

- Please see Tab 2 of each Hazardous Materials Business Plan for the Business Plan Activates information. The information in the online forms is summarized in the flowing table.

Table 2 – Site Emergency Contact List

Name	Address	CERS ID	EPA ID	Primary Emergency Contact-Cell	Secondary Emergency Contact	EMERGENCY 24 NUMBER
Elmore	786 West Sinclair Calipatria, CA 92233	10131706	CAD983648445	Mike Lopez 760-604-0204	Lenie Sarion 760-604-0386	Region 2 Control Room 760-348-4255
Vulcan, Hoch, MAC	7001 Gentry Rd Calipatria, CA 92233	10121752	CAD983648429	Mike Lopez 760-604-0204	Lenie Sarion 760-604-0386	Region 2 Control Room 760-348-4255
Desert Valley Company	3301 West Highway Brawley, CA 92227	10121743	CAL000057678	Sam Rubin 760-604-0047	Lenie Sarion 760-604-0386	Region 2 Control Room 760-348-4255
Leathers	342 West Sinclair Calipatria, CA 92233	10131757	CAD983648403	Mike Lopez 760-604-0204	Lenie Sarion 760-604-0386	Region 2 Control Room 760-348-4255
Units 3, 4, 5	6920 Lack Road, Calipatria, CA 92233	10121749	CAD983663600	Janet Hagen 760-604-1875	Lenie Sarion 760-604-0386	Region 1 Control Room 760-348-4280
Units 1, 2	6920 Lack Road Calipatria, CA 92233	10121746	CAD983663634	Janet Hagen 760-604-1875	Lenie Sarion 760-604-0386	Region 1 Control Room 760-348-4280
Administration	7030 Gentry Rd. Calipatria, CA 92233	10121728	CAR000084756	Joshua Hawk 760-550-3778	Lenie Sarion 760-604-0386	Region 2 Control Room 760-348-4255
Central Services	480 West Sinclair Road Calipatria, CA 92233	10121731	CAD983648411	Jon Trujillo 760-604-0045	Jenny Wu 760-604-5740	Region 2 Control Room 760-348-4255

2 HMBP RESPONSIBILITIES

All employees have responsibilities under the hazardous materials business plan for being able to respond to an emergency by, at least, protecting themselves and others. General responsibilities for the plan are shown in Table 1 (and included in the online/official HMBP); in addition the following persons have responsibilities that are not shown in the official/online HMBP:

- Environmental Services is responsible for updating the plan.
- CalEnergy's Incident Commanders are responsible for coordinating emergency events and interacting with external emergency responders.
- Area Managers (which are the Primary and Secondary Emergency contacts) are responsible for supporting the Emergency Coordinators and providing resources to the Coordinators in the event of a release.
- The Environmental Manager/staff is responsible for providing guidance on environmental efforts and for external notification to environmental agencies related to emergency events.
- Well Emergency Contacts are responsible for supporting the Incident Commanders in the event of an emergency event at the wells.
- The Safety Manager is responsible for providing guidance on safety efforts and external notifications to safety agencies related to emergency events; in particular where the event relates to human health.
- The General Manager or Vice President of Real Estate will be responsible for communicating with the public, media or other external persons (not within the purview of other functional areas listed above) in responding to emergencies.

Detailed actions to be taken by these persons in for the HMBP are contained elsewhere in the HMBP SOPs.

Contact information for primary and secondary emergency contacts – who also serve as the Area Managers for the HMBP - are shown in Table 2. Contact numbers for other persons with responsibilities for the HMBP are shown in Table 3.

Employees receive training related to being able to complete these duties as shown in the HMBP Training SOP.

Table 3 – HMBP SOP – Internal Responsibilities & Contacts

Primary and Secondary Emergency Contacts for specific locations and facilities are shown in Table 2

HMBP Role	Name	Job Position	Office Phone	Cell Phone
Incident Commander/pending training	Miguel Alcantar	Shift Supervisor Site 2	(760) 348-4255	(760) 604-1963 (760) 604-6499
Incident Commander/pending training	Eric Bonillas	Shift Supervisor Site 2	(760) 348-4255	(760) 604-1963 (760) 604-6499
Incident Commander/pending training	Lepe Soto	Shift Supervisor Site 2	(760) 348-4255	(760) 604-1963 (760) 604-6499
Incident Commander/pending training	Joel Sanchez	Shift Supervisor Site 2	(760) 348-4255	(760) 604-1963 (760) 604-6499
Incident Commander/pending training	Jonathan Aguirre	Shift Supervisor Site 1	(760) 348-4280	(760) 604-2311
Incident Commander/pending training	George Mickle	Shift Supervisor Site 1	(760) 348-4280	(760) 604-2311
Incident Commander/pending training	George Sanga	Shift Supervisor Site 1	(760) 348-4280	(760) 604-2311
Incident Commander/pending training	Art Silva	Shift Supervisor Site 1	(760) 348-4280	(760) 604-2311
Interim Incident Commander/ Emergency Coordinator	Fred Steele	Hazmat Program Leader	(760) 348-4270	(760) 604-2493
Emergency Coordinator	Steve Martinez	Sr. Safety Technician	(760) 348-4229	(760) 604-1585
Emergency Coordinator	Jesus Teran	Sr. Heavy Equip Op & Trainer	n/a	(760) 604-2518
Interim Incident Commander/ Emergency Coordinator	Marie DeYesso	Hazmat Coordinator	(760) 348-4099	(760) 604-3822
Primary Well Emergency Contact	Jon Trujillo	Resource Manager	(760) 348-4213	(760) 604-1593
Secondary Well Emergency Contact	Mark Chastain	Drilling Superintendent	(760) 348-4053	(760) 348-4255
Safety Contact	Joshua Hawk	Safety Manager	(760) 348-4271	(760) 550-3778

Environmental Contact	Anetha Lue	Environmental Director	(760) 348-4275	(760) 550-5810
Primary Media & Public Contact	Diane Cason	Vice President of Real Estate	(760) 348-4095	(760) 623-3289
Secondary Media & Public Contact	Lenie Sarion	General Manager	(760) 348-4261	(760) 604-0386

3 EMERGENCY RESPONSE PLAN – STANDARD OPERATING PROCEDURE

3.1 Emergency Response Procedures - Overview

Whenever there is an actual or imminent emergency involving an earthquake, fire, explosion, and/or chemical release (that is potentially harmful or reportable), this emergency response plan (also referred to as the contingency plan) will be put into effect immediately by the personnel observing the incident or occurrence. The shift supervisor at the site where the emergency is occurring (i.e. the shift supervisor for Site 1 or 2) will contact the Interim/Incident Commander, who shall take command with the assistance of the Shift Supervisor and other staff as indicated below:

The Incident Commander shall take all steps necessary to:

- secure the area,
- ensure the safety of site personnel,
- immediately notify one of the designated Emergency Coordinators, who will focus on controlling the chemical and safety aspects of the incidents,
- maintain control of the incident,

Do not authorize or direct personnel to undertake response actions related to chemical, environmental or safety response without the approval of the Incident Commander.

Employees may respond to releases of hazardous materials and hazardous waste only if:

- they are current in their training on the hazards of the materials (as presented in 40-hour or 8-hour HAZWOPER training);
- the materials can be safely handled with minimal exposure while using appropriate personal protective equipment (PPE) for the material;
- the employees or the personnel directing the operation have adequate knowledge to operate and secure the process and material involved in the emergency; and
- the Emergency Coordinator has authorized the response required for chemical, environmental or safety impacts.

The general aspects of the plan program are summarized in Table 4 and responsibilities for the response are shown in Figure 1.

Table 4D – Consolidated Emergency Response/Contingency Plans

- For Emergency contingency plans please refer to Tab 6 in each Hazardous Materials Business Plans.

Emergency Event General Response & Notifications

3.1.1 General Response

In an actual emergency, the Incident Commanders (shown in Table 3), the primary or secondary emergency contacts (shown in Table 2), and the Environmental Department and Safety staff (as shown in Table 3) will be contacted; along with the other persons needed to manage the incident (as indicated in Table 3). The Incident Commander shall take command. Figure 1 provides a flow diagram of the notifications of events.

The following precautions should also be observed at the onset of, or when responding to, an event:

- **Only trained and authorized persons shall wear/use emergency response equipment.**
- **Only trained and authorized persons shall respond to emergencies.**
- **Authorization to assist in responding to an emergency event shall be given by the on-site Emergency Coordinator.**
- In the event that news media arrive, personnel shall be directed to senior management (specifically the company general manager, or the vice president of real estate) for information and comments. Senior management generally handles these inquiries with assistance from corporate communications.

3.1.2 Immediate Internal Notifications

All releases, regardless of quantities, significance, or potential threat to humans, should be reported via text message, as soon as possible, to the Site Manager, the area manager for the location/facility, the Maintenance Manager, the General Manager, the Health & Safety Manager, the Environmental Services Manager, and at least one of the emergency coordinators. The incident should also be documented as soon as possible, but by no later than the end of the shift, in the CEOC Significant Event Report, and the report shall be e-mailed to the personnel receiving the text message.

3.1.3 Immediate External Notifications

In addition to internal reporting, external notifications may be needed. The release thresholds that trigger reporting to external agencies are contained in Table 5b, and the phone numbers for external contacts are shown in the Consolidated Contingency Plan (Table 4), and the list of spill reporting thresholds (Table 5a).

The Incident Commander and/or Emergency Coordinators are the primary contact with Emergency Response Services (e.g. agencies providing rescue and assistance), and should notify emergency response services as soon as a determination is made that such services are needed.

For notification of **non-emergency response agencies** (e.g. regulatory agencies), **the Environmental, Health & Safety, and Compliance Departments/staff will be responsible for notifying regulatory agencies** in their respective functional areas (e.g. environmental staff will contact environmental agencies). If staff with these departments are not available, notifications will be made by the General Manager (or another executive within CalEnergy who is available), and in the rare event that none of these persons are available the Incident Commander or Emergency Coordinator is authorized to make the notifications.

For chemical releases, California's Office of Emergency Services (CalOES) and the Department of Toxic Substances Control (DTSC) must be notified within 15 minutes (by telephone) of the discovery of a release, if and when:

- Any spill or release leads to an off-site discharge to a public water body (any waters of the state) or that threaten water quality.
- Any spill or release is determined to be significant (i.e. the spill exceeds the criteria and conditions listed in the attached External Spill Notification Criteria checklist).
- If the federal Reportable Quantity (RQ) is exceeded, the National Response Center (NRC) must also be notified.

In addition, all spills or releases that result in injuries, or workers harmfully exposed, must be immediately reported to California Occupational Safety and Health Administration (Cal/OSHA) by the H&S Manager or her alternate.

The California Office of Emergency Services provides a guidebook on spill reporting - http://www.waterboards.ca.gov/rwqcb8/publications_forms/docs/spillnot.pdf, which provides further clarification regarding spill notification. CalEnergy has adopted this guideline in the attached forms to determine when a spill should be reported (the Spill External Notification Criteria), and the information that should be available when a report is made (the Spill Notification Information Checklist).

3.1.4 Follow-up Environmental Notifications/Reports

- A written follow-up report to CalOES (Section 304) is required within seven (7) days if the release equals or exceeds the federal RQ. Follow-up reports will be submitted to appropriate regulatory agencies by Environmental Services.

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Figure 1 – Emergency Event Response & Internal Notifications

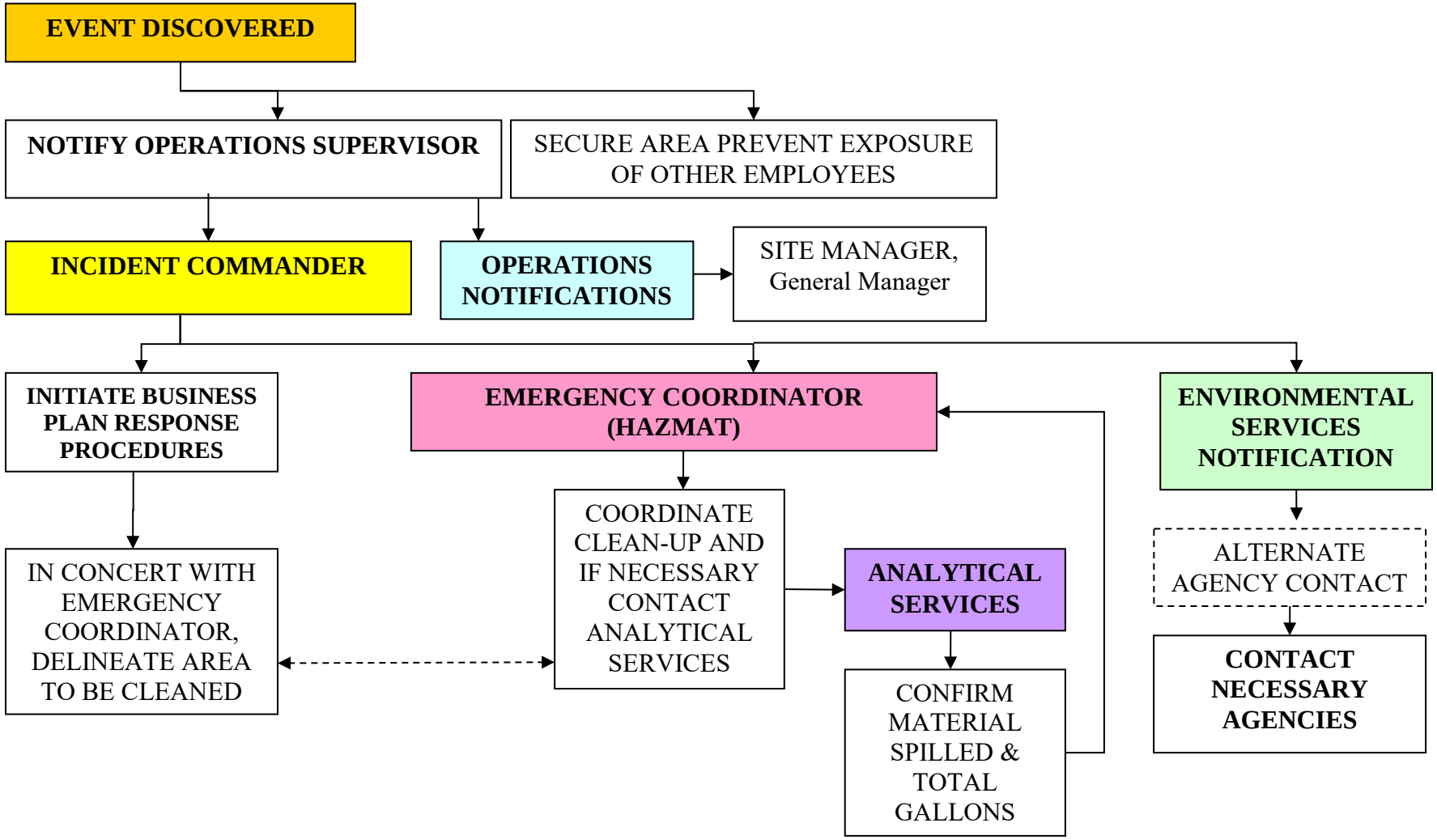


Table 5a – External Emergency Incident Phone Contacts

Emergency (Type)	Organization	Phone	Required Notification Period	Reporting Requirements
Injury (any)	Hospital or Ambulance	911*	As situation requires	1. Name and telephone number of reporter 2. Name and address of facility. 3. Time and type of incident (fire, chemical release, etc.) 4. Name and quantity of material(s) released (to the extent known) 5. The extent of injuries, if any 6. Possible hazards to human health or the environment
Poisoning	Poison Control Center	800-222-1222	As situation requires	
Occupational Accident or Exposure (Notification)	California Department of Occupational Safety & Health OSHA)	916-263-2800*	Within 24 hours	
Fire/Explosion	Fire	911*	As situation requires	
	Police/Sheriff	911*	As situation requires	
Hazardous Material Spill/Release	+California Office of Emergency Services	800-852-7550*	Immediate	
	+National Response Center (U.S. Coast Guard)	202-267-2180*	Immediate if >RQ	
	+Department of Toxic Substances Control	916-255-3545	Immediate	
	+Regional Water Quality Control Board	Primary 760-776-8960 Secondary 760-346-7491	Within 48 hours	
In addition to above, if the spill : **1. Exceeds RQ and Extends Offsite** **2. Is a Gaseous Release into the Atmosphere** **3. Enters Canal** **4. Is on a Public Highway**	+Imperial County Office of Emergency Services	760-355-1191*	Immediate	
	+Imperial County Air Pollution Control District	Fax 760-353-9904 760-482-4606	As soon as possible	
	Fire	911*	As situation requires	
	+Imperial Irrigation District	760-339-9380*	As soon as possible	
	+ Caltrans, California Highway Patrol	911*	As soon as possible	
Electrical	+Imperial Irrigation District	760-339-9380*	As soon as possible or as situation requires	1, 2, and 3 above.
Gas	Southern California Gas Company	800-427-2200*		
Chemical Emergency Information	Chemtrec	800-424-9300*		
Incident involving production or injection wells	+California Division of Oil, Gas and Geothermal Resources	760-353-9900*	Immediate blow-outs & "major" events	1, 2, and 3 above.

* Denotes 24-Hour Phone Number. + Denotes Required Notifications

Table 5b – Reportable Quantities of Common CalEnergy Hazardous Materials

Common Name	Chemical Name	% Weight (%)	CAS #	Reportable Quantity (RQ)	
				pounds (lbs)	gallons (gals)
Anti-Freeze and Coolant	Ethylene Glycol	100	107-21-1	5,000	540
Bleach (Biocide)	Sodium Hypochlorite	12	7681-52-9	100	83
Caustic Soda	Sodium Hydroxide	40	01310-73-2	1,000	141
Geothermal Brine	Brine (NRC 15-min.)	NA	NA	88,000*	8,800*
	Brine* (RWQCB only, in 24-hrs)	NA	NA	NA	150
Cooling Tower Water	Cooling Water	100	NA	NA	41,000
Hydrochloric Acid 2%	Hydrogen Chloride	2.5	7647-01-0	5,000	23,981
Hydrochloric Acid 36%	Hydrogen Chloride	36	7647-01-0	5,000	1,411
Hydrogen Chloride Gas	Hydrogen Chloride Gas	36	7647-01-0	500	200
Nalco 7614 Liquid	Ethylene Thiourea	1	96-45-7	10	102
Nalco 1387 Inhibitor	Ethylene Glycol	5	107-21-1	5,000	10,802
Nalco 73286	Phosphoric Acid	60	7664-38-2	5,000	591
Nalco 9355	Sodium Phosphate, Tribasic	30	7601-54-9	5,000	1,234
Oxides of Nitrogen (NO_x)	Nitrogen Oxide (NO)	100	10102-43-9, 10102-44-0	10	NA
Soil Seal Concentrate	Ammonia	0.2	7664-41-7	100	5,619
Vector 800 Cleaner	Sodium Hydroxide	10	1310-73-2	1,000	563
Sewage	Sewage	100	NA	NA	1,000
Gasoline	Gasoline	NA	NA	to U.S waters.	42
Oil - Any petroleum based	Oil	NA	NA	to U.S waters.	42

If the release is above the RQ the California Office of Emergency Services (OES) must be called within 15-minutes of the release 1-800-852-7550.

(*) Note that if more than 150 gallons of brine is released, a report must be filed with the Regional Water Quality Control Board within 48 hours

3.2 Duties of Onsite Personnel

3.2.1 All Personnel

All CalEnergy employees are trained at the First Responder Awareness Level under HAZWOPER, and are expected to be able to take defensive actions only, which includes being able to:

- Recognize a chemical release
- Determine chemical's identity
- Protect themselves and others
- Call for help
- Secure the area (by notifying other not to enter the area).

3.2.2 Field Personnel

All non-administrative personnel (i.e. field personnel) are trained to the First Responder Operations Level (under HAZWOPER rules), and are expected to have:

- Knowledge of the basic hazard and risk assessment techniques
- Knowledge of how to select and use proper personal protective equipment (PPE)
- Understanding of basic hazardous material terms
- Knowledge of how to perform basic control, containment, and/or confinement operations within the capabilities of the resources and PPE available within the unit
- Knowledge of how to implement basic decontamination procedures/techniques
- Understanding of the relevant SOPs and termination procedures

3.2.3 Emergency Coordinators

Emergency Coordinators (shown in Table 3) are trained to cover most of the Incident Commander requirements. The Emergency Coordinator shall assist the Incident Commanders in directing emergency response activities as listed in this section of this HMBP SOP. Protecting the health and welfare of affected personnel is the first priority in all response actions. In addition, response activities should focus on protection of the environment and company assets.

The duties of the Emergency Coordinator include, but are not limited to, the following:

- Ensuring that all affected personnel are notified of the emergency and the area has been secured. Note in the operating record the time, date and details of any emergency.
- Assessing potential hazards to human health or the environment.
- In the event that the emergency threatens off-site personnel or property, notifying appropriate state and/or local emergency response agencies immediately.
- Ensuring that the Environmental Manager has been contacted in the event that the emergency involves the release or threatened release of chemicals, whether solid, liquid or gaseous.
- Ensuring that the Safety Department has been notified of the situation in all cases.
- Contacting the appropriate area manager to notify him/her of the emergency and discuss pertinent area-specific information (e.g. processes to be shut down or isolated, non-routine activities or personnel in the area, unusual hazards that may be present, etc.).

- Providing for treating, storing, or disposing of recovered material, contaminated soil, or surface water etc.

3.2.4 Incident Commanders

Incident Commanders (shown in Table 3) are 40 hour HAZWOPER trained and receive incident command training prescribed by Department of Homeland Security/FEMA. The Incident Commanders shall initiate and direct emergency response activities as listed in this section of this HMBP SOP. If the specific emergency is not covered by this plan, the Incident Commanders shall use best judgment and common sense to address the situation. Protecting the health and welfare of affected personnel is the first priority in all response actions. In addition, response activities should focus on protection of the environment and company assets.

The duties of the Incident Commanders include, but are not limited to, the following:

- The Incident Commander has overall responsibility for managing the incident by establishing objectives, planning strategies, and implementing tactics.
- Conducts operations to reach the incident objectives. Establishes the tactics and directs all operational resources.
- Ensuring that all affected personnel are notified of the emergency and the area has been secured. Note in the operating record the time, date and details of any emergency.
- Assessing potential hazards to human health or the environment.
- In the event that the emergency threatens off-site personnel or property, the commander will notify CalEnergy's management who will notify the appropriate state and/or local emergency response agencies immediately.
- Ensuring that the Environmental Manager has been contacted in the event that the emergency involves the release or threatened release of chemicals, whether solid, liquid or gaseous.
- Ensuring that the Safety Department has been notified of the situation in all cases.
- Contacting the appropriate area manager to notify him/her of the emergency and discuss pertinent area-specific information (e.g. processes to be shut down or isolated, non-routine activities or personnel in the area, unusual hazards that may be present, etc.).

3.3 Evacuation

In the event that it is necessary to evacuate the building(s) in the event of a threat, actual emergency, or potentially harmful situation the evacuation plan for the various buildings at CalEnergy Operating Corporation will be followed. An event could results from fire, earthquake or brine release etc.

The evacuation objective is to execute a safe and quick evacuation. Any person noticing an event, that could or should require the evacuation of a facility/area, is responsible to notify all other persons in that building with the use of any emergency signaling device such as a paging system, fire alarms, word of mouth, and hand held radios, etc. Evacuation would then proceed as shown on the evacuation plan maps that are located throughout the buildings. These maps show the closest route of egress from all points in the building. In the event that fire or some other obstacle is blocking the intended evacuation route, the evacuee will proceed to the next nearest point of egress, as indicated on the maps. The evacuation maps are included in Tab 5 of each Hazardous Materials Business Plan.

One person will be designated in each building or each area of a building is assigned to verify that occupants of the building have evacuated. Evacuees will be accounted for at the staging area away from the facility as shown on the following maps. The designated person conducts a roll call and accounts for personnel.

The person at the site with the highest authority level is to contact emergency response personnel (fire department, paramedics, etc.). If off-site consequences are possible, contact the Imperial County Office of Emergency Services at (760) 355-1191 (24-hour number).

The control operator and the operations staff shall take steps to safeguard the well-being of the plant before evacuating, if it is safe to do so. Employee safety always comes first. When evacuating, if it is safe to do so, all HVAC systems should be safely shut down to prevent vapors from leaving buildings. The properly trained Control Room Operator, Primary Emergency Response contact, or their designees (trained to perform this task) for each area are responsible securing the buildings and area.

Be aware of potential hazards posed by transformer fires and explosions. Since high-voltage equipment is located throughout the power plants, extreme caution shall be observed when exiting towards an emergency staging area. Avoid evacuation routes where health and safety are at risk due to spreading fire, spills or any other event caused by an emergency situation.

Prior to an emergency/evacuation, each employee shall identify and examine all possible routes of exiting the work areas so that if the primary route is blocked, a secondary route can be used.

3.3.1 Evacuation & Emergency Response for Persons Needing Assistance

All employees evacuating their work areas must meet at the designated place so each employee can be accounted for. Non-employees (such as visitors or contractors) who have not been trained in the facility's evacuation procedures should be accompanied by CalEnergy employees, or be directed to remain in areas where they can be assisted by CalEnergy employees in the event that it is necessary to evacuate or implement emergency response procedures. Similarly non-English speaking persons must be accompanied by an English speaking person, while on site, so that instructions can be communicated to the non-English speaker in the event of an emergency. Disabled person shall also be provided with accommodations to allow them to respond to an emergency or evacuation, while they are at CalEnergy's facilities.

3.4 Employee Injury

In the event of an injury to an employee, a qualified person or persons will administer basic first aid to the best of their ability. (Each department **shall** have one or more qualified persons for basic first aid/CPR). If further emergency medical attention is needed, the qualified person who administered basic first aid should accompany the accident victim to the nearest hospital or emergency medical center. A third person must drive. The employee's supervisor and the Safety Department must be notified immediately.

If the injury requires medical treatment and/or transportation that are beyond CalEnergy's capabilities, more qualified medical assistance **must** be called. Dial 9-911. If a cellular phone is

used to make the emergency assistance call, the local fire department must also be called to ensure that the paramedics will be notified.

If the EMTs, ambulance or fire department are called, a senior employee should be stationed at the facility entrance to direct assistance to the response area. If the employees are taken to the hospital, the hospital should be contacted in advance and made aware of the employee's arrival and type of injuries the employee has experienced.

The on-duty control operator/senior employee **must** fill out an Incident Report prior to leaving work that day. A copy of all documentation generated from caregivers **shall** be provided to the Safety Department.

If the injured/sick employee is not able to drive their vehicle home, arrangements should be made for the employee to be taken home.

3.5 Communication

In the event of an emergency, a general facility alarm/warning will be broadcast via evacuation air horn, two-way radio, cell phone, or by voice. Notifications and instructions from the Control Rooms will be broadcasted on normal two-way radio channels. Specifically, Control Operators will communicate the following information:

- The specific location and nature of the emergency
- Instructions on what actions are to be taken (e.g. isolating the area, evacuation, equipment start-up/shut-down, etc.)
- Periodic event updates, providing information necessary to maintain employee safety and site security, as determined by the Emergency Coordinator

Channel 6A (or channel 10 on the newer models) on the two-way radios has been reserved for Emergency Coordinators, Emergency Response Teams and associated contractors use during emergency response activities.

The Control Room at the affected facility shall serve as the Communications and Incident Command Center for coordination of responses to emergencies. In the event that the Control Room is inaccessible due to the nature of the emergency, the Incident Commander shall designate an alternative site.

3.6 Off-Site Emergency Services

This Emergency Response Contingency Plan has been established, in part, to facilitate coordination and emergency planning with off-site response officials and facilities.

Should an emergency occur which requires off-site assistance, given its magnitude and the potential limitations of on-site capability as determined by the Incident Commander; the Incident Commander

will immediately notify the appropriate agencies (see Section 5). These agencies have been apprised of the potential emergencies at CalEnergy and are trained to provide professional assistance. The Incident Commander or a qualified representative shall meet the responding agencies, direct them to the incident, and stand by to assist with information and other resources.

Note: **Statutory and regulatory release reporting requirements may necessitate notification of off-site emergency response officials even if no outside assistance is required.**

3.7 Responses to Specific Emergencies

3.7.1 Bomb Threats

a) Obtain Information about the Alleged Bomb:

- Utilize the "Bomb Threat – Quick Check List" (see Table 6)
- Get another person to listen to the call, as on a speakerphone, second line, or shared telephone receiver.
- Listen quietly and cooperatively to the caller and complete the checklist as quickly and completely as possible.
- Ask questions, if possible, to complete the checklist.

b) Based on information obtained from the caller, take action as appropriate to:

- Evacuate personnel from the area the bomb is alleged to be in.
- Evacuate personnel from the facility if appropriate.
- Notify the Sheriff's Office (dial 9-911).
- Notify the facility manager or your immediate supervisor.
- Account for all personnel at your designated gathering area.

c) Locate the Bomb:

- **Company personnel shall not attempt to locate the bomb!** Trained personnel from the Imperial County response team will locate the bomb.

Table 6 – Bomb Threat Checklist

BOMB THREAT QUICK CHECKLIST

WHO COMPLETES THIS CHECKLIST?- THE PERSON RECEIVING THE BOMB THREAT

INFORMATION TO GET OR QUESTIONS TO ASK

EXACT STATEMENTS MADE BY THE CALLER			
TIME THE BOMB IS SET TO EXPLODE			
EXACT LOCATION OF THE BOMB			
DESCRIPTION OF THE BOMB (SIZE, SHAPE, COLOR)			
KIND OF BOMB		TYPE OF EXPLOSIVE	
TYPE OF DETONATOR			
WHEN WAS THE BOMB PLANTED		DATE	HOUR
HOW ENTRY WAS GAINED		GROUP RESPONSIBLE	
HOW MANY PERSONS ENTERED			
ORGANIZATION CALLER REPRESENTS			
CALLERS NAME			

OBSERVATIONS TO MAKE WHEN THE CALLER IS TALKING

SPEECH	☐ FAST ☐ SLOW	☐ DISTINCT ☐ DISTORTED	☐ SLURRED ☐ STUTTER	☐ NASAL ☐ OTHER
LANGUAGE	☐ EXCELLENT ☐ GOOD	☐ POOR ☐ FOUL	☐ OTHER	
VOICE QUALITIES	☐ DEEP ☐ LOUD	☐ PLEASANT ☐ HIGH PITCHED	☐ RASPY ☐ INTOXICATED	☐ SOFT ☐ OTHER
ACCENT	☐ RACE ☐ LOCAL	☐ FOREIGN ☐ REGIONAL	☐ NOT LOCAL ☐ OTHER	
MANNER	☐ COHERENT ☐ LAUGHING	☐ RATIONAL ☐ EMOTIONAL	☐ RIGHTEOUS ☐ DELIBERATE	☐ INCOHERENT ☐ IRRATIONAL
BACKGROUND NOISE	☐ TRAINS ☐ ANIMALS ☐ FACTORY	☐ AIR PLANES ☐ STREET TRAFFIC ☐ OFFICE	☐ MIXED ☐ MUSIC ☐ PARTY	☐ QUIET ☐ VOICES ☐ OTHER

3.7.2 Earthquake

- A control operator/senior employee **shall** make contact with all employees on site and determine their physical condition and location.
- Address injuries immediately. Call 9-911 for help.
- A control operator **shall** assess damage. Areas requiring immediate inspection (and potential isolation) include brine handling equipment, wells, turbines and any equipment that signaled a high vibration condition.
- A control operator **shall** place the plant in a safe condition.
- For assistance, call (760) 355-1191 (24-hour number), Imperial County Office of Emergency Services.
- If severe damage requires plant shut down:
    - Block in the wells
    - Trip the turbine(s)
    - Observe operating parameters for proper control.
    - A shift supervisor from region 1 or 2 **shall** make sure appropriate internal notifications have been made (e.g. General Manager, Maintenance Manager, Area Managers, Safety Manager, etc.)
    - Station an operator/senior employee at the facility entrance to direct incoming emergency personnel and equipment to the emergency scene.
    - Responsible control operator/senior employees will standby and provide information and directions to incoming emergency response personnel.
    - The control operator/senior employee **must** fill out an Incident Report on duty when the incident began prior to leaving work that day.

3.7.3 Explosions

- Control operator/senior employees make contact with all employees on site and determine their physical condition and location.
- Address injuries immediately. For assistance, call 9-911.
- A shift supervisor from region 1 or 2 **shall** notify other facilities for possible assistance.
- A control operator assesses damage and secures the facility in a safe condition.
- In most instances, a fire occurs when there is an explosion. All major explosions **shall** be reported to Imperial County Office of Emergency Services at the phone numbers shown in Table 5a. The Imperial County Sheriff's Office in El Centro can be utilized as a second contact phone number at (760) 339-6311.

- severe damage requires plant shut down:
  - Block in the wells
  - Trip the turbine(s)
  - Observe operating parameters for proper control.
- Following any explosion a control operator **shall**:
  - Call the facility manager
  - Note the explosion in the operations logbook or other appropriate log.
  - The control operator/senior employee must fill out an Incident Report on duty when the incident began prior to leaving work that day.
- Following a major explosion shift supervisor from Region 1 or 2 **shall**:
  - Call the General Manager and the environmental manager.
  - Station an employee at the facility entrance to direct incoming emergency personnel and equipment to emergency scene.

3.7.4 Fire

A control operator/senior employee **shall** make contact with all employees on site and determine their physical condition and location.

Address injuries immediately. For assistance, call 9-911.

A shift supervisor from Region 1 or 2 **shall** notify other facilities for possible assistance.

3.7.4.1 MINOR FIRE

- A minor fire shall be documented in the Operation Logbook or other appropriate log.
- Each fire will be handled on an individual basis.
- The control operator/senior employee **must** fill out an Incident Report on duty when the incident began prior to leaving work that day.

3.7.4.2 MAJOR FIRE

- All energy sources possibly feeding the fire shall be shut off prior to extinguishing the fire.
- Contain each class of fire with the correct extinguishing agent.
- Station a control operator/senior employee at the facility entrance to direct incoming emergency personnel and equipment to the emergency scene.
- The control operator/senior employee must fill out an Incident Report on duty when the incident began prior to leaving work that day.

3.7.5 Gas Release

Control operator/senior employees will make contact with all employees on site and determine their physical condition and location.

Address injuries immediately. For assistance, call 9-911.

3.7.5.1 MINOR RELEASE

- A minor release, which may not affect the outside community, shall be documented in the Operations Logbook or other appropriate log.
- Each release will be handled on an individual basis.
- The control operator/senior employee **must** fill out an Incident Report on duty when the incident began prior to leaving work that day.

3.7.5.2 MAJOR RELEASE

- A release that may affect the outside community **shall** be reported to appropriate agencies immediately.
- Station an operator/senior employee at the facility entrance to direct incoming emergency personnel and equipment to the emergency scene.
- Check the wind direction and direct employees equipped with appropriate personal protective equipment (PPE) to establish control of the affected area and prevent access to the public.
- The control operator/senior employee **must** fill out an Incident Report on duty when the incident began prior to leaving work that day.

3.7.6 Well Emergency

A control operator/senior employee **shall** contact all employees on shift and determine their physical condition and location.

Address injuries immediately. For assistance, dial 9-911.

- Identify possible blowout condition such as:
  - A leak in the surface pipe before the motor operated valve (MOV).
  - A leak below the wellhead valve on the wellhead itself.
  - Cellar water level rising or steam blowing out between the casings.
  - Substantial gas release from the cellar.
- Determine appropriate action, such as:
  - If the leak is physically below, i.e., upstream of the manually operated wellhead Master valves, DO NOT isolate the well. Wait for directions from drilling department personnel before taking action.

- If the leak is physically above, i.e., downstream of the manually operated Master valves, the leak may be isolated by closing the Master valves and header isolation valves.
- Be safe at all times, if the wellhead valves or motor operated valves (MOVs) cannot be reached safely, wait until management arrives and gives directions.

- The following persons shall be contacted in the event of a well emergency:

Well Emergency Contact	Title	Office Phone	24-Hour Phone:
Jon Trujillo	Resource Manager	(760) 348-4011	(760) 348-4255
Mark Chastain	Drilling Superintendent	(760) 348-4053	(760) 348-4255

As the CalEnergy Agent to the California Division of Oil, Gas and Geothermal Resources, the Resource Manager (Emergency Contact), in conjunction with the Drilling Superintendent, **shall** notify the California Division of Oil, Gas and Geothermal Resources of any well control issue.

A shift supervisor from Region 1 or 2 **shall** notify appropriate personnel of the incident. The control operator/senior person must fill out an Incident Report prior to leaving work that day.

3.7.7 Chemical Release:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases.

A control operator/senior employee **shall** make contact with all employees on site and determine their physical condition and location.

Address injuries immediately. For assistance, call 9-911.

- Secure the area to prevent further exposure of site personnel.
- Identify character, source, amount and extent of any chemicals that have been or may be released.
- Shift supervisor from Region 1 or 2 **shall** notify the Health and Safety Manager and the Environmental Services Manager immediately.
- Identify/authorize spill response personnel as needed.
- Emergency Coordinators or shift supervisor from Region 1 or 2 **shall** direct response personnel to control/stop the release as soon as it is safe to enter the area.
- Contain and cleanup any material that is released.
- Implement measures to properly store or dispose of recovered material, contaminated soil or surface water. Ensure that containers are appropriately labeled and stored. Environmental **shall** arrange for off-site disposal as soon as possible where material requires disposal; in any event, hazardous waste generated during the response action must be secured and removed for disposal within 90 days from the time it is generated.

- The shift supervisor arranges for delivery of additional emergency response materials (spill kits, PPE, etc.), as necessary.

3.7.7.1 Chemical Release of 36% Hydrochloric Acid

The facility has opted into the Risk Management Program for the controls of releases (or threatened releases) of 36 percent hydrochloric acid at **Unit 3**. Specific procedures are contained in the Risk Management Plan.

In addition to the general procedures for responding to chemical releases (as contained in the HMBP and the SOPs for the HMBP) employees shall follow the following hydrochloric acid response and evacuation procedures for releases of 36 percent hydrochloric acid.

- **Operators:** Upon detecting hydrogen chloride vapors, evacuate the area and make the notifications to the following personnel:
    - The Incident Commander should be notified and activated whenever there is a release of 55 gallons or more of the spill inside or outside of the containment area for the 36% hydrochloric acid. Notification should be provided by text and or phone message as soon as it is safe and possible to do so.
    - Environmental Services and the Safety Department (and other required departments) should be notified through the CEOC Incident Report Notification system whenever there is a release of any quantity of 36% hydrochloric acid. This notification should be made before the end of the shift by e-mail through the CEOC or by text message.
    - Safety Department should be notified whenever there is a release (of any quantity that results in harm to personnel). For example, if a spray or vapor impacts skin or breathing passages of employees, it may be necessary for Safety to secure the area and or operation even though the quantity if the release does not impact soil, air or other environmental media. Notification should be provided by text and or phone message as soon as it is safe and possible to do so.

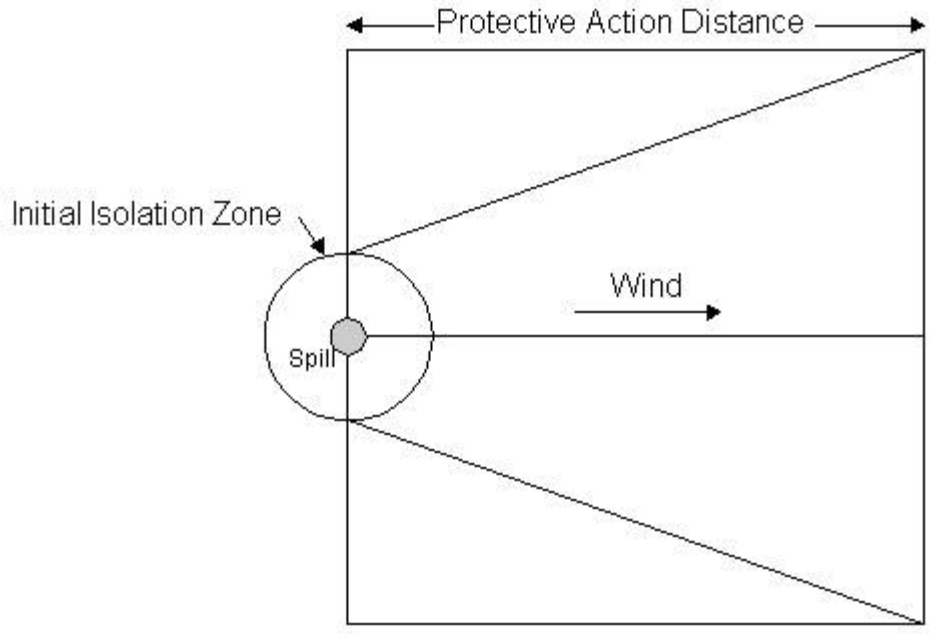
- **Emergency Coordinator (in the Safety Department):** Use portable hydrogen chloride sensors to identify the 5 ppm exclusion zone. If outside assistance or off-site evacuation is required, call 911 immediately.

- **Environmental Services:** Call the National Response Center and California Office of Emergency Services immediately if a reportable quantity of HCl has been released (i.e. if 200 gallons of 36% hydrochloric acid is released, or if the release is of a lesser quantity and is potentially harmful).

- **Initial Isolation and Protective Action Distances for Hydrogen Chloride**: Initiate protective action to the extent possible, beginning with those closest to the spill site and working away from the site in the downwind direction.

- **Initial Isolation Distance (100 to 200 feet):** Is the distance which all persons should be considered for evacuation in all directions from the actual spill/leak. It is a distance (radius) within which persons may be exposed to dangerous concentrations upwind of the source and may be exposed to life threatening concentrations downwind of the source.
- **Protective Action Distance (500 to 1,000 feet daytime / 1,000 to 4,000 feet nighttime):** Is the distance for a small spill for a daytime incident and for a nighttime incident. These distances represent a downwind distance from the spill/leak which Protective Action (e.g. evacuate and/or shelter in place) could be implemented.

Chemical: hydrochloric acid	Initial Isolation Distance	Protective Action Distance (Daytime)	Protective Action Distance (Nighttime)
Small Spill (< 55 gal.)	100 ft.	500 ft.	1,000 ft.
Large Spill (> 200 gal.)	200 feet	1,000 ft.	4,000 ft.



3.8 General Containment and Cleanup Guidelines:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases.

- A control operator/senior employee **shall** secure the area with barricades, tape, cones or flags to prevent unauthorized entry. The following protective distances should be observed:
  - 100-foot zone for a spill of 50-gallons or less.
  - 500-foot zone for a spill greater than 50-gallons.
- Identify the material and utilize the SDS with all emergencies.

- Notify Environmental Services staff. Environmental Services will notify reporting agencies based on regulatory criteria.
- Identify the on-scene Incident Commander.
- Assess the associated risks (quantity, terrain, location, temperature, wind, weather, etc.).
- Select the proper PPE. **Level C** would normally be the minimum.
    - Slicker suit, rubber boots, rubber gloves, goggles, hardhat and a respirator.
    - An SCBA with positive pressure mask whenever personnel are working in an atmosphere, which may be Immediately Dangerous to Life and Health.
- Isolate the leak and contain the release in a defensive manner as follows:
    - Block off gutters, sewers, sumps or drains to ensure that material does not enter these areas.
    - Do not eat, drink or smoke in the contaminated area.
    - Avoid walking through spilled material.
    - Control tracking of spilled material by vehicle and equipment tires.
    - Control fumes/vapors by utilizing a water fog, if necessary.
    - All personnel leaving the contaminated area shall follow proper decontamination procedures for personnel and equipment. Equipment that cannot be decontaminated will be contained in plastic bags, labeled, and properly disposed of.

3.8.1 Release of Solid Material from a 55-gallon drum:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases.

- A control operator/senior employee **shall** secure the area to prevent exposure of other employees.

- Notify Environmental Services staff. Environmental Services will notify reporting agencies based on regulatory criteria.
- Refer to SDS for technical information.
- Utilizing appropriate (PPE), place spilled/released material in a new waste disposal drum. Absorb liquid, if any, with appropriate absorbent. Pick up absorbent and place in hazardous waste drum. Place an appropriate label on drum and fill in relevant information. Keep containers closed at all times unless adding to container. Store all containers in appropriate containment area. Environmental shall arrange for removal of containers at an approved disposal facility within 90 days of accumulation of materials.

3.8.2 Release of > 500 gallons of liquid material from tank into secondary containment:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases.

- A control operator/senior employee **shall** secure the area using barricades, tape, cones or flags to prevent unauthorized entry.
- Identify the material and utilize SDS for technical information.
- Notify Environmental Services staff. Environmental Services will notify reporting agencies based on regulatory criteria.
- Utilizing appropriate PPE, pump or otherwise, transfer liquid from containment area into an appropriate replacement tank or temporary holding tank.
- Remove remaining liquid with absorbent material. Place absorbent into a hazardous waste drum. Place an appropriate label on drum and fill in relevant information. Keep containers closed at all times unless adding to container. Store all containers in appropriate containment areas. Environmental **shall** arrange for removal of containers at an approved disposal facility within 90 days of accumulation of materials.

3.8.3 Release of liquid material from 55-gallon drum:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases

- A control operator/senior employee **shall** secure the area using barricades, tape, cones or flags to prevent unauthorized entry.
- Identify the material and utilize SDS for technical information.
- Notify Environmental Services staff. Environmental Services will notify reporting agencies based on regulatory criteria.
- Utilizing appropriate PPE, procure a new container that is appropriate for the material to be placed in it. Pump or otherwise remove liquid from the release area.
- Excavate impacted soils. Place recovered liquids and soils into new hazardous waste container. Place an appropriate label on container and fill in relevant information. Keep containers closed at all times unless adding to container. Store all containers in appropriate containment and storage areas. Environmental shall arrange for removal of containers at an approved disposal facility within 90 days of start of accumulation of material.

3.8.4 Release of solid material from 15-yard bin:

Only persons trained in 40-Hour or 8-Hour HAZWOPER shall respond to releases.

- A control operator/senior employee **shall** secure the area using barricades, tape, cones or flags to prevent unauthorized entry.
- Identify the material and utilize SDS for technical information.

- Notify Environmental Services staff. Environmental Services will notify reporting agencies based on regulatory criteria. Refer to SDS for technical information.
- Utilizing appropriate PPE, place released material in a non-leaking bin. Sweep up any remaining material and place it in bin. Ensure there is a hazardous waste on the new bin that contains appropriate and relevant information. Keep bin closed at all times except when adding to container. Environmental shall for removal of bin at an approved disposal facility.

3.8.5 Multiple Hazard Situations

In situations that involve multiple hazards (i.e. fire in a chemical storage area, gas release due to an earthquake, etc.); the potential for creation of additional hazards and/or unanticipated consequences is much greater than in single-hazard events. In order to provide the maximum level of safety for emergency response personnel, affected employees and the general public, the Incident Commander shall use the information contained in this Business Plan and all other pertinent data to identify those hazards develop an action plan to safely address them. If the situation cannot be managed safely, then the Incident Commander shall initiate an evacuation of the area.

3.9 Emergency Response Equipment

Table 7a – List of Field-Wide Emergency Response Equipment

Qty	Item	Location
1	Fixed Evacuation Air Horn	Main Facility
	Portable Radios	Various
1	First Aid Cabinet (Large)	Control Room
1	Fire Blanket	Control Room
11	Safety Shower & Eye Wash	Battery Room/Lab/Domestic Water Skid/Chemical Pad CT/ North Turbine Mat/ Defoamer Tank/Filter Press Bld./ P307B/ DWS/pH Mod/Floc Bld.
2	Neotronics 40-GFH Gas Monitor	Lab
4	Scott Air Pack (30 Min)	Equip. Rm/U4 Acid Storage Bld./Cond. Storage Bld
1	Full Body Burn Pack #5600	Emergency Equip. Room
1	Small Burn Pack #5608	Emergency Equip. Room
1	Litter Basket	Emergency Equip. Room
1	Box Dispenser Ear Plug	Control Room
1	Fire Extinguisher 20# BC	East Entry Way
1	Fire Extinguisher 20# BC	West Entry Way
1	Fire Extinguisher 20# ABC	S/E Area Warehouse
1	Fire Extinguisher 20# ABC	Inside Area Warehouse
1	Fire Extinguisher 10# BC	Equipment Room
1	Fire Extinguisher 10# BC	Control Room
1	Fire Extinguisher 10# BC	South Entry (Control Room)
1	Fire Extinguisher 10# BC	Entrance/Lab

Table 7a – List of Field-Wide Emergency Response Equipment

Qty	Item	Location
1	Fire Extinguisher 10# BC	Bathroom Entry
1	Fire Extinguisher 10# BC	Kitchen
1	Fire Extinguisher 10# BC	Janitors Closet
1	Fire Extinguisher 10# BC	Filter Press
1	Fire Extinguisher 20# BC	Battery Room
1	Fire Extinguisher 13# Halon	Relay Room
1	Fire Extinguisher 13# Halon	Control Room
1	Fire Extinguisher 13# Halon	Switch Gear Room
2	Fire Extinguisher 140# Halon	Communications Room
1	Pyrotronics Smoke/Heat Detector Sys.	Control Room
3	Fire Extinguisher 20# ABC	Top of Cooling Tower
2	Fire Extinguisher 9# ABC Halon	PDC 301
2	Fire Extinguisher 9# ABC Halon	PDC 302
2	Fire Extinguisher 9# ABC Halon	PDC 303

Note: Exit signs posted. Facility equipped with emergency exit lights.

Table 7b – List of Field personnel PPE

Min.	INSPECTIONS	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	One Black Duffle Bag												
1	Pair Rubber Boots Steel Toe												
1	Safety Harness & Lanyard												
	HAND PROTECTION	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	a) Rubber chemical Resistant												
1	b) Leather												
1	c) White cotton												
1	d) Orange cotton w/grip												
	RESPIRATORY PROTECTION	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	a) 10X N-100												
1	b) 50X Half mask w/ combo cartridges												
	EYE PROTECTION												
1	a) Clear Z87 glasses												
1	b) Shaded Z87 glasses												
1	c) Face Shield												
	HEARING PROTECTION	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	a) Caboflex												
1	b) MAX-Disposable ear plugs												
1	Rubber Slicker (Size Varies)												
1	Yellow Disposable Tyvex (Size Varies)												
1	One Roll Grey Duct Tape												

4 HAZARDOUS MATERIALS BUSINESS PLAN TRAINING

ALL EMPLOYEES

All CalEnergy employees are provided with basic Hazardous Materials/Emergency Response training that enables them to recognize hazardous materials and situations they may encounter at the facility. This training equips all employees to recognize and react appropriately at level equal to a **First Responder Awareness Leve**l (under HAZWOPER rules - CCR Title 8 Section 5192 and 29 CFR 1910.120). First responders at the awareness level are workers who are likely to witness or discover a hazardous substance release. Their role is limited to notifying the proper authorities. Training or equivalent experience for first responders at the awareness level must allow for defensive actions only, where employees can:

- Recognize a chemical release
- Determine chemical's identity
- Protect themselves and others
- Call for help
- Secure the area

ALL FIELD PERSONNEL

All personnel who will work in the field are required to be qualified at a level equivalent to the **First Responder Operations Level** (under HAZWOPER rules), which requires an additional 8 hours of hazardous waste operations training (in addition to the First Responder Awareness training), which is given annually. These personnel respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. These individuals are trained to respond in a defensive fashion without necessarily trying to stop the release.

ACTING INCIDENT COMMANDERS/CONTROL ROOM OPERATORS

Employees who may be called upon to respond to chemical releases and provide active support in containing, controlling and cleaning up released materials are provided with a minimum of 24 hours of training geared towards specific hazard recognition and control, and acting as the incident commander (until the Incident Commander arrives on site). These employees fulfill the roles of **Hazardous Materials Technicians** (under HAZWOPER rules). For CalEnergy, these employees are primarily Control Room Operators and Supervisors, although this role is supplemented by contractors with 40-hours HAZWOPER training, these individuals assume a more aggressive role than a first responder at the operations level in that they will act to plug, patch, or stop the release of a hazardous substance, if possible.

INCIDENT COMMANDERS

Incident Commanders receive 40-hour HAZWOPER training and receive incident command training prescribed by Department of Homeland Security/FEMA. Training for Incident Commanders and Acting Incident Commanders can include drills.

The matrix of specific training is provided in Table 8. Records of training must be retained and available for inspection.

TABLE 8 – TRAINING MATRIX

Training Matrix – part 1 of 3

	Training Requirement	Trainee & Venue							Frequency	Safety Classroom Training								Environmental Computer Based Training				Other Training			
	(Note 1)	All employees	Field Personnel (Note 2)	Emergency Coordinators	Control Room Ops. & Sup.	General Manager	Environmental Director & Mgr.	Risk Assessment Team(s)	(Note 3)	Hazcom	Haz Material Handling	New Employee Indoc	Fire Safety	Monthly Safety Meeting	8-HAZWOPER	24-HAZWOPER	First Aid, CPR, Burn	Business Plan	Haz Materials Mgt.	Simplified Guide	Oil SPCC	40-HAZWOPER	Operations Monthly T-Day	Drills	Review policies & programs
General Employee Training (First Responder Awareness Level)	Immediate notification of the facility of a hazardous material release (CCR2731(d))	CR							upon hire	✓	✓	✓													
		CBT							annually									✓							
	Communication & alarm systems (CCP)	CR							upon hire				✓												
		CBT	CR						annually				✓					✓							
	Evacuation of the facility (if needed) due to a release (CCR 2731(d))	CR							upon hire	✓															
		CR							annually				✓					✓							
	Incident notification to internal emergency response coordinators (CCR 2731(a)(3))	CR							upon hire	✓															
		CBT							annually									✓							
	Incident notification to external emergency responders (CCR 2731(a)(1))	CR							upon hire	✓															
			CBT						annually				✓					✓							
				OTJ	OTJ	OTJ		OTJ	start of duty																✓
	Incident reporting to external agencies - e.g. Cal EMA and DTSC/CUPA (CCR 2731(a)(2))	CR							upon hire																
		CBT							annually									✓							
	Identification of local emergency medical assistance (CCR 2731 (b))	CR							upon hire	✓															
		CR , CBT							annually				✓				✓	✓							
	Applicable laws and regulations (CCP)	CR							monthly					✓											
		CR							annually									✓							

Key:

General Note - First Responder Awareness level is given to all employees. For persons handling chemicals additional training above the First Responder Awareness Level is provided, which is equivalent to HAZWOPER's First Responder Operations Level. Emergency Coordinators and other's employees(with specific roles for responding to a release) receive additional training equivalent to the Incident Commander Level (in HAZWOPER).

Note 1 - Training requirements originate from the California Code of Regulations (CCR), or the Consolidated Contingency Plan(CCP) Emergency Response Requirements

Note 2 - Field personnel include all employees with the exception of those personnel who do not work in the field (e.g. administrative personnel , finance, marketing, & business development)

Note 3 - Initial training is given for all affected employees within 30 days of hire, or (if applicable) usually during the first year of promotion to a new position (shown as "start of duty" above).

Note 4 - As of June 2013, a routine for this program has not been formalized. A team is assessing risk, and the non-destructive group assesses areas of risk routinely throughout the facility.

CBT = computer based training

OTJ = on the job training

CR = classroom

EXT = external training program

HAZWOPER = Hazardous Waste Operations Training under CFR 1910.120

Training Matrix – part 2 of 3

	Training Requirement	Trainee & Venue							Frequency	Safety Classroom Training								Environmental Computer Based Training				Other Training			
	(Note 1)	All employees	Field Personnel (Note 2)	Emergency Coordinators	Control Room Ops. & Sup.	General Manager	Environmental Director & Mgr.	Risk Assessment Team(s)	(Note 3)	Hazcom	Haz Material Handling	New Employee Indoc	Fire Safety	Monthly Safety Meeting	8-HAZWOPER	24-HAZWOPER	First Aid, CPR, Bum	Business Plan	Haz Materials Mgt.	Simplified Guide	Oil SPCC	40-HAZWOPER	Operations Monthly T-Day	Drills	Review policies & programs
Chemical Handler Training (First Responder Operations Level)	Methods for safe handling of hazardous materials (CCR 2732(a)(1))	CBT, CR							upon hire		✓														
		CR							annually	✓	✓								✓						
			CR						annually						✓										
				CR, OTJ					start of duty													✓			
	Material Safety Data Sheets (CCP)	CR							upon hire	✓															
		CR							annually	✓															
	Hazard communication related to health and safety (CCP)	CR							upon hire	✓															
									annually	✓															
	Fire hazards of materials / processes (CCP)	CR							upon hire	✓															
									annually	✓			✓												
	Prevention of hazards to persons, property, or the environment as a result of handling hazardous materials (CCR 2731(c))								upon hire																
			CR						annually						✓										
				EXT, OTJ					start of duty													✓			
	Use of emergency response equipment and supplies under the control of the handler(CCR 2732(a)(3))								upon hire																
			CR						annual				✓		✓										
				EXT, OTJ					start of duty													✓			
	Proper use of personal protective equipment (CCP)	CR							upon hire			✓													
			OTJ						start of duty			✓													

Key:

General Note - First Responder Awareness level is given to all employees. For persons handling chemicals additional training above the First Responder Awareness Level is provided, which is equivalent to HAZWOPER's First Responder Operations Level. Emergency Coordinators and other's employees(with specific roles for responding to a release) receive additional training equivalent to the Incident Commander Level (in HAZWOPER).

Note 1 - Training requirements originate from the California Code of Regulations (CCR), or the Consolidated Contingency Plan(CCP) Emergency Response Requirements

Note 2 - Field personnel include all employees with the exception of those personnel who do not work in the field (e.g. administrative personnel , finance, marketing, & business development)

Note 3 - Initial training is given for all affected employees within 30 days of hire, or (if applicable) usually during the first year of promotion to a new position (shown as "start of duty" above).

Note 4 - As of June 2013, a routine for this program has not been formalized. A team is assessing risk, and the non-destructive group assesses areas of risk routinely throughout the facility.

CBT = computer based training

OTJ = on the job training

CR = classroom

EXT = external training program

HAZWOPER = Hazardous Waste Operations Training under CFR 1910.120

Training Matrix – Part 3 of 3

	Training Requirement	Trainee & Venue							Frequency	Safety Classroom Training								Environmental Computer Based Training				Other Training			
	(Note 1)	All employees	Field Personnel (Note 2)	Emergency Coordinators	Control Room Ops. & Sup.	General Manager	Environmental Director & Mgr.	Risk Assessment Team(s)	(Note 3)	Hazcom	Haz Material Handling	New Employee Indoc	Fire Safety	Monthly Safety Meeting	8-HAZWOPER	24-HAZWOPER	First Aid, CPR, Bum	Business Plan	Haz Materials Mgt.	Simplified Guide	Oil SPCC	40-HAZWOPER	Operations Monthly T-Day	Drills	Review policies & programs
Emergency Response Training (Incident Commander & Hazardous Material Tech.	Personnel rescue procedures		CR						annual						✓										
	Coordination of Emergency Response (CCP)			CR, OTJ					start of duty							✓									
				EXT, OTJ					start of duty													✓			
	Mitigation & abatement of release hazards (CCR 2731(c))		CR						annual						✓										
				EXT, OTJ					start of duty													✓			
	Coordination with local emergency response organizations (CCR2732(a)(2))	CBT							annually											✓					
						OTJ	OTJ		start of duty																✓
	Decontamination procedures (CCP)		CR						upon hire						✓										
				EXT, OTJ					start of duty													✓			
	Control and containment procedures (CCP)	CBT							annually												✓				
				OTJ	OTJ				varies															✓	
			CR						annually						✓										
	Shutdown of operations				OTJ				varies														✓		
	Identification of areas of the facility and mechanical or other systems that require immediate inspection or isolation because of their vulnerability to earthquake related ground motion. (CCR 2731(3)) - (Note 4)							CR, OJT	varies																✓

Key:

General Note - First Responder Awareness level is given to all employees. For persons handling chemicals additional training above the First Responder Awareness Level is provided, which is equivalent to HAZWOPER's First Responder Operations Level. Emergency Coordinators and other's employees(with specific roles for responding to a release) receive additional training equivalent to the Incident Commander Level (in HAZWOPER).

Note 1 - Training requirements originate from the California Code of Regulations (CCR), or the Consolidated Contingency Plan(CCP) Emergency Response Requirements

Note 2 - Field personnel include all employees with the exception of those personnel who do not work in the field (e.g. administrative personnel , finance, marketing, & business development)

Note 3 - Initial training is given for all affected employees within 30 days of hire, or (if applicable) usually during the first year of promotion to a new position (shown as "start of duty" above).

Note 4 - As of June 2013, a routine for this program has not been formalized. A team is assessing risk, and the non-destructive group assesses areas of risk routinely throughout the facility.

CBT = computer based training

OTJ = on the job training

CR = classroom

EXT = external training program

HAZWOPER = Hazardous Waste Operations Training under CFR 1910.120

5 CHEMICAL INVENTORY

- The chemical inventory for each location is contained in tab 4 in the Hazardous Materials Business Plan.

ATTACHMENT B – 3-Year HMBP Review Checklist

3-YEAR HMBP REVIEW CHECKLIST				
	Requirement	**Complete**	**In-complete**	**Change needed**
1	Establish/submit the required Hazardous Materials Business Plan (19 CCR 2729.1(a))	☐	☐	
2	Keep a copy of the Hazardous Materials Business Plan on-site (HSC 25505)	☐	☐	
3	Submit an amended HMBP within 30 days of the following: (HSC 25510) • Notification by CUPA that plan is deficient. • 100% or more increase in the quantity of previously disclosed material. • Any handling of a previously undisclosed hazardous materials in HMBP quantities • Change of business address/ownership/name • Substantial changes in operations which impacts hazardous materials emergency response (personnel changes, installation/closure of hazardous materials systems)	☐	☐	
4	Submit Annual Certification form to re-certify and/or re-submit the Hazardous Materials Inventory pages for inventory changes at the facility (19 CCR 2729)	☐	☐	
5	Notify property owner of HMBP if located on leased or rented property (HSC 25503.6)	☐	☐	
6	Complete three year Hazardous Materials Business Plan review and re-certification (HSC 25505(c))	☐	☐	
7	Properly complete information on Business Activities page (19 CCR 2729, 2729.2)	☐	☐	
8	Update/complete Owner/Operator page: facility identification; business owner information, environmental contact information, emergency contact information, billing address information (19 CCR 2729, 2729.2)	☐	☐	

3-YEAR HMBP REVIEW CHECKLIST				
	Requirement	**Complete**	**In-complete**	**Change needed**
9	Include all hazardous materials and/or hazardous wastes on Hazardous Materials Inventory (19 CCR 2729.2 & 19 CCR 2731))	☐	☐	
10	Include all information on facility site plan/hazardous materials storage map or include/submit a site plan/hazardous materials storage facility map (19 CCR 2729.1(a))	☐	☐	
11	Properly complete Emergency Response Plan (19 CCR 2731, HSC 25504(b), 22 CCR 66262.34(a)(4))	☐	☐	
12	Obtain/provide adequate supplies/equipment for spill response (19 CCR 2731)	☐	☐	
13	Implement Emergency Response Plan (19 CCR 2731)	☐	☐	
14	Report release/spills to the CUPA, CalEMA and or National Response Center (HSC 25507)	☐	☐	
15	Complete/update/correct Employee Training Plan (HSC 25504(c), 22 CCR 66262.34(a)(4))	☐	☐	
16	Properly implement Employee Training Plan – annual refresher required (HSC 25504(c), 22 CCR 66262.34(a)(4))	☐	☐	
17	Keep training records on site (HSC 25504(c), 22 CCR 66262.34(a)(4))	☐	☐	
18	Provide spill control for all hazardous materials (CCR 2729.1(a))	☐	☐	

ATTACHMENT C – Spill External Notification Criteria

SPILL EXTERNAL NOTIFICATION CRITERIA

California Office of Emergency Services (CalOES) and the Department of Toxic Substances Control (DTSC) must be notified immediately by telephone of all "significant releases" or "significant potential releases". If a spill is not reported externally, this checklist can be used to document that the release or potential release was not significant. The checklist can also be reviewed if/when unsure of whether or not to report a release

a. Were there injuries or threat of injuries to humans (i.e. did the release present a threat to humans)

☐No threat
☐Potential threat
☐Otherwise reportable

Note: Injuries or harmful exposures must be immediately reported to California Occupational Safety and Health Administration (Cal/OSHA) by the EH&S Manager or alternate. A report will also be immediately made to the California Office of Emergency Services (OES) and the Department of Toxic Substances Control (DTSC) by Environmental Services.
If a potential threat exists –

- *Barricade the area to prevent inadvertent exposure, and*
- *Arrange for OSHA 40-hour trained personnel to coordinate the containment and clean-up.*

b. Did the spill or release exceed the reportable quantity?

☐No threat
☐Potential threat
☐Otherwise reportable

Note: If the federal reportable quantity (RQ) is exceeded the release must be immediately reported to the California Office of Emergency Services (OES) Department of Toxic Substances Control (DTSC) and National Response Center (NRC). For all spills:

- *Contain to prevent spreading and off-site release.*
- *Call Environmental Services for clean-up, waste container, characterization and disposal.*
- *Contact Analytical Services for clean-up verification*

c. Was the spill released a public water body or waters of the state – (i.e. does the spill present a threat to water quality)?

☐No threat
☐Potential threat
☐Otherwise reportable

Note: Releases to waters of the state or that threaten water quality must be immediately reported to the California Office of Emergency Services (OES).

d. Did the release involve lost or found radioactive materials (i.e. did the release present a threat from radiation exposure)?

☐No threat
☐Potential threat
☐Otherwise reportable

Note: Lost or found radioactive sources must be immediately reported to the Environmental Manager, the Health & Safety Manager, and the Radiation Safety Officer. The Environmental Manager or his/her alternate will reporting to OES.

See the following Release Reporting Matrix for additional guidance on spill reporting from the California Office of Emergency Services

RELEASE REPORTING REQUIREMENTS MATRIX

**This matrix summarizes pertinent emergency notification requirements and may not be all inclusive.
For precise legal requirements, review specific laws and regulations.**

OIL SPILLS

TYPES OF RELEASES	AMOUNT	WHO REPORTS?	TO WHOM	WHEN	LEGAL AUTHORITY
(Federal) Navigable Waters*	Any Amount "Harmful quantity"****	Any person in charge of a vessel or facility (offshore or onshore)	NRC *(800) 424-8802 or (202) 267-2675*	Immediately, when it can be done safely	Federal Water Pollution Control Act (FWPCA) §311 33 CFR 153.203 40 CFR 110.6
(State of California) Marine Waters*	Any amount	Any party responsible for the discharge/threatened discharge; Responding local or state agency	Cal OES *(800) 852-7550* *NRC*	Immediately, but not later than 15 minutes after discovery of the spill or threatened release	California Government Code CGC 8670.25.5; 8670.26 *California State Oil Spill Contingency Plan* FWPCA §311 33 CFR 153.203 40 CFR 302.6
(State of California) State Waters*	Any amount of oil or petroleum product	Any person	Cal OES or RWQCB	Immediately upon knowledge of a release.	California Water Code CWC 13272 (a) CGC 8670.25.5; 8670.26 *California State Oil Spill Contingency Plan*
Oil Discharges to Land (Including Onshore drilling, exploration, or production operation)	≥ 1 barrel (42 gallons) 5 barrels or more uncontained in certain San Joaquin Valley oil fields - if no threat to state waters; 10 barrels or more contained in certain San Joaquin Valley oil fields if identified in spill contingency plan - if no threat to state waters.	Facility owner or operator	Cal OES	Immediately upon knowledge of a release.	Public Resources Code (PRC) 3233 San Joaquin Valley Field Rule (August 1998) CWC 13272 (f) *California State Oil Spill Contingency Plan*
Aboveground Storage Tanks (ASTs)	≥ 1 barrel (42 gallons)	Facility owner or operator of a tank facility	Cal OES, CUPA, and/or 911	Immediately upon knowledge of a release.	HSC 25270.8

RELEASE REPORTING REQUIREMENTS MATRIX

HAZARDOUS MATERIALS INCIDENTS (*may include oil & radioactive materials*)					
TYPES OF RELEASES	**AMOUNT**	**WHO REPORTS?**	**TO WHOM**	**WHEN**	**LEGAL AUTHORITY**
CERCLA HS Release	≥ RQ	Person in charge of a facility	NRC	Immediately upon knowledge of a release. Written report to follow.	CERCLA §103 (a) 40 CFR 302.6
EPCRA EHS Release	≥ RQ	Owner/Operator of facility	NRC SERC and LEPC CUPA/FD (In CA)	Immediately upon knowledge of a release. Written report to follow.	EPCRA §304 40 CFR 355
Release or Threatened Release (except transporting on highway)	If there is a reasonable belief that the release poses a significant hazard to human health & safety, property, or environment.**	Handler	Cal OES, CUPA, and/or 911	Immediately upon knowledge of a release.	HSC 25510
Illegal Discharges or Threatened Discharges of Hazardous Waste	Any amount that is observed or has knowledge of likely to cause injury to public health and safety.	Designated Government Employee	Local Health Officer or local Board of Supervisors	Within 72 hours	HSC 25180.7(b)
Highways	Any transportation release.	Any person who causes the spill.	CHP (who then notifies Cal OES)	Immediately upon knowledge of a release.	California Vehicle Code (CVC) 23112.5
Railroads	Release/threatened release that may harm person, property, or environment.**	Railroads regulated by the State PUC & FRA	Appropriate emergency response agency and Cal OES	Immediately upon knowledge of a release.	PUC General Order No. 161, Rule #3, 8-7-91
Hazardous Waste Discharge Transporters	Any spill in CA Federal notification: A situation carrier deems appropriate; person hospitalized or killed; public evacuation ≥ 1hr; operational flight pattern or route of aircraft is altered; major transp. artery or facility closed ≥ 1 hr; infectious or radioactive materials involved; marine pollutant > 119 gals or > 882 lbs	Transporter who discharged waste	CHP NRC	Immediately upon knowledge of a release. As soon as practical, but no later than 12 hours after accident occurs Written Report: to DTSC and DOT within 30 days.	CVC 23112.5; 2453 22 CCR 66263.15 22 CCR 66263.30 49 CFR 171.15 49 CFR 171.16

RELEASE REPORTING REQUIREMENTS MATRIX

HAZARDOUS MATERIALS INCIDENTS (CONTINUED) (*may include oil & radioactive materials*)					
TYPES OF RELEASES	**AMOUNT**	**WHO REPORTS?**	**TO WHOM**	**WHEN**	**LEGAL AUTHORITY**
Pipelines	Every rupture, explosion or fire ≥ 5 barrels	Pipeline operator	Fire Dept Cal OES	Immediately Written report: to State Fire Marshal within 30 days	CGC 51018(c)
ASTs	Any release or threatened release	Facility owner or operator	Cal OES, CUPA	Immediately upon knowledge of a release.	HSC 25510
Underground Storage Tanks (USTs)	Any release, if it poses significant hazard	Facility owner or operator	Cal OES, CUPA	Immediately upon knowledge of a release.	HSC 25510
	Into secondary containment – no fire or explosion hazard and no deterioration	Facility owner or operator	Cal OES, CUPA	Do not have to report BUT do need to record on the *Operator's Monitoring Report*.	HSC 25294
	Escapes from secondary containment; **or** from a primary containment if no secondary containment; **or** if there's a fire or explosion hazard or deterioration	Facility owner or operator	Cal OES, CUPA	Within 24 hours after the release has been detected Full written report within 5 working days	HSC 25295 HSC 25510
Releases beyond TSD Facility Boundary	A harmful quantity that could threaten human health or environment.	Facility owner or operator; TSDF Emergency Coordinator	Cal OES NRC	Immediately upon knowledge of a release.	CERCLA §103 (b) 22 CCR 66264.56(d) HSC 25510
Releases within TSD Facility Boundary	Any release that poses a significant hazard. Imminent or actual emergency situation that could threaten human health or environment.	Owner/Operator of facility TSDF Emergency Coordinator (designated in the Contingency Plan).	Cal OES, CUPA Local ER agencies	Immediately upon knowledge of a release. Written report: to DTSC within 15 days.	HSC 25510 22 CCR 66264.51 22 CCR 66264.52 22 CCR 66264.56

RELEASE REPORTING REQUIREMENTS MATRIX

Types of Releases	Amount	Who Reports?	To Whom	When	Legal Authority
Air Incidents					
Stationary Sources	Any release that poses a significant hazard. Exceeds emission standards	Operator of the source	Cal OES Air Pollution Control District's (APCD) or Air Quality Management District's (AQMD)	Immediately upon knowledge of a release. Within 96 hours	HSC 25510 HSC 42706
Proximity to Schools	A release within ½ mile of a school.	Emergency rescue personnel	Superintendent of affected school district	Immediately upon knowledge of a release.	HSC 25510.3
	A threat of an air contaminant within 1000 feet of a school.	Air Pollution Control Officer	CUPA, Local Fire Dept	Within 24 hours	HSC 42301.7
Sewage Spills					
Sewage to Waters and Other Sewage and Hazardous Substances	1000 Gallons unauthorized discharge into State waters. * Any hazardous substance and sewage that needs to be reported. If not in compliance with the Waste Discharge Requirements CWC 13271(b) **	Any person	Cal OES	Immediately upon knowledge of a release.	23 CCR 2250 (a) HSC 5411 CWC 13271 (a)

RELEASE REPORTING REQUIREMENTS MATRIX

* NOTE: The terms navigable waters, state waters, and marine waters are used according to the applicable laws & regulations. Navigable waters could also include state waters and marine waters; State waters could include navigable and marine waters; and marine waters could include navigable and state waters.

** NOTE: Even if the quantities or situations that are outlined above have not been met, and you still believe that the release poses a significant hazard to human health & safety, or the environment -- then report it to Cal OES Warning Center.

*** NOTE: "Harmful quantity" is any quantity of discharged oil that violates state water quality standards, causes a film or sheen on the water's surface, or leaves sludge or emulsion beneath the surface.

Finally, it should be noted that intentionally false or misleading reports are a crime and legal matters may be enforced. (PC §148.3; HSC §25515.3; GC §8670.64)

RELEASE REPORTING REQUIREMENTS MATRIX

Federal Contact Numbers

National Response Center (NRC)*	(800) 424-8802 or (202) 267-2675
United States Environmental Protection Agency (USEPA), Regional Response Center http://www.epa.gov/osweroe1/content/reporting/index.htm	(800) 321-7349 or (415) 947-8000 *(General number)* (415) 947-4400 *(Spill Phone)* (800) 424-9346 *(SARA Title III Hotline)* (800) 300-2193 *(Region IX Duty Officer)*
Occupational Safety & Health Administration (OSHA)	(800) 321-OSHA (415) 625-2547 *(main public number – Region IX)*
United States Coast Guard (USCG) Captain of the Port/Federal On-Scene Coordinator (FOSC)	(310) 521-3805 (Sector *Los Angeles/Long Beach*) (619) 278-7033 (Sector *San Diego*) (415) 399-3547 (*Sector San Francisco*)
United States Department of Transportation (USDOT)	Contact -via- National Response Center (NRC)

* **Note:** One call to the NRC fulfills the requirement to report releases of hazardous substances under CERCLA and several other regulatory programs, including those under CWA § 311, RCRA, and the USDOT's Hazardous Materials Transportation Act (HMTA). Anybody who discovers a hazardous substance release or oil spill is encouraged to contact the federal government, regardless of whether they are the responsible party.

State Contact Numbers

California Governor's Office of Emergency Services (Cal OES) Warning Center	(800) 852-7550 or (916) 845-8911
California Highway Patrol (CHP)	**911**
State Fire Marshall (SFM)	(916) 323-7390 *(Emergencies only)*
CA Dept. of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR)	See attached list (Page 7) San Joaquin Valley Field Rule ftp://ftp.consrv.ca.gov/pub/oil/regulations/field_rule.pdf

RELEASE REPORTING REQUIREMENTS MATRIX

Department of Fish & Wildlife - Office Of Spill Prevention and Response (OSPR)	(800) OILS-911 ((800) 645-7911) (916) 445-9338 (Office of Spill Prevention and Response – Sacramento)
Regional Water Quality Control Board (RWQCB)	See attached list (Page 8)

Local Contact Numbers

ALL SPILLS SHOULD FIRST BE REPORTED to 911

CUPA	**For up-to-date contacts, refer to the Cal/EPA Unified Program website directory at:** www.calepa.ca.gov/CUPA/Directory/default.aspx
Local Sheriff/Police	
Local Fire Department	
Local Health Department	

Department of Conservation/Division of Oil, Gas & Geothermal Resources (DOGGR)

- California Regional Offices -

Region	Location	Contact #
District #1	(Cypress)	(714) 816-6847
District #2	(Ventura)	(805) 654-4761
District #3	(Santa Maria)	(805) 937-7246
District #4	(Bakersfield)	(661) 322-4031
District #5	(Coalinga)	(559) 935-2941
District #6	(Sacramento - Headquarters)	(916) 322-1110

RELEASE REPORTING REQUIREMENTS MATRIX

These numbers are included for reference purposes only. The RWQCB is contacted through the local CUPA and/or Cal OES, when these offices determine that it is necessary.

Regional Water Quality Control Boards - California Regional Offices -		
Region	**Location**	**Contact #**
Region 1 – North Coast	(Santa Rosa)	(707) 576-2220
Region 2 – San Francisco Bay	(Oakland)	(510) 622-2300
Region 3 – Central Coast	(San Luis Obispo)	(805) 549-3147
Region 4 – Los Angeles	(Los Angeles)	(213) 576-6600
Region 5a – Central Valley	(Rancho Cordova)	(916) 464-3291
Region 5b – Central Valley	(Fresno)	(559) 445-5116
Region 5c – Central Valley	(Redding)	(530) 224-4845
Region 6a – Lahontan	(South Lake Tahoe)	(530) 542-5400
Region 6b – Lahontan	(Victorville)	(760) 241-6583
Region 7 – Colorado River	(Palm Desert)	(760) 346-7491
Region 8 – Santa Ana	(Riverside)	(951) 782-4130
Region 9 – San Diego	(San Diego)	(858) 467-2952

ATTACHMENT D – External Spill Notification Information

EXTERNAL SPILL NOTIFICATION INFORMATION

When reporting a spill please be prepared to provide the following information:

State notification requirements for a spill or threatened release include (as a minimum):	
1. Identity of caller	
2. Location, date and time of spill, release, or threatened release	
3. Location of threatened or involved waterway or storm drains	
4. Substance, quantity involved, and isotope if necessary	
5. Chemical name (if known, it should be reported if the chemical is extremely hazardous)	
6. Description of what happened	
Federal notification requires additional information for spills (CERCLA chemicals) that exceed federal reporting requirements, which includes:	
7. Medium or media impacted by the release (e.g. air, water, soil, groundwater)	
8. Time and duration of the release	
9. Proper precautions to take	
10. Known or anticipated health risks	
11. Name and phone number for more information	
CalEnergy also requires that the following additional information be collected:	
12. Agency to which notification is being made	
13. Name, phone number of agency representative receiving notification	
14. Date & time notification is being made	
15. Contact for follow-up regarding the release (e-mail and or address)	
16. Instructions from agency on required follow-up/results of contact	
17. What emergency response actions are underway (by CalEnergy and others agencies)?	

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

CONDITIONS FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE #2120B-3

I.H.

CALENERGY OPERATING CORPORATION
7030 GENTRY ROAD
CALIPATRIA, CA 92233

LOCATION: 3301 WEST HIGHWAY 86, BRAWLEY, CA

A. GENERAL CONDITIONS

1. This Permit to Operate with Conditions is applicable to the Desert Valley Company Landfill facility and supersedes all other past permit emissions limitations.

2. The facility shall be constructed and operated in substantial compliance with the project description, and operating parameters of Application (FR#565898) dated February 26, 2008, and with earlier applications the Authority to Construct Permit and supporting documents, except as may be modified by more stringent requirements of law or these conditions.

3. Operation of the Landfill shall be in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

4. Operation of the Landfill shall be in compliance with applicable APCD Rules and Regulations.

5. This permit does not authorize the emissions of air contaminants in excess of those allowed by the USEPA (title 40 of the Code of Federal Regulation), the State of California Division 26, Part 4, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

6. This permit cannot be considered permission to violate applicable existing laws, regulations, rules or statues of other governmental agencies.

7. No air contaminant shall be released into the atmosphere which causes a public nuisance (Rule 407).

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

8. Disturbances of soil related to any construction, demolition, excavation, or other earthmoving activities shall comply with the requirements for fugitive dust control (Rule 801).

9. Any unpaved and paved road, and open areas subject to be disturbed by vehicles traffic shall comply with the requirements for fugitive dust control (Rule 805).

10. The permittee shall prevent or cleanup any carry-out or track-out (Rule803).

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann Chart 1 or 20% opacity (Rule 401).

B. Disposal Wastes Permitted

1. The annual total geothermal waste delivered to the site shall not exceed 750 tons per day average.

2. Wastes disposed in the Monofill (landfill) shall be confined to geothermal drilling mud and cuttings; geothermal filter cake; Solids contaminated with geothermal material; and Incidental plastic sheeting (truck bed liner)/materials.

C. Waste Condition

1. Geothermal wastes shall contain adequate moisture, sealant, or a combination thereof to prevent any visible dust emissions beyond the Monofill when wastes are unloaded, piled, leveled and compacted.

D. Mitigation of Fugitive Emissions

1. Traveled roadways on and approaching the site will be paved or covered with gravel. Unpaved areas on site will be sprayed with water and/or sealant. Construction, earth moving, and similar operations shall not be conducted when the wind speed reaches 21 MPH or greater.

2. All incoming geothermal waste trucks shall be covered.

3. Disposal activities shall cease when wind speed reaches 13 MPH or greater.

4. Geothermal filter cake solids shall be spray misted with sealant during unloading as necessary.

5. All working geothermal waste shall be covered with sealant after each working day.

6. Opacity of fugitive emissions shall not exceed 20% at any point for a period or periods aggregating more than three (3) minutes in any one hour. (Rule 401).

E. Monitoring Equipment

1. DVC shall install and maintain a continuous on-line meteorological station capable of measuring wind speed, direction, humidity, and temperature.

2. DVC shall install, maintain, and operate three (3) high volume air samplers upon commencing waste disposal. Site location for samplers shall be approved by the APCD.

3. DVC shall install, maintain and operate one (1) high volume air sampler for background ambient air concentration measurement. Site location shall be approved by the APCD.

F. Monitoring

1. DVC shall measure ambient particulate concentrations for 24 hours, on a six day interval. The particulate filter loading from the high volume air sampler, the highest concentration measured for the quarter, shall be analyzed for gross radionuclides (Ra 226 and 228) and speciated for heavy metal concentrations (Pb, Zn, Cd, Cu, As). The heavy metal speciation shall be conducted quarterly the first year and twice yearly thereafter.

2. DVC shall measure every (3) three years for Radon gas emissions commencing one (1) year after closure of a cell.

3. The APCD may collect at least (1) particulate sample quarterly for analysis or any other analysis it may require.

4. DVC shall incur all costs for the APCD particulate filter and or gas analysis including, travel, and administration costs above annual Permit to Operate fees.

5. DVC shall maintain proper calibration of monitoring equipment for precision and accuracy of all data submitted to APCD.

G. Reporting

DVC shall quarterly and thereafter;

1. Submit total ambient concentrations of particulates (micrograms/cubic meter/24 hours) measured from hi-volume air samplers and heavy metal speciation concentrations and gross radionuclides including, the method procedures for heavy metal and radionuclides analysis. In addition, DVC shall submit an annual gas speciation analysis.

2. Report the total wastes received at the Monofill site. The report shall include the total tonnage, the type of waste(s), and origin of wastes.

3. Report the quarterly film badge radiological exposure for Monofill workers, and truck drivers.

H. Right to Entry

The APCD or any authorized representative shall be permitted to:

1. Enter the DVC site during regular business hours with or without advance notice for purposes of site inspection.

2. Obtain samples of wastes from trucks, cells or elsewhere on or about the site.

3. Review record of all disposed wastes.

4. Witness calibration of monitoring equipment.

I. Equipment List

181.5 Acres
Two (2) Front Loaders
One (1) Water Truck,
One (1) Vibratory Compactor
One (1) Motor Grader
Thirty Eight (38) Hauling Trucks in and out

SOLID WASTE FACILITY PERMIT

1. Facility/Permit Number: **13-AA-0022**

2. Name and Street Address of Facility:
Monofill Facility
3301 W. Highway 86
Brawley, CA 92227

3. Name and Mailing Address of Operator:
Desert Valley Company
7030 Gentry Road
Calipatria, CA 92233

4. Name and Mailing Address of Owner:
Desert Valley Company
7030 Gentry Road
Calipatria, CA 92233

5. Specifications:

a. Permitted Operations

- [ ] Composting Facility (mixed wastes)
- [ ] Composting Facility (yard Waste)
- [X] Landfill Disposal Site (Class II)
- [ ] Material Recovery Facility
- [ ] Processing Facility
- [ ] Transfer Station
- [ ] Transformation Facility
- [ ] Other:

b. Permitted Hours of operation: 6:00 A.M. to 6:00 P.M., Monday through Sunday *(refer to condition 17 hh)*

c. Permitted Tons per Operating Day: **750 tpd**

Non-Hazardous - General	N/A	Tons/Day
Non-Hazardous - Sludge	N/A	Tons/Day
Non-Hazardous - Separated or commingled recyclables	N/A	Tons/Day
Non-Hazardous - Other *(refer to condition 17s)*	**750**	Tons/Day
Designated (See Section 14 of Permit)	N/A	Tons/Day
Hazardous (See Section 14 of Permit)	N/A	Tons/Day

d. Permitted Traffic Volume:

Total:	**38**	Vehicles/Day
Incoming waste materials	38	Vehicles/Day
Outgoing waste materials (for disposal)	N/A	Vehicles/Day
Outgoing materials from material recovery operations	N/A	Vehicles/Day

e. Key Design Parameters

	Total	Disposal	Transfer	MRF	Composting	Transformation
Permitted Area (in acres)	181.5ac	28.9ac	N/A	N/A	N/A	N/A
Remaining Capacity		1,058,252cy	N/A	N/A	N/A	N/A
Max. Elevation (ft. MSL)		-59 ft				
Max. Depth (Ft. BGS)		39 ft				
Estimated Closure Date		January 2025				

This permit is granted solely to the operator named above, and is not transferable. Upon a change of operator, this permit is no longer valid. Further, upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The attached permit findings and conditions are integral parts of this permit and supercede the conditions of any previously issued solid waste facility permit.

6. Approval:

Approving Officer Signature

Jeff Lamoure, Deputy Director
Division of Environmental Health
Name/Title

7. Local Enforcement Agency Name and Address:

Imperial County Public Health Department,
Division of Environmental Health
797 West Main Street, Suite B
El Centro, California 92243

8. Received by CalRecycle: August 31, 2010

9. CalRecycle Concurrence Date: September 8, 2010

10. Permit Review Due Date: September 15, 2015

11. Permit Issued Date: September 14, 2010

11a. Next Permit Review Due Date: **September 28, 2020**

11b. Permit Transfer Date:

11c. Permit Review Date: September 28, 2015

SOLID WASTE FACILITY PERMIT

Facility/Permit Number
13-AA-0022

Legal Description of Facility: 3301 West Highway 86, Brawley, CA. Northeast ¼ of Section 33, Township 12 South, Range 11 East, San Bernardino Base and Meridian APN: 019-100-004-001. Latitude: 33.08472°, Longitude: -115.82444°.

13. Findings:

a. This permit is consistent with the Countywide Integrated Waste Management Plan (CIWMP). Public Resources Code, Section 50001. See pages 12 and 13 of CIWMP.

b. This permit is consistent with standards adopted by the California Department of Resources, Recovery and Recycling (CalRecycle). Public Resources Code, Section 44010.

c. The design and operation of the facility is in compliance with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the LEA.

d. The IMPERIAL COUNTY FIRE DISTRICT has determined that the facility is in conformance with applicable fire standards as required in Public Resources Code, Section 44151.

e. A Notice of Determination for the Environmental Impact Report (EIR) was filed with the State Clearinghouse (SCH No. 1990102236) on June 13, 1990. A Notice of Determination for a Mitigated Negative Declaration (SCH No. 2002121138) was filed with the County Recorder's Office on January 29, 2003. A technical addendum to the Final EIR was filed on September 24, 2009. The LEA finds the proposed permit in compliance with CEQA.

f. The following authorized agent has made a determination that the facility is consistent with, and designated in, the applicable General Plan: Jurg Heuberger, Planning Department. Public Resources Code, Section 50000.5(a).

g. The Imperial County Board of Supervisors has made a written finding on September 3, 1996 that surrounding land use is compatible with the facility operation. On November 5, 2002 the County Board of Supervisors made a written finding that the change of zone and general plan amendment for the expansion is consistent with the County's General Plan and Land Use Element as required in Public Resources Code, Section 50000.5(b).

14. Prohibitions:

The permittee is prohibited from accepting any liquid waste, sludge, non-hazardous waste requiring special handling, designated waste, or hazardous waste unless such waste is specifically listed in Condition 17(s), and unless the acceptance of such waste is authorized by all applicable permits.

The permittee is additionally prohibited from the following items and activities: Accepting waste for which the facility is not approved, such as hazardous waste, medical waste, municipal refuse, or any other waste not specifically allowed. Accepting waste beyond the capacity of the facility. Recycling or mineral extraction other than removal of waste filter cake to a pre-approved site. Accepting solids containing free liquids. Allowing standing rainwater to remain within the cells. Disposal of waste when wind velocity reaches 13 mph or greater. Construction, earthmoving and similar operations shall terminate when wind velocity reaches or exceeds 21 mph.

15. The following documents also describe and/or restrict the operation of this facility (Insert document date in spaces):

	Date:		Date:
[X] Report of Facility Information	05/10	[X] Contract Agreements	N/A
[X] Conditional Use Permit #02-0003	02/03	[X] Waste Discharge Requirements WDR# R7-2003-0075	09/03/03
[X] Air Pollution Permit to Operate #2120B	01/03	[X] County Ordinances	Various
[X] Environmental Impact Report (EIR) **(SCH No. 1989032206)**	7/18/89	[X] Final Closure/Post-Closure Maintenance Plan **(Cells I and II Closed May 2008)**	05/02
• Final EIR Technical Addendum	09/24/09	• As Amended	07/09
[X] Mitigated Negative Declaration **(SCH No. 2002121138)**	1/29/03	[X] Closure Financial Responsibility Documents	02/03/10
[X] Preliminary Closure/Post-Closure Maintenance Plan **(Cell III)**	06/02		
• As Amended	07/09		

SOLID WASTE FACILITY PERMIT

Facility/Permit Number
13-AA-0022

16. Self-Monitoring:

a. Results of all self-monitoring programs as described in the Report of Facility Information to be reported as follows:

Program:	Reporting Frequency:	Agency Reported To:
• Daily tonnage received at facility by waste type shall be recorded daily. Include date of receipt and non-hazardous waste record number	Monthly within 15 days of the following month	LEA
• Number of waste delivery vehicles entering the facility	Monthly within 15 days of the following month	LEA
• A logbook of special occurrences	Within 24 hours of notification	LEA
• Analytical Results of waste streams listed in LEA Condition 17(s) except for soils contaminated with geothermal materials, incidental plastic sheeting/materials and drilling muds and cuttings.	Annually on or before January 15	LEA
• Soils contaminated with geothermal materials and drilling muds and cuttings shall be properly characterized prior to disposal	Due one month after analysis is received. Results may be submitted with monthly tonnage report.	LEA
• Load testing for free liquids using EPA test method #9095 of each load entering site	Each Occurrence	Available at site
• Radiological monitoring of dosimeter film badges of all personnel handling NORM associated materials	Quarterly	LEA, APCD, & Planning Dept.
• Vadose zone and groundwater monitoring	Semi-Annually (or as required by RWQCB)	RWQCB
• Maintenance of a record of all complaints registered against the facility	Within next working day	LEA
• Maintain weather station printout during operating hours	Available upon request	LEA
• Particulate sampling	Quarterly	LEA, APCD
• All operational records, monitoring reports results, of regulatory inspections, & summaries of any daily inspection reports	Available upon request	LEA & Imperial County Planning Department
• Print out of ground acceleration during seismic event	Available upon request	LEA

Note: The LEA is responsible to enforce only those monitoring provisions authorized by State statute or regulations pertaining to solid waste.

17. LEA Conditions:

a. The operator shall comply with State Minimum Standards for Solid Waste Handling and Disposal as specified in Title 27 California Code of Regulations (CCR). The Operator shall not operate this facility without possession of all required permits/regulatory approvals. The operator shall inspect the site at a frequency sufficient to ensure compliance with all applicable standards, conditions, mitigations, permits, and regulations.

b. The operator shall comply with all applicable federal, state, and local requirements and enactments, including all mitigation and monitoring measures and all administrative/enforcement orders of regulatory agencies with jurisdictional authority at this facility.

c. The operator shall maintain a complete copy of this Solid Waste Facility Permit (SWFP), inspection reports, and required regulatory permits at the facility or other LEA approved location readily accessible to facility personnel, LEA staff and other regulatory personnel.

d. Additional information concerning the design/operation of the facility shall be furnished upon request to the LEA and other regulatory personnel.

e. The operator shall notify the LEA in writing of any proposed change in the routine facility operation or changes in facility design during the planning stages. In no case shall the operator undertake any significant changes unless the operator first submits to the LEA a notice of said changes at least 180 days before said changes are undertaken. Any significant changes as determined by the LEA would require a revision of this permit.

f. The LEA reserves the right to suspend and/or modify waste receiving and handling operations including the terms and conditions of this permit at this facility when deemed necessary due to any emergency, potential health hazard, and/or public nuisance.

SOLID WASTE FACILITY PERMIT

Facility/Permit Number: **13-AA-0022**

17. LEA Conditions (Continued):

g. A log of special occurrences shall be maintained at the facility. The log shall contain at a minimum, but not limited to: fires, explosions, discharges, significant incidents of personnel injury, seismic events, accidents, and/or property damage. Days without incidents shall be noted in the log with an appropriate negative entry.

h. The operator shall comply with the requirements of all applicable laws pertaining to employee health and safety, including a current CAL-OSHA Injury Illness Prevention Plan (pursuant to Title 8, CCR). Adequate on-site first aid supplies shall be maintained at the facility. When personnel are at the facility they shall have immediate radio and/or telephone access to a 911 emergency dispatcher.

i. The operator shall apply "Soil Seal" as an alternative daily cover at the end of each operating day.

j. The fencing of the operational area shall be maintained and the gate locked when on-site operating personnel are absent and during non-operating hours.

k. This is a Class II facility that shall accept only drilling muds and cuttings from geothermal well construction/reconstruction of production and injection wells, geothermal filter cake resulting from filter press operations at geothermal power plants, soils contaminated with geothermal wastes, and incidental plastic sheeting/materials used in transfer vehicles.

l. The Monofill Facility is a disposal facility for the Desert Valley Company, its parent company's partnerships, holdings, or affiliates, which generate and dispose of only their designated wastes as agreed to by the owner/operator.

m. The Monofill Facility shall not receive more than 750 tons per day, nor shall it receive more than 273,750 tons annually.

n. Vehicles carrying waste exit off highway 86 and travel 1.25 miles south off the highway to the Monofill site. Truck travel to and from the facility shall only occur on approved routes. Truck lights are to remain on at all times while in motion.

o. The use of waste hauling vehicles supplied and/or operated by persons not under operation and control by the operator shall abide by the same rules, policies, and protective equipment, training/education supplied to company personnel. Vehicles shall be insured to the same extent as company vehicles.

p. This permit does not release the operator from its responsibility under any other existing laws, ordinances, regulations, or statutes of other governmental agencies.

q. No resource recovery or salvaging is permitted.

r. The current Joint Technical Document and Closure Plan, or as they may be amended, are a part of this permit by reference.

s. The Monofill Facility shall accept only the following non-hazardous waste streams as described in the Joint Technical Document:

- Geothermal drilling muds and cuttings;
- Geothermal filter cake;
- Soils contaminated with geothermal material; and
- Incidental plastic sheeting (truck bed liners)/materials

Upon proper waste characterization and approval of a permit revision other non-hazardous designated wastes may be accepted for disposal at this facility.

t. In the event of a conflict between any regulatory permit, the most stringent shall apply

u. The filter cake contains Naturally Occurring Radioactive Material (NORM). The NORMs are currently below regulatory concern. Plastic sheeting/materials shall not be recycled due to potential NORM contamination.

v. Dosimeter badges shall be read and reported quarterly. Such radiological monitoring shall be conducted for all personnel, both on-site and off-site who normally handle radioactive materials.

w. Each vehicle entering the site shall have its load tested for free liquids using United States Environmental Protection Agency test method #9095.

x. Geothermal material contaminated soils shall be properly characterized prior to disposal at the Monofill Facility.

SOLID WASTE FACILITY PERMIT

Facility Permit Number: **13-AA-0022**

17. LEA Conditions (Continued):

y. Geothermal filter cake at each plant shall be analyzed on an annual basis or at a frequency determined by the LEA and whenever there is a significant operational or design change at the plant. Drilling sump muds shall be analyzed prior to disposal. Testing shall be conducted by a California certified laboratory. Waste streams shall be analyzed for the following:

- Corrosivity;
- Ignitability;
- Reactivity;
- CAM 17 Metals - for Total and Soluble Threshold Limit Concentration
- Volatile Organic Compound Analysis
- Hazardous Waste Bioassay
- NORM Analysis (gross alpha, gross beta and gamma spectroscopy)

z. If it is determined that the current analytical methodology and/or analysis does not properly characterize the waste stream, the LEA reserves the right to require all waste streams destined for disposal at the Monofill Facility to be analyzed by a California State-certified laboratory prior to disposal at the Monofill Facility.

aa. Upon LEA request, the operator shall appropriately sample and have analyzed by a State-certified laboratory any waste stream destined for disposal at the Monofill Facility. The operator shall provide the laboratory results to the LEA within five (5) working days following receipt of laboratory results.

bb. In the event that Desert Valley Company's parent company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley Company's Monofill Facility, Magma Power Company will, in writing, assign the right to use Desert Valley Company for such facility (retaining for Magma Power Company the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission and the LEA of Imperial County.

cc. The operator shall cease disposal of waste when wind velocity reaches 13 mph or greater. Construction, earthmoving and similar operations shall terminate when wind velocity reaches or exceeds 21 mph.

dd. The existing 1,000-gallon leachate collection tank shall be retained for use.

ee. In addition to other signs required to be posted, a sign at the entrance of the facility warning personnel of the nature of the materials disposed of at the site shall be posted.

ff. The operator shall maintain a record of the number of waste delivery vehicles entering the facility and submit a report to the LEA monthly within 15 days of the following month.

gg. The operator shall compile daily tonnage received at the facility and submit a report to the LEA monthly within 15 days of the following month.

hh. Operations shall occur during daylight hours. The operator, upon application and the submittal of an approved lighting plan, may operate during permitted hours of darkness.

ii. Operator shall submit an annual waste stream analysis on or before January 15th of each year.

END OF CONDTIONS

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	3/20/2019	LEA Periodic

Time In	10:50am	Time Out	11:30am	Inspection Time	40min.

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin, Monofill Supervisor

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

20820 - Drainage and Erosion Control
Erosion remediation work has been completed throughout cells 1,2, and 3 in addition to:

1) swale system located around the southern area of Cell 3 (IMG_1)
2) adjacent to the groundwater well with identification number 309 (IMG_ 2)
3) under the southeastern corner of the site security fence (IMG_3)

Daily Tonnage on March 19, 2019: 232.63 tons
Monthly Tonnage on March 19, 2019: 2,066.60 tons
Year to Date on March 19, 2019: 9,822.34 tons

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	4/11/2019	LEA Periodic

Time In	6:00am	Time Out	7:10am	Inspection Time	1hr, 10min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin, Alphonso Andrade, Eric Tanner

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Daily Tonnage on April 11, 2019: 179.98 tons
Monthly Tonnage on April 11, 2019: 1,026.19 tons
Year to Date on April 11, 2019: 11,814.88 tons

Notes:

A joint inspection was conducted with CalRecycle's Environmental Scientist, Eric Tanner, as part of the facility's 18 month inspection.

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	5/29/2019	LEA Periodic

Time In	11:05am	Time Out	11:30am	Inspection Time	25min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Daily Tonnage on May 28, 2019: 231.22 tons
Monthly Tonnage on May 28, 2019: 1,966.52 tons
Year to Date on May 28, 2019: 14,648.71 tons

Notes:

On May 17, 2019, the operator notified the LEA that a section of the ultraviolet cover installed over the liner for Cell 3 was damaged due to strong winds on May 16, 2019 (IMG_1). The impacted area was located at the southeastern corner of the cell, which did not contain waste. During the inspection, the operator indicated contract work for the installation of the tarps was expected to commence within the next 10 days. No damage to the liner system was reported nor observed during this inspection.

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	6/27/2019	LEA Periodic

Time In	11:35am	Time Out	12:10pm	Inspection Time	35min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Daily Tonnage on June 26, 2019: 175.03 tons
Monthly Tonnage on June 26, 2019: 4185.77 tons
Year to Date on June 26, 2019: 19,294.78 tons

Notes:
During the inspection, the ultraviolet cover was verified installed over the liner for Cell (IMG_1). According to the operator, the installation work was concluded on June 12, 2019.

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	7/19/2019	LEA Periodic

Time In	11:50am	Time Out	12:40pm	Inspection Time	50min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern issued during this inspection.

Daily Tonnage on July 18, 2019: 111.89 tons
Monthly Tonnage on July 18, 2019: 3,067.25 tons
Year to Date on July 18, 2019: 22,930.73 tons

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	**8/19/2019**	**LEA Periodic**

Time In	12:50pm	Time Out	1:25pm	Inspection Time	35min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano, LEA	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Daily Tonnage on August 19, 2019: 215.65 tons
Monthly Tonnage on August 19, 2019: 2,200.59 tons
Year to Date on August 19, 2019: 26,852.65 tons

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	**9/16/2019**	**LEA Periodic**

Time In	11:55am	Time Out	12:35pm	Inspection Time	40min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Daily Tonnage on September 16, 2019: 128.78 tons
Monthly Tonnage on September 16, 2019: 1,631.63 tons
Year to Date on September 16, 2019: 31,110.06 tons

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	10/28/2019	LEA Periodic

Time In	1:35pm	Time Out	2:10pm	Inspection Time	35min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Notes:

Daily Tonnage on October 28, 2019: 126.30 tons
Monthly Tonnage on October 28, 2019: 4,425.17 tons
Year to Date on October 28, 2019: 37,316.30 tons

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	11/15/2019	LEA Periodic

Time In	9:35am	Time Out	10:20am	Inspection Time	

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Notes:

Daily Tonnage on November 14, 2019: 116.88 tons
Monthly Tonnage on November 14, 2019: 2,084.82 tons
Year to Date on November 14, 2019: 39,761.39 tons

According to the facility's Special Occurrence Log, the cell slopes and ground surface located around the cells were tracked and graded before and after the recent rainstorm events. No erosion damage was observed during the inspection.

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	12/18/2019	LEA Periodic

Time In	11:30am	Time Out	12:20pm	Inspection Time	50min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	Dean Ulrichs & Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Notes:

Daily Tonnage on December 17, 2019: 316.89 tons
Monthly Tonnage on December 17, 2019: 2,506.05 tons
Year to Date on December 17, 2019: 44,531.89 tons

According to the facility's Special Occurrence Log, the facility received heavy rains on 11/20/19, 11/29/19, 11/30/19, 12/4/19, and 12/8/19. Erosion damage was observed from a recently created wash located outside the footprint of the cell 1 and 2 and the western site security perimeter fence. Operator directed to fill and compact/grade the affected area (IMG_1).

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	1/17/2020	LEA Periodic

Time In	10:40am	Time Out	11:10am	Inspection Time	30min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Notes:

Five-Year Permit Review - In accordance with Section 21640(a) of Title 27 of the California Code of Regulations (CCR), all Solid Waste Facility Permits shall be reviewed at least once every five years. As the previous permit review occurred on September 28, 2015, the next 5-year permit review is due on September 28, 2020. Pursuant to 27 CCR 21640(b), the operator is directed to submit an application for the permit review no less than 150 days before the permit is due for review. As such, the application package for the 5-year permit review is due to the LEA by May 1, 2020.

Daily Tonnage on January 16, 2020: 216.77 tons
Monthly Tonnage on January 16, 2020: 3,060.16 tons
Year to Date on January 16, 2020: 3,060.16 tons

The area where a wash was created from a recent rainstorm, located outside the footprint of cell 1 and 2, and the western site security perimeter fence, was observed filled and compacted properly (IMG_1).

Disposal Facility Inspection Report (52)

Enforcement Agency:	Local Inspection ID:
County of Imperial	

SWIS Facility File Number (99-xx-9999)	Inspection Date	Program Code
13-AA-0022	2/11/2020	LEA Periodic

Time In	10:50am	Time Out	11:25am	Inspection Time	35 min

Facility Name	Received By
Monofill Facility	Desert Valley Co.
Facility Location	**Owner Name**
3301 West Highway 86, Brawley 92227	
Inspector	**Also Present (Name)**
Carina Zolorzano	Sam Rubin

THE ABOVE FACILITY WAS INSPECTED FOR COMPLIANCE WITH APPLICABLE SECTIONS OF DIVISION 30 OF PUBLIC RESOURCES CODE (PRC) AND TITLE 14 AND TITLE 27 CALIFORNIA CODE OF REGULATIONS (CCR)

X	**No Violations or Areas of Concern**

Inspection Report Comments:

No violations or areas of concern were issued during this inspection.

Notes:

Daily Tonnage on February 7, 2020: 125.81 tons
Monthly Tonnage on February 7, 2020: 558.28 tons
Year to Date on February 7, 2020: 36,265.30 tons

According to the special occurrence log, a rainstorm occurred on February 10, 2020. During the inspection, minor erosion damage was observed on the northern areas of the cells. Operator shall fill/compact/grade/track damaged waste slopes.

On February 3, 2020, the LEA received a disposal request from the operator and a lab analysis report of well cuttings/drilling mud of geothermal production well Vonderahe 6. Upon review of the report, the LEA determined the material contained non-hazardous characteristics and approved the disposal of such, as it was found to be consistent with the Solid Waste Facility Permit and supporting Joint Technical Document.

January 14, 2020

Mr. Jorge Perez
Imperial County Public Health Department
797 Main Street, B7
El Centro, CA 92243

Subject: 2019 Annual Analysis Report for Discrete Composites of Filter Cake

Dear Mr. Perez:

As required under Conditions 16a., 17s. and 17y. of the Solid Waste Facility Permit (13-AA-0022) for the Desert Valley Company monofill (DVC), enclosed are the results of the annual analysis of geothermal filter cake received at DVC from the Region 1, Region 2, Elmore and Leathers facilities. The samples were analyzed for the following parameters outlined in Condition 17y. of the Solid Waste Facility Permit:

- CAM 17 Metals for Total and Soluble Threshold Limit Concentration (Attachment 1)
- Ignitability, Corrosivity, Reactivity & Volatile Organic Compound analysis (Attachment 2)
- NORM analysis, gross alpha, gross beta and gamma spectroscopy (Attachment 3)
- Hazardous Waste Bioassay (Attachment 4)

Should you have questions regarding this report, please contact me at (760) 348-4275 or by email at Anetha.Lue@calenergy.com.

Sincerely,

Anetha Lue
Director, IPP Environmental Services

Attachments

CALENERGY
OPERATING CORPORATION
7030 Gentry Road, Calipatria, California 92233
Phone: 760-348-4200 Fax: 760-348-2714

cc: Jeff Lamoure, Imperial County Public Health Department
Carina Zolorzano, Imperial County Public Health Department
Bryan Whitcomb
Jon Trujillo
Yanqiu Wu
Sam Rubin
Osvaldo Flores
Environmental File

CalEnergy
Desert Valley Company Monofill
Solid Waste Permit 13-AA-0022

2019 Annual Analysis Report for Composite Filter Cake

CONTENTS

Results Summary

Laboratory Reports

Attachment 1 - CAM 17 Metals for Total and Soluble Threshold Limit Concentration

Attachment 2 –Ignitability, Corrosivity, Reactivity and Volatile Organic Compounds

Attachment 3 - NORM analysis (gross alpha, gross beta and gamma spectroscopy)

Attachment 4 - Hazardous Waste Bioassay Analysis

CALENERGY OPERATING CORPORATION
Analytical Services Department
7030 Gentry Road, Calipatria, CA 92233 * (760) 348-4250 * Fax: (760) 348-4222

January 13, 2020

Mr. Jon Trujillo
Desert Valley Company
3301 W. Highway 86
Brawley, CA 92227

2019 Annual Filter Cake Composite Analysis

Dear Mr. Trujillo,

As required by the Desert Valley Material Storage Plan, CalEnergy Operating Company is submitting the 2019 laboratory analysis report for discrete composites of filter cake from Region 1, Region 2, Elmore, and Leathers.

The following table outlines the key data collected for this analysis: Region 1, Region 2, Elmore and Leathers.

	TTLC Metals			STLC Metals		
	Arsenic	Copper	Lead	Arsenic	Copper	Lead
Plant	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/L
Region 1	103	99.6	11.8	1.70	2.21	0.389
Region 2	233	58.6	29.1	1.02	1.12	1.79
Elmore	372	148	37.7	0.416	5.31	2.30
Leathers	402	61.9	40.6	0.245	2.19	2.34
Limits	500	2500	1000	5	25	5

The report documents the non-hazardous designation of the substance under California Title 22 regulations. If you have any questions, don't hesitate to call me at (760) 348-4296.

Yanqiu Wu
Manager, Engineering & Laboratory Services

Cc:
Jeff Lamoure, Imperial County Public Health Department
Bryan Whitcomb
Anetha Lue
Environmental File

2019 Annual Filter Cake Analysis

Method: EPA 6010B/6020A, STLC Title 22 Metals

Constituent	Units	PQL	Region 1	Region 2	Elmore	Leathers
Mercury	mg/L	0.0222	ND	ND	ND	ND
Antimony	mg/L	0.258	1.37	0.623	0.630	0.902
Arsenic	mg/L	0.214	1.70	1.02	0.416	0.245
Barium	mg/L	0.0500	19.7	15.8	6.44	6.49
Beryllium	mg/L	0.0250	0.0964	ND	0.0593	0.134
Cadmium	mg/L	0.0560	0.0583	0.0700	0.0724	0.0831
Chromium	mg/L	0.0660	ND	ND	ND	ND
Cobalt	mg/L	0.0860	ND	ND	ND	ND
Copper	mg/L	0.166	2.21	1.12	5.31	2.19
Lead	mg/L	0.183	0.389	1.79	2.30	2.34
Molybdenum	mg/L	0.0710	ND	ND	ND	ND
Nickel	mg/L	0.161	ND	ND	ND	ND
Selenium	mg/L	0.375	ND	ND	ND	ND
Silver	mg/L	0.0820	ND	ND	0.144	0.240
Thallium	mg/L	0.277	ND	ND	ND	ND
Vanadium	mg/L	0.0960	ND	ND	ND	ND
Zinc	mg/L	0.0790	1.91	9.27	14.2	17.5

Method: EPA 6010B/6020, CCR Title 22 Metals (TTLC)

Constituent	Units	PQL*	Region 1	Region 2	Elmore	Leathers
Mercury	mg/kg	0.374	ND	ND	ND	ND
Antimony	mg/kg	3.76	54.9	53.6	197	257
Arsenic	mg/kg	3.73	103	233	372	402
Barium	mg/kg	0.327	2,620	298	79.9	84.3
Beryllium	mg/kg	0.204	4.61	13.2	23.9	42.9
Cadmium	mg/kg	0.433	2.41	5.53	8.51	9.35
Chromium	mg/kg	0.870	0.913	ND	ND	ND
Cobalt	mg/kg	0.555	ND	1.99	4.14	1.52
Copper	mg/kg	0.653	99.6	58.6	148	61.9
Lead	mg/kg	2.57	11.8	29.1	37.7	40.6
Molybdenum	mg/kg	0.587	ND	ND	ND	ND
Nickel	mg/kg	1.02	ND	ND	ND	ND
Selenium	mg/kg	4.60	ND	ND	ND	ND
Silver	mg/kg	1.08	61.1	18.2	9.27	16.7
Thallium	mg/kg	2.63	ND	ND	ND	ND
Vanadium	mg/kg	1.20	2.18	3.46	8.62	9.63
Zinc	mg/kg	0.944	47.8	139	203	236

NOTES:
mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
PQL = Practical Quantitation Limit
ND = Non-Detected
* Reporting Limits (PQL) vary due to sample weights that vary (see CalEnergy report)

2019 Annual Filter Cake Analysis

Method: 1010, Flashpoint

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Flashpoint	Degrees F	>200	>200	>200	>200

* Nonhazardous if Flashpoint >140 °F

Method: EPA 9045C, Soil and Waste pH

Constituent	Units	Region 1	Region 2	Elmore	Leathers
pH	pH units	4.48	5.74	4.96	4.83

* Nonhazardous if pH > 2 and <12.5

Method: SW-846-7.3.3-H_2S Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Sulfide	mg/Kg	35.2	30.0	4.38	26.9

* Nonhazardous if Reactive Sulfide < 500 mg/Kg

Method: SW-846-7.3.3-HCN Test Method to Determin HCN Released from Waste

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Reactive Cyanide	mg/Kg	<0.993	<0.997	<0.995	<1.00

* Nonhazardous if Reactive Cyanide < 250 mg/Kg

Method: 8260B Volatile Organic Compounds

Constituent	Units	Region 1	Region 2	Elmore	Leathers
VOC Analytes	ug/Kg	ND	ND	ND	ND *
Acetone	ug/Kg	ND	ND	33	11

* Leathers: Trace-level detection (11 ug/Kg) of 4-methyl-2-pentanone (MIBK). There is no hazardous level established for this constituent.

Fish Bioassay

Constituent	Units	Region 1	Region 2	Elmore	Leathers
96 hr LC50	mg/L	>750	>750	>750	>750
	Status	0% Mortality	0% Mortality	0% Mortality	0% Mortality

Gross Alpha,Beta and Gamma Analysis

Constituent	Units	Region 1	Region 2	Elmore	Leathers
Gross Alpha	pCi/g	18.4	4.01	5.89	4.21
Gross Beta	pCi/g	10.3	7.19	7.95	10.0
K 40	pCi/g	4.03	8.37	10.2	10.3
Co 60	pCi/g	0.0810	-0.118	0.0338	0.0225
Cs 137	pCi/g	-0.0237	0.0115	0.00171	0.0866
Ra 226	pCi/g	14.9	3.38	0.628	0.616
Th 228	pCi/g	11.8	3.06	-0.0398	0.447
Th 234	pCi/g	2.05	4.29	3.48	2.16

NOTES:
mg/L = milligrams per liter
mg/Kg = milligrams per kilogram
ug/Kg = micrograms per kilogram
ND = non-detected
pCi/g = picoCuries per gram

Attachment 1

CAM 17 Metals for Total and Soluble Threshold Limit Concentration

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

October 25, 2019

Anetha Lue
CalEnergy
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL:
FAX:

RE: Annual Filter Cake Composite Order No.: 1910038

Dear Anetha Lue:

CalEnergy Operating Corporation received 4 sample(s) on 10/21/2019 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative. Analytical results designated with a "J" qualifier are estimated and represent a detection above the Method Detection Limit (MDL) and less than the Reporting Limit (PQL). These analytes are not reviewed nor narrated as to whether they are laboratory artifacts.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Yanqiu Wu
Director, Engineering & Laboratory Service
7030 Gentry Road
Calipatria, CA 92233

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
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Case Narrative

WO#: **1910038**
Date: **10/25/2019**

CLIENT: CalEnergy
Project: Annual Filter Cake Composite

This report in its entirety consists of the documents listed below. All documents contain the CalEnergy Operating Corporation Work Order Number assigned to this report.

1. Paginated Report including: Case Narrative, Analytical Results and Applicable Quality Control Summary Reports.

2. A Cover Letter that immediately precedes the Paginated Report.

3. Paginated copies of the Chain of Custody Documents supplied with this sample set.

Concentrations reported with a J flag in the Qual field are values below the reporting limit (RL) but greater than the established method detection limit (MDL). There is greater uncertainty associated with these results and data should be considered as estimated.

Concentrations reported with an E flag in the Qual field are values that exceed the upper quantification range. There is greater uncertainty associated with these results and data should be considered as estimated.

Any comments or problems with the analytical events associated with this report are noted below.

CalEnergy Operating Corporation
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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 1:40:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-001 **Matrix:** FILTER CAKE

Client Sample ID: R1 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **LP**
Mercury	ND	22.222		µg/L	44.4444	10/25/2019 2:29:37 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A** **SW3051A**		Analyst: **LP**
Mercury	ND	373.62		µg/Kg	40	10/25/2019 2:09:40 PM
ELECTROMETRIC MEASUREMENT OF PH SOIL				**SW9045**		Analyst: **ACJR**
Hydrogen Ion (pH)	4.48	1.00		pH Units	1	10/22/2019 8:20:00 AM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **ACJR**
Antimony	1.37	0.258		mg/L	1	10/24/2019 12:42:40 PM
Arsenic	1.70	0.214		mg/L	1	10/24/2019 12:42:40 PM
Barium	19.7	0.0500		mg/L	1	10/24/2019 12:42:40 PM
Beryllium	0.0964	0.0250		mg/L	1	10/24/2019 12:42:40 PM
Cadmium	0.0583	0.0560		mg/L	1	10/24/2019 12:42:40 PM
Chromium	ND	0.0660		mg/L	1	10/24/2019 12:42:40 PM
Cobalt	ND	0.0860	U	mg/L	1	10/24/2019 12:42:40 PM
Copper	2.21	0.166		mg/L	1	10/24/2019 12:42:40 PM
Lead	0.389	0.183		mg/L	1	10/24/2019 12:42:40 PM
Molybdenum	ND	0.0710	U	mg/L	1	10/24/2019 12:42:40 PM
Nickel	ND	0.161	U	mg/L	1	10/24/2019 12:42:40 PM
Selenium	ND	0.375	U	mg/L	1	10/24/2019 12:42:40 PM
Silver	ND	0.0820		mg/L	1	10/24/2019 12:42:40 PM
Thallium	ND	0.277	U	mg/L	1	10/24/2019 12:42:40 PM
Vanadium	ND	0.0960	U	mg/L	1	10/24/2019 12:42:40 PM
Zinc	1.91	0.0790		mg/L	1	10/24/2019 12:42:40 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **LV**
Antimony	54.9	3.76		mg/Kg	1	10/23/2019 2:46:53 PM
Arsenic	103	3.73		mg/Kg	1	10/23/2019 2:46:53 PM
Barium	2620	0.327		mg/Kg	1	10/23/2019 2:46:53 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 1:40:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-001 **Matrix:** FILTER CAKE

Client Sample ID: R1 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **LV**
TTLC BY ICP-OES						
Beryllium	4.61	0.204		mg/Kg	1	10/23/2019 2:46:53 PM
Cadmium	2.41	0.433		mg/Kg	1	10/23/2019 2:46:53 PM
Chromium	0.913	0.870		mg/Kg	1	10/23/2019 2:46:53 PM
Cobalt	ND	0.555	U	mg/Kg	1	10/23/2019 2:46:53 PM
Copper	99.6	0.653		mg/Kg	1	10/23/2019 2:46:53 PM
Lead	11.8	2.57		mg/Kg	1	10/23/2019 2:46:53 PM
Molybdenum	ND	0.587	U	mg/Kg	1	10/23/2019 2:46:53 PM
Nickel	ND	1.02		mg/Kg	1	10/23/2019 2:46:53 PM
Selenium	ND	4.60	U	mg/Kg	1	10/23/2019 2:46:53 PM
Silver	61.1	1.08		mg/Kg	1	10/23/2019 2:46:53 PM
Thallium	ND	2.63	U	mg/Kg	1	10/23/2019 2:46:53 PM
Vanadium	2.18	1.20		mg/Kg	1	10/23/2019 2:46:53 PM
Zinc	47.8	0.944		mg/Kg	1	10/23/2019 2:46:53 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 1:45:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-002 **Matrix:** FILTER CAKE

Client Sample ID: R2 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **LP**
Mercury	ND	22.222		µg/L	44.4444	10/25/2019 2:29:37 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A** **SW3051A**		Analyst: **LP**
Mercury	ND	379.22	U	µg/Kg	40	10/25/2019 2:09:40 PM
ELECTROMETRIC MEASUREMENT OF PH SOIL				**SW9045**		Analyst: **ACJR**
Hydrogen Ion (pH)	5.74	1.00		pH Units	1	10/22/2019 8:20:00 AM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **ACJR**
Antimony	0.623	0.258		mg/L	1	10/24/2019 12:43:34 PM
Arsenic	1.02	0.214		mg/L	1	10/24/2019 12:43:34 PM
Barium	15.8	0.0500		mg/L	1	10/24/2019 12:43:34 PM
Beryllium	ND	0.0250	U	mg/L	1	10/24/2019 12:43:34 PM
Cadmium	0.0700	0.0560		mg/L	1	10/24/2019 12:43:34 PM
Chromium	ND	0.0660		mg/L	1	10/24/2019 12:43:34 PM
Cobalt	ND	0.0860	U	mg/L	1	10/24/2019 12:43:34 PM
Copper	1.12	0.166		mg/L	1	10/24/2019 12:43:34 PM
Lead	1.79	0.183		mg/L	1	10/24/2019 12:43:34 PM
Molybdenum	ND	0.0710	U	mg/L	1	10/24/2019 12:43:34 PM
Nickel	ND	0.161	U	mg/L	1	10/24/2019 12:43:34 PM
Selenium	ND	0.375		mg/L	1	10/24/2019 12:43:34 PM
Silver	ND	0.0820	U	mg/L	1	10/24/2019 12:43:34 PM
Thallium	ND	0.277	U	mg/L	1	10/24/2019 12:43:34 PM
Vanadium	ND	0.0960	U	mg/L	1	10/24/2019 12:43:34 PM
Zinc	9.27	0.0790		mg/L	1	10/24/2019 12:43:34 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **LV**
Antimony	53.6	3.82		mg/Kg	1	10/23/2019 3:01:56 PM
Arsenic	233	3.79		mg/Kg	1	10/23/2019 3:01:56 PM
Barium	298	0.332		mg/Kg	1	10/23/2019 3:01:56 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 1:45:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-002 **Matrix:** FILTER CAKE

Client Sample ID: R2 AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **LV**
TTLC BY ICP-OES						
Beryllium	13.2	0.207		mg/Kg	1	10/23/2019 3:01:56 PM
Cadmium	5.53	0.439		mg/Kg	1	10/23/2019 3:01:56 PM
Chromium	ND	0.883		mg/Kg	1	10/23/2019 3:01:56 PM
Cobalt	1.99	0.563		mg/Kg	1	10/23/2019 3:01:56 PM
Copper	58.6	0.663		mg/Kg	1	10/23/2019 3:01:56 PM
Lead	29.1	2.61		mg/Kg	1	10/23/2019 3:01:56 PM
Molybdenum	ND	0.595	U	mg/Kg	1	10/23/2019 3:01:56 PM
Nickel	ND	1.03	U	mg/Kg	1	10/23/2019 3:01:56 PM
Selenium	ND	4.67	U	mg/Kg	1	10/23/2019 3:01:56 PM
Silver	18.2	1.09		mg/Kg	1	10/23/2019 3:01:56 PM
Thallium	ND	2.67	U	mg/Kg	1	10/23/2019 3:01:56 PM
Vanadium	3.46	1.22		mg/Kg	1	10/23/2019 3:01:56 PM
Zinc	139	0.958		mg/Kg	1	10/23/2019 3:01:56 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 2:00:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-003 **Matrix:** FILTER CAKE

Client Sample ID: R3 ELM AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **LP**
Mercury	ND	22.222		µg/L	44.4444	10/25/2019 2:29:37 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A** **SW3051A**		Analyst: **LP**
Mercury	ND	378.14	U	µg/Kg	40	10/25/2019 2:09:40 PM
ELECTROMETRIC MEASUREMENT OF PH SOIL				**SW9045**		Analyst: **ACJR**
Hydrogen Ion (pH)	4.96	1.00		pH Units	1	10/22/2019 8:20:00 AM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **ACJR**
Antimony	0.630	0.258		mg/L	1	10/24/2019 12:46:20 PM
Arsenic	0.416	0.214		mg/L	1	10/24/2019 12:46:20 PM
Barium	6.44	0.0500		mg/L	1	10/24/2019 12:46:20 PM
Beryllium	0.0593	0.0250		mg/L	1	10/24/2019 12:46:20 PM
Cadmium	0.0724	0.0560		mg/L	1	10/24/2019 12:46:20 PM
Chromium	ND	0.0660		mg/L	1	10/24/2019 12:46:20 PM
Cobalt	ND	0.0860		mg/L	1	10/24/2019 12:46:20 PM
Copper	5.31	0.166		mg/L	1	10/24/2019 12:46:20 PM
Lead	2.30	0.183		mg/L	1	10/24/2019 12:46:20 PM
Molybdenum	ND	0.0710	U	mg/L	1	10/24/2019 12:46:20 PM
Nickel	ND	0.161	U	mg/L	1	10/24/2019 12:46:20 PM
Selenium	ND	0.375		mg/L	1	10/24/2019 12:46:20 PM
Silver	0.144	0.0820		mg/L	1	10/24/2019 12:46:20 PM
Thallium	ND	0.277	U	mg/L	1	10/24/2019 12:46:20 PM
Vanadium	ND	0.0960	U	mg/L	1	10/24/2019 12:46:20 PM
Zinc	14.2	0.0790		mg/L	1	10/24/2019 12:46:20 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **LV**
Antimony	197	3.81		mg/Kg	1	10/23/2019 2:54:21 PM
Arsenic	372	3.77		mg/Kg	1	10/23/2019 2:54:21 PM
Barium	79.9	0.331		mg/Kg	1	10/23/2019 2:54:21 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 2:00:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-003 **Matrix:** FILTER CAKE

Client Sample ID: R3 ELM AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **LV**
TTLC BY ICP-OES						
Beryllium	23.9	0.207		mg/Kg	1	10/23/2019 2:54:21 PM
Cadmium	8.51	0.438		mg/Kg	1	10/23/2019 2:54:21 PM
Chromium	ND	0.880	U	mg/Kg	1	10/23/2019 2:54:21 PM
Cobalt	4.14	0.562		mg/Kg	1	10/23/2019 2:54:21 PM
Copper	148	0.661		mg/Kg	1	10/23/2019 2:54:21 PM
Lead	37.7	2.60		mg/Kg	1	10/23/2019 2:54:21 PM
Molybdenum	ND	0.594	U	mg/Kg	1	10/23/2019 2:54:21 PM
Nickel	ND	1.03	U	mg/Kg	1	10/23/2019 2:54:21 PM
Selenium	ND	4.65	U	mg/Kg	1	10/23/2019 2:54:21 PM
Silver	9.27	1.09		mg/Kg	1	10/23/2019 2:54:21 PM
Thallium	ND	2.66	U	mg/Kg	1	10/23/2019 2:54:21 PM
Vanadium	8.62	1.21		mg/Kg	1	10/23/2019 2:54:21 PM
Zinc	203	0.955		mg/Kg	1	10/23/2019 2:54:21 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 2:10:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-004 **Matrix:** FILTER CAKE

Client Sample ID: R3 LEA AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC HG ANALYSIS BY ICP-MS (STLC)				**SW6020A**		Analyst: **LP**
Mercury	ND	22.222	U	µg/L	44.4444	10/25/2019 2:29:37 PM
TTLC & STLC HG ANALYSIS BY ICP-MS (TTLC)				**SW6020A** **SW3051A**		Analyst: **LP**
Mercury	ND	375.38	U	µg/Kg	40	10/25/2019 2:09:40 PM
ELECTROMETRIC MEASUREMENT OF PH SOIL				**SW9045**		Analyst: **ACJR**
Hydrogen Ion (pH)	4.83	1.00		pH Units	1	10/22/2019 8:20:00 AM
TTLC & STLC STLC BY ICP-OES				**SW6010B** **SW3015A**		Analyst: **ACJR**
Antimony	0.902	0.258		mg/L	1	10/24/2019 12:47:14 PM
Arsenic	0.245	0.214		mg/L	1	10/24/2019 12:47:14 PM
Barium	6.49	0.0500		mg/L	1	10/24/2019 12:47:14 PM
Beryllium	0.134	0.0250		mg/L	1	10/24/2019 12:47:14 PM
Cadmium	0.0831	0.0560		mg/L	1	10/24/2019 12:47:14 PM
Chromium	ND	0.0660		mg/L	1	10/24/2019 12:47:14 PM
Cobalt	ND	0.0860	U	mg/L	1	10/24/2019 12:47:14 PM
Copper	2.19	0.166		mg/L	1	10/24/2019 12:47:14 PM
Lead	2.34	0.183		mg/L	1	10/24/2019 12:47:14 PM
Molybdenum	ND	0.0710	U	mg/L	1	10/24/2019 12:47:14 PM
Nickel	ND	0.161	U	mg/L	1	10/24/2019 12:47:14 PM
Selenium	ND	0.375		mg/L	1	10/24/2019 12:47:14 PM
Silver	0.240	0.0820		mg/L	1	10/24/2019 12:47:14 PM
Thallium	ND	0.277	U	mg/L	1	10/24/2019 12:47:14 PM
Vanadium	ND	0.0960	U	mg/L	1	10/24/2019 12:47:14 PM
Zinc	17.5	0.0790		mg/L	1	10/24/2019 12:47:14 PM
TTLC & STLC TTLC BY ICP-OES				**SW6010B** **SW3051A**		Analyst: **LV**
Antimony	257	3.78		mg/Kg	1	10/23/2019 2:55:15 PM
Arsenic	402	3.75		mg/Kg	1	10/23/2019 2:55:15 PM
Barium	84.3	0.329		mg/Kg	1	10/23/2019 2:55:15 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

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Analytical Report

(consolidated)

WO#: **1910038**

Date Reported: **10/25/2019**

CLIENT: CalEnergy **Collection Date:** 10/21/2019 2:10:00 PM

Project: Annual Filter Cake Composite

Lab ID: 1910038-004 **Matrix:** FILTER CAKE

Client Sample ID: R3 LEA AFC

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TTLC & STLC				**SW6010B**	**SW3051A**	Analyst: **LV**
TTLC BY ICP-OES						
Beryllium	42.9	0.205		mg/Kg	1	10/23/2019 2:55:15 PM
Cadmium	9.35	0.435		mg/Kg	1	10/23/2019 2:55:15 PM
Chromium	ND	0.874	U	mg/Kg	1	10/23/2019 2:55:15 PM
Cobalt	1.52	0.558		mg/Kg	1	10/23/2019 2:55:15 PM
Copper	61.9	0.656		mg/Kg	1	10/23/2019 2:55:15 PM
Lead	40.6	2.58		mg/Kg	1	10/23/2019 2:55:15 PM
Molybdenum	ND	0.589	U	mg/Kg	1	10/23/2019 2:55:15 PM
Nickel	ND	1.02	U	mg/Kg	1	10/23/2019 2:55:15 PM
Selenium	ND	4.62	U	mg/Kg	1	10/23/2019 2:55:15 PM
Silver	16.7	1.08		mg/Kg	1	10/23/2019 2:55:15 PM
Thallium	ND	2.64	U	mg/Kg	1	10/23/2019 2:55:15 PM
Vanadium	9.63	1.20		mg/Kg	1	10/23/2019 2:55:15 PM
Zinc	236	0.948		mg/Kg	1	10/23/2019 2:55:15 PM

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit
U	Samples with CalcVal < MDL	W	Sample container temperature is out of limit as specified at testcode

CALENERGY OPERATING CORPORATION

CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233
TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

TestCode: **6010B_L_OES**

Sample ID: **LCS-25472** SampType: **LCS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **10/24/2019** RunNo: **33784**
Client ID: **LCSW** Batch ID: **25472** TestNo: **SW6010B** **SW3015A** Analysis Date: **10/24/2019** SeqNo: **258179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.7	0.258	11.11	0	96.3	80	120				
Arsenic	10.7	0.214	11.11	0	96.3	80	120				
Barium	2.74	0.0500	2.778	0	98.5	80	120				
Beryllium	2.69	0.0250	2.778	0	96.8	80	120				
Cadmium	11.0	0.0560	11.11	0	99.1	80	120				
Chromium	10.9	0.0660	11.11	0	98.0	80	120				
Cobalt	10.9	0.0860	11.11	0	97.8	80	120				
Copper	10.8	0.166	11.11	0	97.5	80	120				
Lead	10.8	0.183	11.11	0	97.5	80	120				
Molybdenum	11.0	0.0710	11.11	0	99.1	80	120				
Nickel	10.9	0.161	11.11	0	98.0	80	120				
Selenium	11.0	0.375	11.11	0	99.0	80	120				
Silver	2.74	0.0820	2.778	0	98.6	80	120				
Thallium	10.8	0.277	11.11	0	97.1	80	120				
Vanadium	10.9	0.0960	11.11	0	97.9	80	120				
Zinc	11.0	0.0790	11.11	0	98.7	80	120				

Sample ID: **1910038-002BMS** SampType: **MS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **10/24/2019** RunNo: **33784**
Client ID: **R2 AFC** Batch ID: **25472** TestNo: **SW6010B** **SW3015A** Analysis Date: **10/24/2019** SeqNo: **258184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.6	0.258	11.11	0.6234	99.2	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
ND	Not Detected at the Reporting Limit
S	MBLK Samptype result is greater than 1/2 PQL.
PL	Permit Limit
S	Spike Recovery outside accepted recovery limits

Original

CalEnergy Operating Corporation
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TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-002BMS** SampType: **MS** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **10/24/2019** RunNo: **33784**
Client ID: **R2 AFC** Batch ID: **25472** TestNo: **SW6010B** **SW3015A** Analysis Date: **10/24/2019** SeqNo: **258184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.5	0.214	11.11	1.021	104	75	125				
Barium	27.2	0.0500	11.11	15.80	103	75	125				
Beryllium	11.6	0.0250	11.11	0	104	75	125				
Cadmium	11.2	0.0560	11.11	0.07001	100	75	125				
Chromium	11.0	0.0660	11.11	0.01740	98.7	75	125				
Cobalt	10.7	0.0860	11.11	0	96.2	75	125				
Copper	12.4	0.166	11.11	1.125	101	75	125				
Lead	12.6	0.183	11.11	1.786	97.0	75	125				
Molybdenum	11.1	0.0710	11.11	0	99.8	75	125				
Nickel	10.3	0.161	11.11	0	93.1	75	125				
Selenium	11.9	0.375	11.11	0.1651	105	75	125				
Silver	11.3	0.0820	11.11	0	101	75	125				
Thallium	10.7	0.277	11.11	0	96.2	75	125				
Vanadium	11.3	0.0960	11.11	0	102	75	125				
Zinc	20.3	0.0790	11.11	9.268	99.4	75	125				

Sample ID: **1910038-002BMSD** SampType: **MSD** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **10/24/2019** RunNo: **33784**
Client ID: **R2 AFC** Batch ID: **25472** TestNo: **SW6010B** **SW3015A** Analysis Date: **10/24/2019** SeqNo: **258185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.7	0.258	11.11	0.6234	99.4	75	125	11.64	0.269	20	
Arsenic	12.6	0.214	11.11	1.021	104	75	125	12.54	0.427	20	
Barium	27.2	0.0500	11.11	15.80	103	75	125	27.22	0.00712	20	
Beryllium	11.6	0.0250	11.11	0	104	75	125	11.58	0.167	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY OPERATING CORPORATION

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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-002BMSD** SampType: **MSD** TestCode: **6010B_L_OE** Units: **mg/L** Prep Date: **10/24/2019** RunNo: **33784**
Client ID: **R2 AFC** Batch ID: **25472** TestNo: **SW6010B** **SW3015A** Analysis Date: **10/24/2019** SeqNo: **258185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	11.2	0.0560	11.11	0.07001	100	75	125	11.20	0.139	20	
Chromium	11.0	0.0660	11.11	0.01740	98.7	75	125	10.98	0.0729	20	
Cobalt	10.7	0.0860	11.11	0	96.6	75	125	10.69	0.410	20	
Copper	12.4	0.166	11.11	1.125	102	75	125	12.39	0.281	20	
Lead	12.6	0.183	11.11	1.786	97.6	75	125	12.57	0.495	20	
Molybdenum	11.1	0.0710	11.11	0	100	75	125	11.09	0.191	20	
Nickel	10.4	0.161	11.11	0	93.2	75	125	10.35	0.0820	20	
Selenium	11.9	0.375	11.11	0.1651	106	75	125	11.88	0.548	20	
Silver	11.2	0.0820	11.11	0	101	75	125	11.27	0.476	20	
Thallium	10.7	0.277	11.11	0	96.7	75	125	10.69	0.470	20	
Vanadium	11.4	0.0960	11.11	0	102	75	125	11.35	0.191	20	
Zinc	20.4	0.0790	11.11	9.268	99.9	75	125	20.32	0.254	20	

TestCode: **6010B_S_OES**

Sample ID: **LCS-25467** SampType: **LCS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **LCSS** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	181	4.03	200.0	0	90.4	80	120				
Arsenic	190	3.99	200.0	0	95.0	80	120				
Barium	207	0.351	200.0	0	104	80	120				
Beryllium	198	0.219	200.0	0	99.2	80	120				
Cadmium	191	0.463	200.0	0	95.4	80	120				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CalEnergy Operating Corporation
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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **LCS-25467** SampType: **LCS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **LCSS** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	203	0.931	200.0	0	101	80	120				
Cobalt	194	0.594	200.0	0	97.2	80	120				
Copper	209	0.699	200.0	0	105	80	120				
Lead	192	0.628	200.0	0	95.9	80	120				
Molybdenum	202	1.09	200.0	0	101	80	120				
Nickel	193	4.92	200.0	0	96.6	80	120				
Selenium	193	1.15	200.0	0	96.4	80	120				
Silver	200	2.81	200.0	0	100	80	120				
Thallium	186	1.28	200.0	0	92.8	80	120				
Vanadium	206	1.01	200.0	0	103	80	120				
Zinc	205	0.372	200.0	0	102	80	120				

Sample ID: **1910038-002AMS** SampType: **MS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **R2 AFC** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	225	3.82	189.6	53.55	90.4	75	125				
Arsenic	389	3.79	189.6	232.6	82.7	75	125				
Barium	462	0.332	189.6	298.1	86.6	75	125				
Beryllium	201	0.207	189.6	13.22	98.9	75	125				
Cadmium	183	0.439	189.6	5.527	93.7	75	125				
Chromium	181	0.883	189.6	0.5573	95.1	75	125				
Cobalt	172	0.563	189.6	1.989	89.7	75	125				
Copper	230	0.663	189.6	58.60	90.2	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY OPERATING CORPORATION

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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-002AMS** SampType: **MS** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **R2 AFC** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	193	0.595	189.6	29.06	86.6	75	125				
Molybdenum	191	1.03	189.6	0	101	75	125				
Nickel	170	4.67	189.6	0	89.6	75	125				
Selenium	179	1.09	189.6	0	94.5	75	125				
Silver	190	2.67	189.6	18.18	90.8	75	125				
Thallium	151	1.22	189.6	0	79.9	75	125				
Vanadium	194	0.958	189.6	3.464	101	75	125				
Zinc	316	0.353	189.6	139.4	93.4	75	125				

Sample ID: **1910038-002AMSD** SampType: **MSD** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **R2 AFC** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	229	3.82	189.6	53.55	92.7	75	125	225.0	1.92	20	
Arsenic	394	3.79	189.6	232.6	85.1	75	125	389.3	1.16	20	
Barium	462	0.332	189.6	298.1	86.3	75	125	462.2	0.116	20	
Beryllium	202	0.207	189.6	13.22	99.8	75	125	200.8	0.809	20	
Cadmium	183	0.439	189.6	5.527	93.8	75	125	183.2	0.0791	20	
Chromium	181	0.883	189.6	0.5573	95.2	75	125	180.8	0.109	20	
Cobalt	172	0.563	189.6	1.989	89.8	75	125	172.1	0.105	20	
Copper	229	0.663	189.6	58.60	90.1	75	125	229.6	0.0841	20	
Lead	195	0.595	189.6	29.06	87.5	75	125	193.3	0.851	20	
Molybdenum	193	1.03	189.6	0	102	75	125	191.0	1.20	20	
Nickel	170	4.67	189.6	0	89.7	75	125	169.9	0.0669	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY OPERATING CORPORATION

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Calipatria, CA 92233
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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-002AMSD** SampType: **MSD** TestCode: **6010B_S_OE** Units: **mg/Kg** Prep Date: **10/23/2019** RunNo: **33785**
Client ID: **R2 AFC** Batch ID: **25467** TestNo: **SW6010B** **SW3051A** Analysis Date: **10/23/2019** SeqNo: **258287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	184	1.09	189.6	0	97.2	75	125	179.2	2.78	20	
Silver	191	2.67	189.6	18.18	91.0	75	125	190.4	0.139	20	
Thallium	154	1.22	189.6	0	81.0	75	125	151.5	1.40	20	
Vanadium	194	0.958	189.6	3.464	101	75	125	194.3	0.0251	20	
Zinc	317	0.353	189.6	139.4	93.5	75	125	316.5	0.0909	20	

TestCode: 6020A_HG_STLC

Sample ID: **LCS** SampType: **LCS** TestCode: **6020A_HG_S** Units: **µg/L** Prep Date: RunNo: **33797**
Client ID: **LCSS** Batch ID: **R33797** TestNo: **SW6020A** Analysis Date: **10/25/2019** SeqNo: **258492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.6080	0.50000	2.500	0	104	80	120				

Sample ID: **1910038-001BMS** SampType: **MS** TestCode: **6020A_HG_S** Units: **µg/L** Prep Date: RunNo: **33797**
Client ID: **R1 AFC** Batch ID: **R33797** TestNo: **SW6020A** Analysis Date: **10/25/2019** SeqNo: **258495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	103.24	22.222	111.1	6.533	87.0	75	125				

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY OPERATING CORPORATION

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Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-001BMSD** SampType: **MSD** TestCode: **6020A_HG_S** Units: **µg/L** Prep Date: RunNo: **33797**
Client ID: **R1 AFC** Batch ID: **R33797** TestNo: **SW6020A** Analysis Date: **10/25/2019** SeqNo: **258496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	103.35	22.222	111.1	6.533	87.1	75	125	103.2	0.0990	20	

TestCode: **6020A_HG_TTLC**

Sample ID: **LCS-25467** SampType: **LCS** TestCode: **6020A_HG_T** Units: **µg/Kg** Prep Date: **10/23/2019** RunNo: **33796**
Client ID: **LCSS** Batch ID: **25467** TestNo: **SW6020A** **SW3051A** Analysis Date: **10/25/2019** SeqNo: **258469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	252.30	0.50000	250.0	0	101.0	80	120				

Sample ID: **1910038-001AMS** SampType: **MS** TestCode: **6020A_HG_T** Units: **µg/Kg** Prep Date: RunNo: **33796**
Client ID: **R1 AFC** Batch ID: **25467** TestNo: **SW6020A** **SW3051A** Analysis Date: **10/25/2019** SeqNo: **258473**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8589.6	373.62	9341	48.57	91.4	75	125				

Sample ID: **1910038-001AMSD** SampType: **MSD** TestCode: **6020A_HG_T** Units: **µg/Kg** Prep Date: RunNo: **33796**
Client ID: **R1 AFC** Batch ID: **25467** TestNo: **SW6020A** **SW3051A** Analysis Date: **10/25/2019** SeqNo: **258474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8507.4	373.62	9341	48.57	90.6	75	125	8590	0.962	20	

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CalEnergy Operating Corporation
7030 Gentry Road
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TEL: (760) 348-4200 FAX: (760) 348-4222
Website: www.calenergy.com

QC SUMMARY REPORT

WO#: **1910038**

25-Oct-19

Client: CalEnergy
Project: Annual Filter Cake Composite

Sample ID: **1910038-001AMSD** SampType: **MSD** TestCode: **6020A_HG_T** Units: **µg/Kg** Prep Date: RunNo: **33796**
Client ID: **R1 AFC** Batch ID: **25467** TestNo: **SW6020A** **SW3051A** Analysis Date: **10/25/2019** SeqNo: **258474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	S	MBLK Samptype result is greater than 1/2 PQL.	S	Spike Recovery outside accepted recovery limits
W	Sample container temperature is out of limit as specified at testcode				

Original

CALENERGY
OPERATING CORPORATION
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE
Analytical Services Department

7030 Gentry Road, Calipatria, CA 92233
Tel: (760) 348-4250
Fax: (760) 348-4222

CHAIN OF CUSTODY RECORD

DATE: 10/21/19

PAGE: 1 OF 1

CUSTOMER/LOCATION: Desert Valley Company
ADDRESS:
CITY:
TEL: FAX: E-MAIL:

CUSTOMER PROJECT NAME/NUMBER: 2019 Annual Filter Cake Composite
P.O. NO.:
PROJECT CONTACT: Jon Trujillo
CHARGE TO:
SAMPLER(S) (SIGNATURE): Luis Valencia
LAB USE ONLY: COC# Nº 3566

TURNAROUND TIME:
☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS ☐ 14 DAYS ☒ 28 days

SPECIAL REQUIREMENTS:
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:
WO # 1910038

REQUESTED ANALYSIS

SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	Matrix	Preservative	# Containers	STLC 6010B + Hg metals	TTLC 6010B + Hg metals	pH by EPA 9045C
1910038-001	Region 1 2019 Annual Filtercake	10/21/19	13:40	S	N	1	X	X	X
1910038-002	Region 2 2019 Annual Filtercake	10/21/19	13:45	S	N	1	X	X	X
1910038-003	Elmore 2019 Annual Filtercake	10/21/19	14:00	S	N	1	X	X	X
1910038-004	Leathers 2019 Annual Filtercake	10/21/19	14:10	S	N	1	X	X	X

RELINQUISHED BY: (SIGNATURE) Luis Valencia	RECEIVED BY: (SIGNATURE)	DATE: 10/21/19	TIME: 14:40
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:
RELINQUISHED BY: (SIGNATURE)	RECEIVED BY: (SIGNATURE)	DATE:	TIME:

MATRIX: W=Water, S=Soil, SD=Solid, L=Liquid, SL=Sludge, O=Oil, FC=Filter Cake, SC=Scale

IMPERIAL PRINTERS 318423

Attachment 2

Ignitability, Corrosivity, Reactivity and Volatile Organic Compounds

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 9J23021

Project: 2019 Annual Filtercake Composite

Attn: Orval Osborne

Client: CalEnergy Corporation
7030 Gentry Rd.
Calipatria, CA 92233

Report Date: 12/11/2019
Received Date: 10/23/2019
Turnaround Time: Normal
Phones: (760) 348-4270
Fax: (760) 348-4222
P.O. #:
Billing Code:

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-CA #04229CA • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Orval Osborne,

Enclosed are the results of analyses for samples received 10/23/19 with the Chain-of-Custody document. The samples were received in good condition, at 2.7 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Regina Giancola
Project Manager

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634

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CalEnergy Corporation
7030 Gentry Rd.
Calipatria, CA 92233

Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
Region 1 Filtercake Composite	Luis Polanco	9J23021-01	Solid	10/21/19 13:40	
Region 2 Filtercake Composite	Luis Polanco	9J23021-02	Solid	10/21/19 13:45	
Elmore Filtercake Composite	Luis Polanco	9J23021-03	Solid	10/21/19 14:00	
Leathers Filtercake Composite	Luis Polanco	9J23021-04	Solid	10/21/19 14:10	

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

Sample: Region 1 Filtercake Composite
9J23021-01 (Solid)

Sampled: 10/21/19 13:40 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods						
Method: EPA 1010 **Batch ID:** W9K0291 **Instr:** FP01 **Prepared:** 11/06/19 10:34 **Analyst:** hot						
Flashpoint	**>200**		°F	1	11/07/19	
Volatile Organic Compounds by P&T and GC/MS						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
1,1,1,2-Tetrachloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,1,1-Trichloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,1,2,2-Tetrachloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,1,2-Trichloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,1-Dichloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,1-Dichloroethene	ND	9.9	ug/kg	1	11/02/19	M-02
1,1-Dichloropropene	ND	9.9	ug/kg	1	11/02/19	M-02
1,2,3-Trichlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
1,2,3-Trichloropropane	ND	9.9	ug/kg	1	11/02/19	M-02
1,2,4-Trichlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
1,2,4-Trimethylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
1,2-Dibromo-3-chloropropane	ND	9.9	ug/kg	1	11/02/19	M-02
1,2-Dibromoethane (EDB)	ND	9.9	ug/kg	1	11/02/19	M-02
1,2-Dichloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
1,2-Dichloropropane	ND	9.9	ug/kg	1	11/02/19	M-02
1,3,5-Trimethylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
1,3-Dichloropropane	ND	9.9	ug/kg	1	11/02/19	M-02
2,2-Dichloropropane	ND	9.9	ug/kg	1	11/02/19	M-02
2-Butanone	ND	9.9	ug/kg	1	11/02/19	M-02
2-Chloroethyl vinyl ether	ND	9.9	ug/kg	1	11/02/19	M-02
2-Chlorotoluene	ND	9.9	ug/kg	1	11/02/19	M-02
2-Hexanone	ND	9.9	ug/kg	1	11/02/19	M-02
4-Chlorotoluene	ND	9.9	ug/kg	1	11/02/19	M-02
4-Methyl-2-pentanone	ND	9.9	ug/kg	1	11/02/19	M-02
Acetone	ND	9.9	ug/kg	1	11/02/19	M-02
Acrolein	ND	9.9	ug/kg	1	11/02/19	M-02
Acrylonitrile	ND	9.9	ug/kg	1	11/02/19	M-02
Benzene	ND	9.9	ug/kg	1	11/02/19	M-02
Bromobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Bromochloromethane	ND	9.9	ug/kg	1	11/02/19	M-02
Bromodichloromethane	ND	9.9	ug/kg	1	11/02/19	M-02
Bromoform	ND	9.9	ug/kg	1	11/02/19	M-02
Bromomethane	ND	9.9	ug/kg	1	11/02/19	M-02

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported: 12/11/2019 16:27

Sample Results

(Continued)

Sample: Region 1 Filtercake Composite
9J23021-01 (Solid)

Sampled: 10/21/19 13:40 by Luis Polanco

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Carbon tetrachloride	ND	9.9	ug/kg	1	11/02/19	M-02
Chlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Chloroethane	ND	9.9	ug/kg	1	11/02/19	M-02
Chloroform	ND	9.9	ug/kg	1	11/02/19	M-02
Chloromethane	ND	9.9	ug/kg	1	11/02/19	M-02
cis-1,2-Dichloroethene	ND	9.9	ug/kg	1	11/02/19	M-02
cis-1,3-Dichloropropene	ND	9.9	ug/kg	1	11/02/19	M-02
Dibromochloromethane	ND	9.9	ug/kg	1	11/02/19	M-02
Dibromomethane	ND	9.9	ug/kg	1	11/02/19	M-02
Dichlorodifluoromethane (Freon 12)	ND	9.9	ug/kg	1	11/02/19	M-02
Ethylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Hexachlorobutadiene	ND	9.9	ug/kg	1	11/02/19	M-02
Isopropylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
m,p-Xylene	ND	9.9	ug/kg	1	11/02/19	M-02
m-Dichlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Methyl tert-butyl ether (MTBE)	ND	9.9	ug/kg	1	11/02/19	M-02
Methylene chloride	ND	9.9	ug/kg	1	11/02/19	M-02
Naphthalene	ND	9.9	ug/kg	1	11/02/19	M-02
n-Butylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
n-Propylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
o-Dichlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
o-Xylene	ND	9.9	ug/kg	1	11/02/19	M-02
p-Dichlorobenzene	ND	9.9	ug/kg	1	11/02/19	M-02
p-Isopropyltoluene	ND	9.9	ug/kg	1	11/02/19	M-02
sec-Butylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Styrene	ND	9.9	ug/kg	1	11/02/19	M-02
tert-Butylbenzene	ND	9.9	ug/kg	1	11/02/19	M-02
Tetrachloroethene	ND	9.9	ug/kg	1	11/02/19	M-02
Toluene	ND	9.9	ug/kg	1	11/02/19	M-02
trans-1,2-Dichloroethene	ND	9.9	ug/kg	1	11/02/19	M-02
trans-1,3-Dichloropropene	ND	9.9	ug/kg	1	11/02/19	M-02
Trichloroethene	ND	9.9	ug/kg	1	11/02/19	M-02
Trichlorofluoromethane	ND	9.9	ug/kg	1	11/02/19	M-02
Vinyl chloride	ND	9.9	ug/kg	1	11/02/19	M-02

Surrogate(s)

1,2-Dichloroethane-d4	*98%*	*Conc: 97.1*	*78-140*		*11/02/19*

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

(Continued)

Sample: Region 1 Filtercake Composite

Sampled: 10/21/19 13:40 by Luis Polanco

9J23021-01 (Solid)

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Volatile Organic Compounds by P&T and GC/MS (Continued)						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
4-Bromofluorobenzene	*97% Conc: 95.4*	*85-116*			*11/02/19*	
Dibromofluoromethane	*101% Conc: 99.3*	*84-120*			*11/02/19*	
Toluene-d8	*100% Conc: 98.3*	*82-120*			*11/02/19*	*M-02*

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
9J23021-02 (Solid)

Sampled: 10/21/19 13:45 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods						
Method: EPA 1010 **Batch ID:** W9K0291 **Instr:** FP01 **Prepared:** 11/06/19 10:34 **Analyst:** hot						
Flashpoint	**>200**		°F	1	11/07/19	
Volatile Organic Compounds by P&T and GC/MS						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
1,1,1,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,1-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromo-3-chloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromoethane (EDB)	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,3,5-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,3-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2-Butanone	ND	10	ug/kg	1	11/02/19	M-02
2-Chloroethyl vinyl ether	ND	10	ug/kg	1	11/02/19	M-02
2-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
2-Hexanone	ND	10	ug/kg	1	11/02/19	M-02
4-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
4-Methyl-2-pentanone	ND	10	ug/kg	1	11/02/19	M-02
Acetone	ND	10	ug/kg	1	11/02/19	M-02
Acrolein	ND	10	ug/kg	1	11/02/19	M-02
Acrylonitrile	ND	10	ug/kg	1	11/02/19	M-02
Benzene	ND	10	ug/kg	1	11/02/19	M-02
Bromobenzene	ND	10	ug/kg	1	11/02/19	M-02
Bromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromodichloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromoform	ND	10	ug/kg	1	11/02/19	M-02
Bromomethane	ND	10	ug/kg	1	11/02/19	M-02

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

(Continued)

Sample: Region 2 Filtercake Composite
9J23021-02 (Solid)

Sampled: 10/21/19 13:45 by Luis Polanco
(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Carbon tetrachloride	ND	10	ug/kg	1	11/02/19	M-02
Chlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Chloroethane	ND	10	ug/kg	1	11/02/19	M-02
Chloroform	ND	10	ug/kg	1	11/02/19	M-02
Chloromethane	ND	10	ug/kg	1	11/02/19	M-02
cis-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
cis-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Dibromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Dibromomethane	ND	10	ug/kg	1	11/02/19	M-02
Dichlorodifluoromethane (Freon 12)	ND	10	ug/kg	1	11/02/19	M-02
Ethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Hexachlorobutadiene	ND	10	ug/kg	1	11/02/19	M-02
Isopropylbenzene	ND	10	ug/kg	1	11/02/19	M-02
m,p-Xylene	ND	10	ug/kg	1	11/02/19	M-02
m-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Methyl tert-butyl ether (MTBE)	ND	10	ug/kg	1	11/02/19	M-02
Methylene chloride	ND	10	ug/kg	1	11/02/19	M-02
Naphthalene	ND	10	ug/kg	1	11/02/19	M-02
n-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
n-Propylbenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Xylene	ND	10	ug/kg	1	11/02/19	M-02
p-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
p-Isopropyltoluene	ND	10	ug/kg	1	11/02/19	M-02
sec-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Styrene	ND	10	ug/kg	1	11/02/19	M-02
tert-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Tetrachloroethene	ND	10	ug/kg	1	11/02/19	M-02
Toluene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Trichloroethene	ND	10	ug/kg	1	11/02/19	M-02
Trichlorofluoromethane	ND	10	ug/kg	1	11/02/19	M-02
Vinyl chloride	ND	10	ug/kg	1	11/02/19	M-02

Surrogate(s)

1,2-Dichloroethane-d4	*102%*	*Conc: 104*	*78-140*	*11/02/19*

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Calipatria, CA 92233

Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

(Continued)

Sample: Region 2 Filtercake Composite

9J23021-02 (Solid)

Sampled: 10/21/19 13:45 by Luis Polanco

(Continued)

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Volatile Organic Compounds by P&T and GC/MS (Continued)							
Method: EPA 8260B	**Batch ID:** W9K0054	**Instr:** GCMS17	**Prepared:** 11/02/19 12:09			**Analyst:** cam	
4-Bromofluorobenzene	*96%*	*Conc: 97.5*	*85-116*			*11/02/19*	
Dibromofluoromethane	*102%*	*Conc: 104*	*84-120*			*11/02/19*	
Toluene-d8	*99%*	*Conc: 101*	*82-120*			*11/02/19*	

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported: 12/11/2019 16:27

Sample Results

(Continued)

Sample: Elmore Filtercake Composite
9J23021-03 (Solid)

Sampled: 10/21/19 14:00 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods						
Method: EPA 1010 **Batch ID:** W9K0291 **Instr:** FP01 **Prepared:** 11/06/19 10:34 **Analyst:** hot						
Flashpoint	**>200**		°F	1	11/07/19	
Volatile Organic Compounds by P&T and GC/MS						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
1,1,1,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,1-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromo-3-chloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromoethane (EDB)	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,3,5-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,3-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2-Butanone	ND	10	ug/kg	1	11/02/19	M-02
2-Chloroethyl vinyl ether	ND	10	ug/kg	1	11/02/19	M-02
2-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
2-Hexanone	ND	10	ug/kg	1	11/02/19	M-02
4-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
4-Methyl-2-pentanone	ND	10	ug/kg	1	11/02/19	M-02
Acetone	**33**	10	ug/kg	1	11/02/19	M-02
Acrolein	ND	10	ug/kg	1	11/02/19	M-02
Acrylonitrile	ND	10	ug/kg	1	11/02/19	M-02
Benzene	ND	10	ug/kg	1	11/02/19	M-02
Bromobenzene	ND	10	ug/kg	1	11/02/19	M-02
Bromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromodichloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromoform	ND	10	ug/kg	1	11/02/19	M-02
Bromomethane	ND	10	ug/kg	1	11/02/19	M-02

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Calipatria, CA 92233

Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported: 12/11/2019 16:27

Sample Results

(Continued)

Sample: Elmore Filtercake Composite
9J23021-03 (Solid)

Sampled: 10/21/19 14:00 by Luis Polanco

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Carbon tetrachloride	ND	10	ug/kg	1	11/02/19	M-02
Chlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Chloroethane	ND	10	ug/kg	1	11/02/19	M-02
Chloroform	ND	10	ug/kg	1	11/02/19	M-02
Chloromethane	ND	10	ug/kg	1	11/02/19	M-02
cis-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
cis-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Dibromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Dibromomethane	ND	10	ug/kg	1	11/02/19	M-02
Dichlorodifluoromethane (Freon 12)	ND	10	ug/kg	1	11/02/19	M-02
Ethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Hexachlorobutadiene	ND	10	ug/kg	1	11/02/19	M-02
Isopropylbenzene	ND	10	ug/kg	1	11/02/19	M-02
m,p-Xylene	ND	10	ug/kg	1	11/02/19	M-02
m-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Methyl tert-butyl ether (MTBE)	ND	10	ug/kg	1	11/02/19	M-02
Methylene chloride	ND	10	ug/kg	1	11/02/19	M-02
Naphthalene	ND	10	ug/kg	1	11/02/19	M-02
n-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
n-Propylbenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Xylene	ND	10	ug/kg	1	11/02/19	M-02
p-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
p-Isopropyltoluene	ND	10	ug/kg	1	11/02/19	M-02
sec-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Styrene	ND	10	ug/kg	1	11/02/19	M-02
tert-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Tetrachloroethene	ND	10	ug/kg	1	11/02/19	M-02
Toluene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Trichloroethene	ND	10	ug/kg	1	11/02/19	M-02
Trichlorofluoromethane	ND	10	ug/kg	1	11/02/19	M-02
Vinyl chloride	ND	10	ug/kg	1	11/02/19	M-02

Surrogate(s)

1,2-Dichloroethane-d4	*102%*	*Conc: 102*	*78-140*	*11/02/19*

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
12/11/2019 16:27

Sample Results

(Continued)

Sample: Elmore Filtercake Composite
9J23021-03 (Solid)

Sampled: 10/21/19 14:00 by Luis Polanco

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Volatile Organic Compounds by P&T and GC/MS (Continued)						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
4-Bromofluorobenzene	*96% Conc: 96.1*	*85-116*			*11/02/19*	
Dibromofluoromethane	*102% Conc: 102*	*84-120*			*11/02/19*	
Toluene-d8	*99% Conc: 99.0*	*82-120*			*11/02/19*	

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported: 12/11/2019 16:27

Sample Results

(Continued)

Sample: Leathers Filtercake Composite
9J23021-04 (Solid)

Sampled: 10/21/19 14:10 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods						
Method: EPA 1010 **Batch ID:** W9K0291 **Instr:** FP01 **Prepared:** 11/06/19 10:34 **Analyst:** hot						
Flashpoint	**>200**		°F	1	11/07/19	
Volatile Organic Compounds by P&T and GC/MS						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
1,1,1,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,1-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2,2-Tetrachloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1,2-Trichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
1,1-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,3-Trichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2,4-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromo-3-chloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dibromoethane (EDB)	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloroethane	ND	10	ug/kg	1	11/02/19	M-02
1,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
1,3,5-Trimethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
1,3-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2,2-Dichloropropane	ND	10	ug/kg	1	11/02/19	M-02
2-Butanone	ND	10	ug/kg	1	11/02/19	M-02
2-Chloroethyl vinyl ether	ND	10	ug/kg	1	11/02/19	M-02
2-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
2-Hexanone	ND	10	ug/kg	1	11/02/19	M-02
4-Chlorotoluene	ND	10	ug/kg	1	11/02/19	M-02
4-Methyl-2-pentanone	**11**	10	ug/kg	1	11/02/19	M-02
Acetone	**11**	10	ug/kg	1	11/02/19	M-02
Acrolein	ND	10	ug/kg	1	11/02/19	M-02
Acrylonitrile	ND	10	ug/kg	1	11/02/19	M-02
Benzene	ND	10	ug/kg	1	11/02/19	M-02
Bromobenzene	ND	10	ug/kg	1	11/02/19	M-02
Bromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromodichloromethane	ND	10	ug/kg	1	11/02/19	M-02
Bromoform	ND	10	ug/kg	1	11/02/19	M-02
Bromomethane	ND	10	ug/kg	1	11/02/19	M-02

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported: 12/11/2019 16:27

Sample Results

(Continued)

Sample: Leathers Filtercake Composite
9J23021-04 (Solid)

Sampled: 10/21/19 14:10 by Luis Polanco

(Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Volatile Organic Compounds by P&T and GC/MS (Continued)						
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam						
Carbon tetrachloride	ND	10	ug/kg	1	11/02/19	M-02
Chlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Chloroethane	ND	10	ug/kg	1	11/02/19	M-02
Chloroform	ND	10	ug/kg	1	11/02/19	M-02
Chloromethane	ND	10	ug/kg	1	11/02/19	M-02
cis-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
cis-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Dibromochloromethane	ND	10	ug/kg	1	11/02/19	M-02
Dibromomethane	ND	10	ug/kg	1	11/02/19	M-02
Dichlorodifluoromethane (Freon 12)	ND	10	ug/kg	1	11/02/19	M-02
Ethylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Hexachlorobutadiene	ND	10	ug/kg	1	11/02/19	M-02
Isopropylbenzene	ND	10	ug/kg	1	11/02/19	M-02
m,p-Xylene	ND	10	ug/kg	1	11/02/19	M-02
m-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
Methyl tert-butyl ether (MTBE)	ND	10	ug/kg	1	11/02/19	M-02
Methylene chloride	ND	10	ug/kg	1	11/02/19	M-02
Naphthalene	ND	10	ug/kg	1	11/02/19	M-02
n-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
n-Propylbenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
o-Xylene	ND	10	ug/kg	1	11/02/19	M-02
p-Dichlorobenzene	ND	10	ug/kg	1	11/02/19	M-02
p-Isopropyltoluene	ND	10	ug/kg	1	11/02/19	M-02
sec-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Styrene	ND	10	ug/kg	1	11/02/19	M-02
tert-Butylbenzene	ND	10	ug/kg	1	11/02/19	M-02
Tetrachloroethene	ND	10	ug/kg	1	11/02/19	M-02
Toluene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,2-Dichloroethene	ND	10	ug/kg	1	11/02/19	M-02
trans-1,3-Dichloropropene	ND	10	ug/kg	1	11/02/19	M-02
Trichloroethene	ND	10	ug/kg	1	11/02/19	M-02
Trichlorofluoromethane	ND	10	ug/kg	1	11/02/19	M-02
Vinyl chloride	ND	10	ug/kg	1	11/02/19	M-02
Surrogate(s)						
1,2-Dichloroethane-d4	*102%*	*Conc: 104*	*78-140*		*11/02/19*	

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Sample Results

(Continued)

Sample: Leathers Filtercake Composite
9J23021-04 (Solid)

Sampled: 10/21/19 14:10 by Luis Polanco

(Continued)

Analyte	Result		MRL	Units	Dil	Analyzed	Qualifier
Volatile Organic Compounds by P&T and GC/MS (Continued)							
Method: EPA 8260B **Batch ID:** W9K0054 **Instr:** GCMS17 **Prepared:** 11/02/19 12:09 **Analyst:** cam							
4-Bromofluorobenzene	*96%*	*Conc: 98.4*	*85-116*			*11/02/19*	
Dibromofluoromethane	*102%*	*Conc: 104*	*84-120*			*11/02/19*	
Toluene-d8	*98%*	*Conc: 100*	*82-120*			*11/02/19*	

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Reported:
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Sample Results Aquatic Bioassay & Consulting Labs, Inc. ELAP #1907, Non-NELAP

Sample: Region 1 Filtercake Composite
9J23021-01 (Solid)

Sampled: 10/21/19 13:40 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Subcontracted Analyses						
Method: 22CCR66261.24	**Batch ID:**	**Prepared:** 10/21/19 13:40				**Analyst:** _SUB
Fish Bioassay, LC 50	**See Attached**		mg/l	1		

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Reported:
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Sample Results Aquatic Bioassay & Consulting Labs, Inc. ELAP #1907, Non-NELAP (Continued)

Sample: Region 2 Filtercake Composite
9J23021-02 (Solid)

Sampled: 10/21/19 13:45 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Subcontracted Analyses						
Method: 22CCR66261.24	**Batch ID:**	**Prepared:** 10/21/19 13:45				**Analyst:** _SUB
Fish Bioassay, LC 50	**See Attached**		mg/l	1		

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

Reported:
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Sample Results Aquatic Bioassay & Consulting Labs, Inc. ELAP #1907, Non-NELAP (Continued)

Sample: Elmore Filtercake Composite
9J23021-03 (Solid)

Sampled: 10/21/19 14:00 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Subcontracted Analyses						
Method: 22CCR66261.24	**Batch ID:**	**Prepared:** 10/21/19 14:00				**Analyst:** _SUB
Fish Bioassay, LC 50	**See Attached**		mg/l	1		

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Reported:
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Sample Results Aquatic Bioassay & Consulting Labs, Inc. ELAP #1907, Non-NELAP (Continued)

Sample: Leathers Filtercake Composite
9J23021-04 (Solid)

Sampled: 10/21/19 14:10 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Subcontracted Analyses						
Method: 22CCR66261.24	**Batch ID:**	**Prepared:** 10/21/19 14:10				**Analyst:** _SUB
Fish Bioassay, LC 50	**See Attached**		mg/l	1		

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Sample Results Eurofins Calscience LLC (Continued)

Sample: Region 1 Filtercake Composite
9J23021-01 (Solid)

Sampled: 10/21/19 13:40 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
9014						
Method: 9014_ReactiveCN Cyanide, Reactive	**Batch ID:** 28532	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Cyanide, Reactive	ND	0.995	mg/Kg	1	10/25/19	
9034						
Method: 9034_Reactive Sulfide, Reactive	**Batch ID:** 28531	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Sulfide, Reactive	**35.2**	1.99	mg/Kg	1	10/25/19	

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Sample Results Eurofins Calscience LLC (Continued)

Sample: Region 2 Filtercake Composite
9J23021-02 (Solid)

Sampled: 10/21/19 13:45 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
9014						
Method: 9014_ReactiveCN Cyanide, Reactive	**Batch ID:** 28532	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Cyanide, Reactive	ND	0.993	mg/Kg	1	10/25/19	
9034						
Method: 9034_Reactive Sulfide, Reactive	**Batch ID:** 28531	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Sulfide, Reactive	**30.0**	2.00	mg/Kg	1	10/25/19	

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Sample Results Eurofins Calscience LLC (Continued)

Sample: Elmore Filtercake Composite
9J23021-03 (Solid)

Sampled: 10/21/19 14:00 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
9014						
Method: 9014_ReactiveCN Cyanide, Reactive	**Batch ID:** 28532	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Cyanide, Reactive	ND	0.997	mg/Kg	1	10/25/19	
9034						
Method: 9034_Reactive Sulfide, Reactive	**Batch ID:** 28531	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Sulfide, Reactive	**4.38**	1.99	mg/Kg	1	10/25/19	

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Sample Results Eurofins Calscience LLC (Continued)

Sample: Leathers Filtercake Composite
9J23021-04 (Solid)

Sampled: 10/21/19 14:10 by Luis Polanco

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
9014						
Method: 9014_ReactiveCN Cyanide, Reactive	**Batch ID:** 28532	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Cyanide, Reactive	ND	1.00	mg/Kg	1	10/25/19	
9034						
Method: 9034_Reactive Sulfide, Reactive	**Batch ID:** 28531	**Prepared:** 10/25/19 07:30				**Analyst:** J8H7
Sulfide, Reactive	**26.9**	2.00	mg/Kg	1	10/25/19	

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Quality Control Results

9014

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: 28532 - 9014_ReactiveCN Cyanide, Reactive										
DU (570-11059-1 DU)	**Source: 9J23021-01**			**Prepared & Analyzed: 10/25/19**						
Cyanide, Reactive	ND	0.998	mg/Kg		ND		-	NC	25	
LCS (LCS 570-28532/2-A)				**Prepared & Analyzed: 10/25/19**						
Cyanide, Reactive	1.922	0.996	mg/Kg	1.99		96	50-150			
LCS Dup (LCSD 570-28532/3-A)				**Prepared & Analyzed: 10/25/19**						
Cyanide, Reactive	1.928	0.994	mg/Kg	1.99		97	50-150	0	20	
MB (MB 570-28532/1-A)				**Prepared & Analyzed: 10/25/19**						
Cyanide, Reactive	ND	0.998	mg/Kg				-			

Quality Control Results

9034

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: 28531 - 9034_Reactive Sulfide, Reactive										
DU (570-11059-1 DU)	**Source: 9J23021-01**			**Prepared & Analyzed: 10/25/19**						
Sulfide, Reactive	33.53	1.99	mg/Kg		35.2		-	5	25	
LCS (LCS 570-28531/2-A)				**Prepared & Analyzed: 10/25/19**						
Sulfide, Reactive	21.64	2.00	mg/Kg	100		22	0-120			
MB (MB 570-28531/1-A)				**Prepared & Analyzed: 10/25/19**						
Sulfide, Reactive	ND	2.00	mg/Kg				-			

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0291 - EPA 1010										
LCS (W9K0291-BS1)				**Prepared: 11/06/19 Analyzed: 11/07/19**						
Flashpoint	81.0		°F	81.0		100	98-102			
Duplicate (W9K0291-DUP1)	**Source: 9J25093-01**			**Prepared: 11/06/19 Analyzed: 11/07/19**						
Flashpoint	>200		°F		0.00				20	

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Project Number: 2019 Annual Filtercake Composite

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B										
Blank (W9K0054-BLK1)				**Prepared & Analyzed: 11/02/19**						
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg							
1,1,1-Trichloroethane	ND	5.0	ug/kg							
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg							
1,1,2-Trichloroethane	ND	5.0	ug/kg							
1,1-Dichloroethane	ND	5.0	ug/kg							
1,1-Dichloroethene	ND	5.0	ug/kg							
1,1-Dichloropropene	ND	5.0	ug/kg							
1,2,3-Trichlorobenzene	ND	5.0	ug/kg							
1,2,3-Trichloropropane	ND	5.0	ug/kg							
1,2,4-Trichlorobenzene	ND	5.0	ug/kg							
1,2,4-Trimethylbenzene	ND	5.0	ug/kg							
1,2-Dibromo-3-chloropropane	ND	5.0	ug/kg							
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg							
1,2-Dichloroethane	ND	5.0	ug/kg							
1,2-Dichloropropane	ND	5.0	ug/kg							
1,3,5-Trimethylbenzene	ND	5.0	ug/kg							
1,3-Dichloropropane	ND	5.0	ug/kg							
2,2-Dichloropropane	ND	5.0	ug/kg							
2-Butanone	ND	5.0	ug/kg							
2-Chloroethyl vinyl ether	ND	5.0	ug/kg							
2-Chlorotoluene	ND	5.0	ug/kg							
2-Hexanone	ND	5.0	ug/kg							
4-Chlorotoluene	ND	5.0	ug/kg							
4-Methyl-2-pentanone	ND	5.0	ug/kg							
Acetone	ND	5.0	ug/kg							
Acrolein	ND	5.0	ug/kg							
Acrylonitrile	ND	5.0	ug/kg							
Benzene	ND	5.0	ug/kg							
Bromobenzene	ND	5.0	ug/kg							
Bromochloromethane	ND	5.0	ug/kg							
Bromodichloromethane	ND	5.0	ug/kg							
Bromoform	ND	5.0	ug/kg							
Bromomethane	ND	5.0	ug/kg							
Carbon tetrachloride	ND	5.0	ug/kg							
Chlorobenzene	ND	5.0	ug/kg							
Chloroethane	ND	5.0	ug/kg							
Chloroform	ND	5.0	ug/kg							
Chloromethane	ND	5.0	ug/kg							
cis-1,2-Dichloroethene	ND	5.0	ug/kg							

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Project Number: 2019 Annual Filtercake Composite

Project Manager: Orval Osborne

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B (Continued)										
Blank (W9K0054-BLK1)				**Prepared & Analyzed: 11/02/19**						
cis-1,3-Dichloropropene	ND	5.0	ug/kg							
Dibromochloromethane	ND	5.0	ug/kg							
Dibromomethane	ND	5.0	ug/kg							
Dichlorodifluoromethane (Freon 12)	ND	5.0	ug/kg							
Ethylbenzene	ND	5.0	ug/kg							
Hexachlorobutadiene	ND	5.0	ug/kg							
Isopropylbenzene	ND	5.0	ug/kg							
m,p-Xylene	ND	5.0	ug/kg							
m-Dichlorobenzene	ND	5.0	ug/kg							
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/kg							
Methylene chloride	ND	5.0	ug/kg							
Naphthalene	ND	5.0	ug/kg							
n-Butylbenzene	ND	5.0	ug/kg							
n-Propylbenzene	ND	5.0	ug/kg							
o-Dichlorobenzene	ND	5.0	ug/kg							
o-Xylene	ND	5.0	ug/kg							
p-Dichlorobenzene	ND	5.0	ug/kg							
p-Isopropyltoluene	ND	5.0	ug/kg							
sec-Butylbenzene	ND	5.0	ug/kg							
Styrene	ND	5.0	ug/kg							
tert-Butylbenzene	ND	5.0	ug/kg							
Tetrachloroethene	ND	5.0	ug/kg							
Toluene	ND	5.0	ug/kg							
trans-1,2-Dichloroethene	ND	5.0	ug/kg							
trans-1,3-Dichloropropene	ND	5.0	ug/kg							
Trichloroethene	ND	5.0	ug/kg							
Trichlorofluoromethane	ND	5.0	ug/kg							
Vinyl chloride	ND	5.0	ug/kg							
Surrogate(s)										
1,2-Dichloroethane-d4	*47.7*		*ug/kg*	*50.0*		*95*	*78-140*			
4-Bromofluorobenzene	*48.3*		*ug/kg*	*50.0*		*97*	*85-116*			
Dibromofluoromethane	*49.5*		*ug/kg*	*50.0*		*99*	*84-120*			
Toluene-d8	*50.0*		*ug/kg*	*50.0*		*100*	*82-120*			
LCS (W9K0054-BS1)				**Prepared & Analyzed: 11/02/19**						
1,1,1,2-Tetrachloroethane	49.5	5.0	ug/kg	50.0		99	81-120			
1,1,1-Trichloroethane	41.8	5.0	ug/kg	50.0		84	78-125			
1,1,2,2-Tetrachloroethane	51.4	5.0	ug/kg	50.0		103	67-115			
1,1,2-Trichloroethane	46.2	5.0	ug/kg	50.0		92	85-121			
1,1-Dichloroethane	46.3	5.0	ug/kg	50.0		93	84-118			

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B (Continued)										
LCS (W9K0054-BS1)				**Prepared & Analyzed: 11/02/19**						
1,1-Dichloroethene	49.0	5.0	ug/kg	50.0		98	80-123			
1,1-Dichloropropene	44.7	5.0	ug/kg	50.0		89	79-128			
1,2,3-Trichlorobenzene	41.2	5.0	ug/kg	50.0		82	36-201			
1,2,3-Trichloropropane	51.1	5.0	ug/kg	50.0		102	65-115			
1,2,4-Trichlorobenzene	42.3	5.0	ug/kg	50.0		85	69-143			
1,2,4-Trimethylbenzene	43.9	5.0	ug/kg	50.0		88	70-119			
1,2-Dibromo-3-chloropropane	41.7	5.0	ug/kg	50.0		83	62-140			
1,2-Dibromoethane (EDB)	47.0	5.0	ug/kg	50.0		94	86-125			
1,2-Dichloroethane	47.9	5.0	ug/kg	50.0		96	74-123			
1,2-Dichloropropane	43.6	5.0	ug/kg	50.0		87	83-122			
1,3,5-Trimethylbenzene	44.8	5.0	ug/kg	50.0		90	66-122			
1,3-Dichloropropane	46.0	5.0	ug/kg	50.0		92	85-122			
2,2-Dichloropropane	48.1	5.0	ug/kg	50.0		96	78-124			
2-Butanone	49.3	5.0	ug/kg	50.0		99	65-139			
2-Chloroethyl vinyl ether	37.5	5.0	ug/kg	50.0		75	62-134			
2-Chlorotoluene	47.7	5.0	ug/kg	50.0		95	65-118			
2-Hexanone	49.0	5.0	ug/kg	50.0		98	72-138			
4-Chlorotoluene	47.3	5.0	ug/kg	50.0		95	71-116			
4-Methyl-2-pentanone	46.4	5.0	ug/kg	50.0		93	70-133			
Acetone	46.8	5.0	ug/kg	50.0		94	57-138			
Acrolein	42.4	5.0	ug/kg	50.0		85	57-139			
Acrylonitrile	49.0	5.0	ug/kg	50.0		98	78-124			
Benzene	45.0	5.0	ug/kg	50.0		90	83-121			
Bromobenzene	41.7	5.0	ug/kg	50.0		83	67-115			
Bromochloromethane	43.3	5.0	ug/kg	50.0		87	82-117			
Bromodichloromethane	48.6	5.0	ug/kg	50.0		97	78-122			
Bromoform	49.8	5.0	ug/kg	50.0		100	83-125			
Bromomethane	38.9	5.0	ug/kg	50.0		78	58-133			
Carbon tetrachloride	44.2	5.0	ug/kg	50.0		88	79-126			
Chlorobenzene	44.2	5.0	ug/kg	50.0		88	84-118			
Chloroethane	43.6	5.0	ug/kg	50.0		87	58-135			
Chloroform	49.3	5.0	ug/kg	50.0		99	80-123			
Chloromethane	45.9	5.0	ug/kg	50.0		92	58-128			
cis-1,2-Dichloroethene	49.4	5.0	ug/kg	50.0		99	83-120			
cis-1,3-Dichloropropene	46.8	5.0	ug/kg	50.0		94	88-123			
Dibromochloromethane	46.8	5.0	ug/kg	50.0		94	83-124			
Dibromomethane	45.7	5.0	ug/kg	50.0		91	84-123			
Dichlorodifluoromethane (Freon 12)	41.6	5.0	ug/kg	50.0		83	67-126			
Ethylbenzene	45.4	5.0	ug/kg	50.0		91	80-120			

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B (Continued)										
LCS (W9K0054-BS1)				**Prepared & Analyzed: 11/02/19**						
Hexachlorobutadiene	46.8	5.0	ug/kg	50.0		94	70-130			
Isopropylbenzene	48.7	5.0	ug/kg	50.0		97	66-122			
m,p-Xylene	45.9	5.0	ug/kg	50.0		92	78-120			
m-Dichlorobenzene	47.4	5.0	ug/kg	50.0		95	75-119			
Methyl tert-butyl ether (MTBE)	46.5	5.0	ug/kg	50.0		93	83-122			
Methylene chloride	43.5	5.0	ug/kg	50.0		87	76-118			
Naphthalene	38.9	5.0	ug/kg	50.0		78	42-190			
n-Butylbenzene	45.6	5.0	ug/kg	50.0		91	68-119			
n-Propylbenzene	47.3	5.0	ug/kg	50.0		95	64-120			
o-Dichlorobenzene	44.6	5.0	ug/kg	50.0		89	77-117			
o-Xylene	45.0	5.0	ug/kg	50.0		90	77-126			
p-Dichlorobenzene	49.6	5.0	ug/kg	50.0		99	76-119			
p-Isopropyltoluene	45.2	5.0	ug/kg	50.0		90	70-123			
sec-Butylbenzene	46.6	5.0	ug/kg	50.0		93	67-120			
Styrene	45.2	5.0	ug/kg	50.0		90	84-125			
tert-Butylbenzene	46.7	5.0	ug/kg	50.0		93	70-119			
Tetrachloroethene	44.0	5.0	ug/kg	50.0		88	80-129			
Toluene	43.0	5.0	ug/kg	50.0		86	81-126			
trans-1,2-Dichloroethene	45.2	5.0	ug/kg	50.0		90	82-123			
trans-1,3-Dichloropropene	45.5	5.0	ug/kg	50.0		91	81-131			
Trichloroethene	44.8	5.0	ug/kg	50.0		90	82-118			
Trichlorofluoromethane	42.0	5.0	ug/kg	50.0		84	72-129			
Vinyl chloride	43.9	5.0	ug/kg	50.0		88	63-130			
Surrogate(s)										
1,2-Dichloroethane-d4	*47.7*		*ug/kg*	*50.0*		*95*	*78-140*			
4-Bromofluorobenzene	*50.7*		*ug/kg*	*50.0*		*101*	*85-116*			
Dibromofluoromethane	*48.9*		*ug/kg*	*50.0*		*98*	*84-120*			
Toluene-d8	*48.8*		*ug/kg*	*50.0*		*98*	*82-120*			
LCS Dup (W9K0054-BSD1)				**Prepared & Analyzed: 11/02/19**						
1,1,1,2-Tetrachloroethane	56.8	5.0	ug/kg	50.0		114	81-120	14	25	
1,1,1-Trichloroethane	47.4	5.0	ug/kg	50.0		95	78-125	13	25	
1,1,2,2-Tetrachloroethane	57.4	5.0	ug/kg	50.0		115	67-115	11	25	
1,1,2-Trichloroethane	51.2	5.0	ug/kg	50.0		102	85-121	10	25	
1,1-Dichloroethane	51.2	5.0	ug/kg	50.0		102	84-118	10	25	
1,1-Dichloroethene	54.6	5.0	ug/kg	50.0		109	80-123	11	25	
1,1-Dichloropropene	50.6	5.0	ug/kg	50.0		101	79-128	12	25	
1,2,3-Trichlorobenzene	50.7	5.0	ug/kg	50.0		101	36-201	21	25	
1,2,3-Trichloropropane	56.3	5.0	ug/kg	50.0		113	65-115	10	25	
1,2,4-Trichlorobenzene	51.3	5.0	ug/kg	50.0		103	69-143	19	25	

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B (Continued)										
LCS Dup (W9K0054-BSD1)				**Prepared & Analyzed: 11/02/19**						
1,2,4-Trimethylbenzene	50.4	5.0	ug/kg	50.0		101	70-119	14	25	
1,2-Dibromo-3-chloropropane	45.4	5.0	ug/kg	50.0		91	62-140	9	25	
1,2-Dibromoethane (EDB)	51.9	5.0	ug/kg	50.0		104	86-125	10	25	
1,2-Dichloroethane	52.0	5.0	ug/kg	50.0		104	74-123	8	25	
1,2-Dichloropropane	48.4	5.0	ug/kg	50.0		97	83-122	10	25	
1,3,5-Trimethylbenzene	50.9	5.0	ug/kg	50.0		102	66-122	13	25	
1,3-Dichloropropane	50.7	5.0	ug/kg	50.0		101	85-122	10	25	
2,2-Dichloropropane	56.0	5.0	ug/kg	50.0		112	78-124	15	25	
2-Butanone	52.2	5.0	ug/kg	50.0		104	65-139	6	25	
2-Chloroethyl vinyl ether	47.8	5.0	ug/kg	50.0		96	62-134	24	25	
2-Chlorotoluene	52.7	5.0	ug/kg	50.0		105	65-118	10	25	
2-Hexanone	53.5	5.0	ug/kg	50.0		107	72-138	9	25	
4-Chlorotoluene	52.4	5.0	ug/kg	50.0		105	71-116	10	25	
4-Methyl-2-pentanone	51.3	5.0	ug/kg	50.0		103	70-133	10	25	
Acetone	50.9	5.0	ug/kg	50.0		102	57-138	8	25	
Acrolein	47.3	5.0	ug/kg	50.0		95	57-139	11	25	
Acrylonitrile	52.8	5.0	ug/kg	50.0		106	78-124	8	25	
Benzene	50.7	5.0	ug/kg	50.0		101	83-121	12	25	
Bromobenzene	45.4	5.0	ug/kg	50.0		91	67-115	8	25	
Bromochloromethane	47.6	5.0	ug/kg	50.0		95	82-117	9	25	
Bromodichloromethane	53.5	5.0	ug/kg	50.0		107	78-122	10	25	
Bromoform	56.9	5.0	ug/kg	50.0		114	83-125	13	25	
Bromomethane	44.3	5.0	ug/kg	50.0		89	58-133	13	25	
Carbon tetrachloride	50.0	5.0	ug/kg	50.0		100	79-126	12	25	
Chlorobenzene	50.5	5.0	ug/kg	50.0		101	84-118	13	25	
Chloroethane	48.8	5.0	ug/kg	50.0		98	58-135	11	25	
Chloroform	54.1	5.0	ug/kg	50.0		108	80-123	9	25	
Chloromethane	50.6	5.0	ug/kg	50.0		101	58-128	10	25	
cis-1,2-Dichloroethene	55.1	5.0	ug/kg	50.0		110	83-120	11	25	
cis-1,3-Dichloropropene	52.0	5.0	ug/kg	50.0		104	88-123	11	25	
Dibromochloromethane	53.2	5.0	ug/kg	50.0		106	83-124	13	25	
Dibromomethane	50.2	5.0	ug/kg	50.0		100	84-123	9	25	
Dichlorodifluoromethane (Freon 12)	47.4	5.0	ug/kg	50.0		95	67-126	13	25	
Ethylbenzene	51.5	5.0	ug/kg	50.0		103	80-120	13	25	
Hexachlorobutadiene	53.6	5.0	ug/kg	50.0		107	70-130	14	25	
Isopropylbenzene	53.9	5.0	ug/kg	50.0		108	66-122	10	25	
m,p-Xylene	52.0	5.0	ug/kg	50.0		104	78-120	13	25	
m-Dichlorobenzene	52.9	5.0	ug/kg	50.0		106	75-119	11	25	
Methyl tert-butyl ether (MTBE)	50.9	5.0	ug/kg	50.0		102	83-122	9	25	

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W9K0054 - EPA 8260B (Continued)										
LCS Dup (W9K0054-BSD1)				**Prepared & Analyzed: 11/02/19**						
Methylene chloride	48.7	5.0	ug/kg	50.0		97	76-118	11	25	
Naphthalene	50.3	5.0	ug/kg	50.0		101	42-190	26	25	Q-12
n-Butylbenzene	53.6	5.0	ug/kg	50.0		107	68-119	16	25	
n-Propylbenzene	52.5	5.0	ug/kg	50.0		105	64-120	11	25	
o-Dichlorobenzene	49.2	5.0	ug/kg	50.0		98	77-117	10	25	
o-Xylene	50.6	5.0	ug/kg	50.0		101	77-126	12	25	
p-Dichlorobenzene	54.5	5.0	ug/kg	50.0		109	76-119	9	25	
p-Isopropyltoluene	51.8	5.0	ug/kg	50.0		104	70-123	14	25	
sec-Butylbenzene	52.2	5.0	ug/kg	50.0		104	67-120	11	25	
Styrene	50.8	5.0	ug/kg	50.0		102	84-125	12	25	
tert-Butylbenzene	52.9	5.0	ug/kg	50.0		106	70-119	13	25	
Tetrachloroethene	50.2	5.0	ug/kg	50.0		100	80-129	13	25	
Toluene	48.0	5.0	ug/kg	50.0		96	81-126	11	25	
trans-1,2-Dichloroethene	50.0	5.0	ug/kg	50.0		100	82-123	10	25	
trans-1,3-Dichloropropene	51.0	5.0	ug/kg	50.0		102	81-131	11	25	
Trichloroethene	51.0	5.0	ug/kg	50.0		102	82-118	13	25	
Trichlorofluoromethane	48.5	5.0	ug/kg	50.0		97	72-129	14	25	
Vinyl chloride	48.8	5.0	ug/kg	50.0		98	63-130	10	25	
Surrogate(s)										
1,2-Dichloroethane-d4	*47.4*		*ug/kg*	*50.0*		*95*	*78-140*			
4-Bromofluorobenzene	*51.5*		*ug/kg*	*50.0*		*103*	*85-116*			
Dibromofluoromethane	*49.7*		*ug/kg*	*50.0*		*99*	*84-120*			
Toluene-d8	*48.7*		*ug/kg*	*50.0*		*97*	*82-120*			

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Notes and Definitions

Item	Definition
_>FP200	>200
M-02	Due to the nature of matrix interferences, sample was diluted prior to preparation. The MDL and MRL were raised due to the dilution.
Q-12	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on the percent recoveries and/or other acceptable QC data.
% Rec	Percent Recovery
Dil	Dilution
dry	Sample results reported on a dry weight basis
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
NR	Not Reportable
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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ANALYTICAL REPORT

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Garden Grove, CA 92841
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Laboratory Job ID: 570-11059-1
Client Project/Site: 9J23021 / CalEnergy Corp. 190703

For:
Weck Laboratories, Inc.
14859 E. Clark Avenue
City of Industry, California 91745

Attn: Regina Giancola

Authorized for release by:
10/29/2019 6:40:19 AM

Don Burley, Senior Project Manager
(714)895-5494
donaldburley@eurofinsus.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Weck Laboratories, Inc. Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Weck Laboratories, Inc.
Project/Site: 9J23021 / CalEnergy Corp. 190703

Job ID: 570-11059-1

Job ID: 570-11059-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-11059-1

Comments
No additional comments.

Receipt
The samples were received on 10/24/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3º C.

Receipt Exceptions
The container labels for the samples did not match the information listed on the Chain-of-Custody (COC). The sample matrix per container received was Solid, while the COC lists Water. Logged-in as Solid.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Weck Laboratories, Inc.
Project/Site: 9J23021 / CalEnergy Corp. 190703

Job ID: 570-11059-1

Client Sample ID: 9J23021-01 / Region 1 Filtercake Composite — Lab Sample ID: 570-11059-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Sulfide, Reactive	35.2		1.99		mg/Kg	1		9034	Total/NA

Client Sample ID: 9J23021-02 / Region 2 Filtercake Composite — Lab Sample ID: 570-11059-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Sulfide, Reactive	30.0		2.00		mg/Kg	1		9034	Total/NA

Client Sample ID: 9J23021-03 / Elmore Filtercake Composite — Lab Sample ID: 570-11059-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Sulfide, Reactive	4.38		1.99		mg/Kg	1		9034	Total/NA

Client Sample ID: 9J23021-04 / Leathers Filtercake Composite — Lab Sample ID: 570-11059-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Sulfide, Reactive	26.9		2.00		mg/Kg	1		9034	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Weck Laboratories, Inc. Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

General Chemistry

Client Sample ID: 9J23021-01 / Region 1 Filtercake Composite **Lab Sample ID: 570-11059-1**
Date Collected: 10/21/19 13:40 **Matrix: Solid**
Date Received: 10/24/19 10:00

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		0.995		mg/Kg		10/25/19 07:30	10/25/19 09:37	1
Sulfide, Reactive	**35.2**		1.99		mg/Kg		10/25/19 07:30	10/25/19 08:00	1

Client Sample ID: 9J23021-02 / Region 2 Filtercake Composite **Lab Sample ID: 570-11059-2**
Date Collected: 10/21/19 13:45 **Matrix: Solid**
Date Received: 10/24/19 10:00

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		0.993		mg/Kg		10/25/19 07:30	10/25/19 09:39	1
Sulfide, Reactive	**30.0**		2.00		mg/Kg		10/25/19 07:30	10/25/19 08:00	1

Client Sample ID: 9J23021-03 / Elmore Filtercake Composite **Lab Sample ID: 570-11059-3**
Date Collected: 10/21/19 14:00 **Matrix: Solid**
Date Received: 10/24/19 10:00

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		0.997		mg/Kg		10/25/19 07:30	10/25/19 09:40	1
Sulfide, Reactive	**4.38**		1.99		mg/Kg		10/25/19 07:30	10/25/19 08:00	1

Client Sample ID: 9J23021-04 / Leathers Filtercake Composite **Lab Sample ID: 570-11059-4**
Date Collected: 10/21/19 14:10 **Matrix: Solid**
Date Received: 10/24/19 10:00

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		1.00		mg/Kg		10/25/19 07:30	10/25/19 09:41	1
Sulfide, Reactive	**26.9**		2.00		mg/Kg		10/25/19 07:30	10/25/19 08:00	1

QC Sample Results

Client: Weck Laboratories, Inc.
Project/Site: 9J23021 / CalEnergy Corp. 190703

Job ID: 570-11059-1

Method: 9014 - Cyanide, Reactive

Lab Sample ID: MB 570-28532/1-A
Matrix: Solid
Analysis Batch: 28551

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28532

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		0.998		mg/Kg		10/25/19 07:30	10/25/19 09:34	1

Lab Sample ID: LCS 570-28532/2-A
Matrix: Solid
Analysis Batch: 28551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28532

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Reactive			1.99	1.922		mg/Kg		96	50 - 150		

Lab Sample ID: LCSD 570-28532/3-A
Matrix: Solid
Analysis Batch: 28551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28532

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Reactive			1.99	1.928		mg/Kg		97	50 - 150	0	20

Lab Sample ID: 570-11059-1 DU
Matrix: Solid
Analysis Batch: 28551

Client Sample ID: 9J23021-01 / Region 1 Filtercake Composite
Prep Type: Total/NA
Prep Batch: 28532

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Cyanide, Reactive	ND			ND		mg/Kg				NC	25

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 570-28531/1-A
Matrix: Solid
Analysis Batch: 28535

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28531

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		2.00		mg/Kg		10/25/19 07:30	10/25/19 08:00	1

Lab Sample ID: LCS 570-28531/2-A
Matrix: Solid
Analysis Batch: 28535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28531

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Reactive			100	21.64		mg/Kg		22	0 - 120		

Lab Sample ID: 570-11059-1 DU
Matrix: Solid
Analysis Batch: 28535

Client Sample ID: 9J23021-01 / Region 1 Filtercake Composite
Prep Type: Total/NA
Prep Batch: 28531

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfide, Reactive	35.2			33.53		mg/Kg				5	25

QC Association Summary

Client: Weck Laboratories, Inc.
Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

General Chemistry

Prep Batch: 28531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11059-1	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	7.3.4	
570-11059-2	9J23021-02 / Region 2 Filtercake Composite	Total/NA	Solid	7.3.4	
570-11059-3	9J23021-03 / Elmore Filtercake Composite	Total/NA	Solid	7.3.4	
570-11059-4	9J23021-04 / Leathers Filtercake Composite	Total/NA	Solid	7.3.4	
MB 570-28531/1-A	Method Blank	Total/NA	Solid	7.3.4	
LCS 570-28531/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
570-11059-1 DU	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	7.3.4	

Prep Batch: 28532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11059-1	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	7.3.3	
570-11059-2	9J23021-02 / Region 2 Filtercake Composite	Total/NA	Solid	7.3.3	
570-11059-3	9J23021-03 / Elmore Filtercake Composite	Total/NA	Solid	7.3.3	
570-11059-4	9J23021-04 / Leathers Filtercake Composite	Total/NA	Solid	7.3.3	
MB 570-28532/1-A	Method Blank	Total/NA	Solid	7.3.3	
LCS 570-28532/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
LCSD 570-28532/3-A	Lab Control Sample Dup	Total/NA	Solid	7.3.3	
570-11059-1 DU	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	7.3.3	

Analysis Batch: 28535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11059-1	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	9034	28531
570-11059-2	9J23021-02 / Region 2 Filtercake Composite	Total/NA	Solid	9034	28531
570-11059-3	9J23021-03 / Elmore Filtercake Composite	Total/NA	Solid	9034	28531
570-11059-4	9J23021-04 / Leathers Filtercake Composite	Total/NA	Solid	9034	28531
MB 570-28531/1-A	Method Blank	Total/NA	Solid	9034	28531
LCS 570-28531/2-A	Lab Control Sample	Total/NA	Solid	9034	28531
570-11059-1 DU	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	9034	28531

Analysis Batch: 28551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-11059-1	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	9014	28532
570-11059-2	9J23021-02 / Region 2 Filtercake Composite	Total/NA	Solid	9014	28532
570-11059-3	9J23021-03 / Elmore Filtercake Composite	Total/NA	Solid	9014	28532
570-11059-4	9J23021-04 / Leathers Filtercake Composite	Total/NA	Solid	9014	28532
MB 570-28532/1-A	Method Blank	Total/NA	Solid	9014	28532
LCS 570-28532/2-A	Lab Control Sample	Total/NA	Solid	9014	28532
LCSD 570-28532/3-A	Lab Control Sample Dup	Total/NA	Solid	9014	28532
570-11059-1 DU	9J23021-01 / Region 1 Filtercake Composite	Total/NA	Solid	9014	28532

Lab Chronicle

Client: Weck Laboratories, Inc.
Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

Client Sample ID: 9J23021-01 / Region 1 Filtercake Composite
Lab Sample ID: 570-11059-1
Date Collected: 10/21/19 13:40
Matrix: Solid
Date Received: 10/24/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7.3.3			10.05 g	100 mL	28532	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9014		1	100 mL	100 mL	28551	10/25/19 09:37	J8H7	ECL 1
	Instrument ID: UV9									
Total/NA	Prep	7.3.4			10.03 g	50 mL	28531	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9034		1	50 mL	50 mL	28535	10/25/19 08:00	J8H7	ECL 1
	Instrument ID: NOEQUIP									

Client Sample ID: 9J23021-02 / Region 2 Filtercake Composite
Lab Sample ID: 570-11059-2
Date Collected: 10/21/19 13:45
Matrix: Solid
Date Received: 10/24/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7.3.3			10.07 g	100 mL	28532	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9014		1	100 mL	100 mL	28551	10/25/19 09:39	J8H7	ECL 1
	Instrument ID: UV9									
Total/NA	Prep	7.3.4			10.02 g	50 mL	28531	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9034		1	50 mL	50 mL	28535	10/25/19 08:00	J8H7	ECL 1
	Instrument ID: NOEQUIP									

Client Sample ID: 9J23021-03 / Elmore Filtercake Composite
Lab Sample ID: 570-11059-3
Date Collected: 10/21/19 14:00
Matrix: Solid
Date Received: 10/24/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7.3.3			10.03 g	100 mL	28532	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9014		1	100 mL	100 mL	28551	10/25/19 09:40	J8H7	ECL 1
	Instrument ID: UV9									
Total/NA	Prep	7.3.4			10.06 g	50 mL	28531	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9034		1	50 mL	50 mL	28535	10/25/19 08:00	J8H7	ECL 1
	Instrument ID: NOEQUIP									

Client Sample ID: 9J23021-04 / Leathers Filtercake Composite
Lab Sample ID: 570-11059-4
Date Collected: 10/21/19 14:10
Matrix: Solid
Date Received: 10/24/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7.3.3			10.00 g	100 mL	28532	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9014		1	100 mL	100 mL	28551	10/25/19 09:41	J8H7	ECL 1
	Instrument ID: UV9									
Total/NA	Prep	7.3.4			10.00 g	50 mL	28531	10/25/19 07:30	J8H7	ECL 1
Total/NA	Analysis	9034		1	50 mL	50 mL	28535	10/25/19 08:00	J8H7	ECL 1
	Instrument ID: NOEQUIP									

Laboratory References:
ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Weck Laboratories, Inc.
Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0781	03-13-20
California	SCAQMD LAP	17LA0919	11-30-19
California	State	2944	09-29-20
Guam	State	19-004R	10-31-19
Hawaii	State	<cert No.>	07-02-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-20

Method Summary

Client: Weck Laboratories, Inc.
Job ID: 570-11059-1
Project/Site: 9J23021 / CalEnergy Corp. 190703

Method	Method Description	Protocol	Laboratory
9014	Cyanide, Reactive	SW846	ECL 1
9034	Sulfide, Reactive	SW846	ECL 1
7.3.3	Cyanide, Reactive	SW846	ECL 1
7.3.4	Sulfide, Reactive	SW846	ECL 1

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Weck Laboratories, Inc.
Project/Site: 9J23021 / CalEnergy Corp. 190703

Job ID: 570-11059-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-11059-1	9J23021-01 / Region 1 Filtercake Composite	Solid	10/21/19 13:40	10/24/19 10:00	
570-11059-2	9J23021-02 / Region 2 Filtercake Composite	Solid	10/21/19 13:45	10/24/19 10:00	
570-11059-3	9J23021-03 / Elmore Filtercake Composite	Solid	10/21/19 14:00	10/24/19 10:00	
570-11059-4	9J23021-04 / Leathers Filtercake Composite	Solid	10/21/19 14:10	10/24/19 10:00	

WECK LABORATORIES, INC.

570-11059 Chain of Custody

Subcontract

Loc: 570
11059

Subcontracted Laboratory:

Eurofins Calscience, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1432
Phone: (714) 895-5494
Fax: (714) 894-7501

Turn Around Time: Normal unless noted in comments
Project Manager: Regina Giancola
Project Name: CalEnergy Corp. 190703
Project Number: 2019 Annual Filtercake Composite
Sampler Employed by: _____

Work Order: 9J23021

Analysis	Expires	Comments
Sample ID: 9J23021-01/Region 1 Filtercake Composite		**Sampled:** 10/21/2019 13:40
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Reactive sulfide - SW846 7.3.3	10/28/2019 13:40	
Cyanide, reactive - EPA SW846 7.3.3	11/04/2019 13:40	
Containers Supplied:		
Sample ID: 9J23021-02/Region 2 Filtercake Composite		**Sampled:** 10/21/2019 13:45
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Reactive sulfide - SW846 7.3.3	10/28/2019 13:45	
Cyanide, reactive - EPA SW846 7.3.3	11/04/2019 13:45	
Containers Supplied:		
Sample ID: 9J23021-03/Elmore Filtercake Composite		**Sampled:** 10/21/2019 14:00
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Reactive sulfide - SW846 7.3.3	10/28/2019 14:00	
Cyanide, reactive - EPA SW846 7.3.3	11/04/2019 14:00	
Containers Supplied:		
Sample ID: 9J23021-04/Leathers Filtercake Composite		**Sampled:** 10/21/2019 14:10
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Reactive sulfide - SW846 7.3.3	10/28/2019 14:10	
Cyanide, reactive - EPA SW846 7.3.3	11/04/2019 14:10	
Containers Supplied:		

Remarks / Special Comments:

Sample Condition

Temperature: _____
Preserved: Yes / No
Evidence Seal Intact: Yes / No
Container Attacked: Yes / No
Preserved at Lab: Yes / No

Relinquished By: Juan Galvan — Date / Time: 10/23/19 13:20 — Received By: Fedex — Date / Time:

Relinquished By: (fedex) — Date / Time: — Received By: Marisol E — Date / Time: 10/24/19 10:00

14859 Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.weck-labs.com

3.8/4.2 SCG

Reg 10/29/2019

Login Sample Receipt Checklist

Client: Weck Laboratories, Inc.

Job Number: 570-11059-1

Login Number: 11059
List Number: 1
Creator: Castro, Joy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment 3

NORM analysis (gross alpha, gross beta and gamma spectroscopy)

EBERLINE ANALYTICAL

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-46499

December 19, 2019

Orval Osborne
CalEnergy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233

CASE NARRATIVE
Work Order # 19-10133-OR

SAMPLE RECEIPT

This work order contains four solid samples received 10/28/2019. Samples were analyzed for Gross Alpha/Beta and by Gamma Spectroscopy.

CLIENT ID	LAB ID
Region 1 Filtercake Comp	19-10133-04
Region 2 Filtercake Comp	19-10133-05
Elmore Filtercake Comp	19-10133-06
Leathers Filtercake Comp	19-10133-07

ANALYTICAL METHODS

Gross Alpha/Beta was performed using Method LANL MLR-100 Modified. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 1-sigma value.

Minimum Detectable Activity (MDA) values for data represented in this report are sample-specific. MDA measurements are determined based on factors and conditions including instrument settings, aliquot size and matrix type.

GROSS ALPHA & BETA

Samples demonstrated acceptable results for all Gross Alpha and Beta analyses. Some Gross Beta results demonstrated slightly high method detection limits. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha laboratory control sample demonstrated a slightly high percent recovery. Results for the Gross Beta laboratory control sample demonstrated an acceptable percent recovery.

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. Gross Gamma for laboratory fractions -06 and -07 (Client ID: Elmore Filtercake Comp and Leathers Filtercake Comp) was reported from Potassium-40 only since these samples did not have any other positive gamma-emitting radionuclides. Gross Gamma for all other samples was calculated by summation of all positive gamma-emitting radionuclides. The method blank demonstrated acceptable results for all gamma emitting radionuclides as reported. Results for the Actinium-228, Bismuth-214 and Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 12/19/2019

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Eberline Analytical
Final Report of Analysis

Report To:
Orval Osborne
CalEnergy Operating Corp
7030 Gentry Road
Calipatria, CA 92233

Work Order Details:
SDG: 19-10133
Purchase Order: 265610
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-01	LCS	KNOWN	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	2.67E+02	1.15E+01			pCi/g
19-10133-01	LCS	SPIKE	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	3.40E+02	4.17E+00	3.74E+01	3.43E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	5.00E-01	2.32E-01	2.39E-01	3.85E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	1.25E+01	2.57E+00	2.91E+00	1.83E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	1.84E+01	3.06E+00	3.66E+00	1.42E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	4.01E+00	1.53E+00	1.59E+00	1.48E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	5.89E+00	1.98E+00	2.08E+00	2.45E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	12/5/2019	19-10133	Gross Alpha	LANL MLR-100 Modified	4.21E+00	1.97E+00	2.03E+00	3.09E+00	pCi/g
19-10133-01	LCS	KNOWN	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	2.65E+02	7.94E+00			pCi/g
19-10133-01	LCS	SPIKE	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	2.98E+02	3.22E+00	4.13E+01	5.77E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	2.82E-01	2.55E-01	2.58E-01	4.97E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	6.97E+00	2.97E+00	3.13E+00	5.38E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	1.03E+01	3.15E+00	3.45E+00	5.29E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	7.19E+00	2.91E+00	3.07E+00	5.39E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	7.95E+00	3.57E+00	3.73E+00	6.74E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	12/5/2019	19-10133	Gross Beta	LANL MLR-100 Modified	1.00E+01	3.15E+00	3.44E+00	5.52E+00	pCi/g
19-10133-01	LCS	KNOWN	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	1.31E+02	5.10E+00			pCi/g
19-10133-01	LCS	KNOWN	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	8.26E+01	3.39E+00			pCi/g
19-10133-01	LCS	SPIKE	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	1.31E+02	7.96E+00	1.04E+01	1.38E+00	pCi/g
19-10133-01	LCS	SPIKE	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	8.56E+01	7.69E+00	8.86E+00	1.13E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Orval Osborne	SDG:	19-10133
CalEnergy Operating Corp	Purchase Order:	265610
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	8.44E-02	6.64E-02	6.65E-02	1.45E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	-1.87E-03	2.04E-02	2.04E-02	2.93E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	-4.05E-02	4.93E-02	4.94E-02	7.08E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	-5.52E-03	2.91E-02	2.91E-02	3.99E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	1.31E-01	1.02E-01	1.03E-01	2.25E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	-3.32E-02	1.39E-01	1.39E-01	2.11E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	4.13E-02	4.86E-02	4.87E-02	8.82E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	3.47E-03	1.30E-01	1.30E-01	1.93E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	1.57E-02	1.48E-02	1.49E-02	3.72E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	3.40E-03	2.65E-02	2.65E-02	4.00E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	-1.08E-02	5.29E-02	5.29E-02	1.12E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	7.12E-03	4.94E-02	4.94E-02	5.47E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	-5.52E-02	5.46E-02	5.46E-02	7.46E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	-4.70E-02	2.53E-01	2.53E-01	2.49E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	2.53E-03	1.76E-02	1.76E-02	3.04E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	3.64E-03	1.84E-02	1.84E-02	2.86E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	-8.33E-03	3.79E-02	3.79E-02	5.55E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	4.98E-02	3.59E-02	3.60E-02	8.01E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	5.10E-03	9.34E-03	9.34E-03	3.04E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	4.13E-02	4.86E-02	4.87E-02	8.82E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	8.44E-02	6.64E-02	6.65E-02	1.45E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	1.66E-02	2.05E-02	2.05E-02	3.41E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	-4.11E-02	1.94E-01	1.95E-01	2.82E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	1.04E-02	5.80E-02	5.80E-02	9.47E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	-7.25E-03	2.78E-02	2.78E-02	4.15E-02	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	8.44E-02	6.64E-02	6.65E-02	1.45E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	-3.72E-02	7.89E-02	7.89E-02	1.10E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	4.20E-01	3.97E-01	3.97E-01	6.89E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	-3.72E-02	7.89E-02	7.89E-02	1.10E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	-2.50E-02	1.34E-01	1.34E-01	1.99E-01	pCi/g
19-10133-02	MBL	BLANK	10/28/19 00:00	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	-4.13E-02	5.77E-02	5.77E-02	6.24E-02	pCi/g

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Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Orval Osborne	SDG:	19-10133
CalEnergy Operating Corp	Purchase Order:	265610
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	1.21E+01	1.56E+00	1.68E+00	1.04E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	-1.86E-02	9.70E-02	9.70E-02	2.12E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	3.94E-02	4.72E-01	4.72E-01	5.99E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	-4.42E-02	1.13E-01	1.13E-01	3.07E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	1.02E+00	1.33E+00	1.33E+00	2.28E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	3.63E+00	1.59E+00	1.60E+00	2.58E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	1.40E+01	1.21E+00	1.41E+00	8.61E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	5.79E-01	8.29E-01	8.29E-01	1.59E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	-8.97E-03	1.37E-01	1.37E-01	2.07E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	-1.98E-01	2.32E-01	2.33E-01	3.08E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	1.70E-01	5.38E-01	5.38E-01	7.95E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	1.24E-02	2.51E-01	2.51E-01	4.01E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	5.43E-01	5.13E-01	5.13E-01	8.52E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Gross Gamma	LANL ER-130 Modified	9.63E+01	1.27E+00	1.27E+00	1.02E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	4.65E+00	1.82E+00	1.83E+00	2.41E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	4.42E-03	8.95E-02	8.95E-02	2.46E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	-7.47E-03	1.51E-01	1.51E-01	2.28E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	3.98E+00	6.64E-01	6.95E-01	8.10E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	1.70E+01	2.00E+00	2.18E+00	9.46E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	3.26E-02	1.13E-01	1.13E-01	2.33E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	1.40E+01	1.21E+00	1.41E+00	8.61E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	1.21E+01	1.56E+00	1.68E+00	1.04E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	3.24E-02	1.42E-01	1.42E-01	2.40E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	3.92E-01	6.15E-01	6.15E-01	2.43E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	1.73E-01	4.00E-01	4.00E-01	6.75E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	5.33E-02	1.97E-01	1.97E-01	3.27E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	1.21E+01	1.56E+00	1.68E+00	1.04E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	3.17E+00	5.36E-01	5.60E-01	6.27E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	4.15E+00	4.40E+00	4.40E+00	5.87E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	3.17E+00	5.36E-01	5.60E-01	6.27E-01	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	-4.24E-01	1.34E+00	1.34E+00	1.68E+00	pCi/g
19-10133-03	DUP	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	3.37E-01	2.29E-01	2.30E-01	1.31E+00	pCi/g

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Final Report of Analysis

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CalEnergy Operating Corp	Purchase Order:	265610
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	1.18E+01	1.55E+00	1.66E+00	1.13E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	-5.45E-01	2.57E-01	2.59E-01	1.97E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	6.39E-02	4.77E-01	4.77E-01	6.04E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	-5.23E-03	1.11E-01	1.11E-01	3.03E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	-1.78E+00	1.32E+00	1.33E+00	1.88E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	3.37E+00	1.27E+00	1.28E+00	4.53E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	1.49E+01	1.32E+00	1.52E+00	7.51E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	8.89E-01	1.21E+00	1.22E+00	1.62E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	8.10E-02	1.48E-01	1.48E-01	2.39E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	-2.37E-02	7.51E-02	7.51E-02	2.91E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	-1.75E-01	4.99E-01	4.99E-01	8.10E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	-7.03E-02	3.80E-01	3.80E-01	4.10E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	2.08E+00	3.60E-01	3.75E-01	1.26E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Gross Gamma	LANL ER-130 Modified	7.91E+01	1.79E+00	1.79E+00	1.60E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	4.03E+00	2.31E+00	2.32E+00	3.56E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	-2.51E-02	1.36E-01	1.36E-01	2.23E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	2.32E-02	1.01E-01	1.01E-01	2.32E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	3.80E+00	6.25E-01	6.55E-01	1.18E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	1.61E+01	1.91E+00	2.08E+00	9.01E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	-6.54E-02	1.80E-01	1.80E-01	2.57E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	1.49E+01	1.32E+00	1.52E+00	7.51E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	1.18E+01	1.55E+00	1.66E+00	1.13E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	9.18E-02	1.44E-01	1.45E-01	2.49E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	-1.75E+00	1.80E+00	1.81E+00	2.44E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	-3.38E-01	4.07E-01	4.08E-01	6.22E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	1.06E-02	2.00E-01	2.00E-01	3.27E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	1.18E+01	1.55E+00	1.66E+00	1.13E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	3.42E+00	6.19E-01	6.43E-01	3.74E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	2.05E+00	4.49E+00	4.49E+00	5.82E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	3.42E+00	6.19E-01	6.43E-01	3.74E-01	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	2.71E-01	1.35E+00	1.35E+00	1.74E+00	pCi/g
19-10133-04	DO	Region 1 Filtercake Comp	10/21/19 13:40	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	-1.30E-01	1.49E-01	1.49E-01	5.91E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Orval Osborne	SDG:	19-10133
CalEnergy Operating Corp	Purchase Order:	265610
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	3.06E+00	9.08E-01	9.22E-01	1.33E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	2.20E-02	1.39E-01	1.39E-01	2.31E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	-5.74E-02	2.40E-01	2.40E-01	3.86E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	1.69E+00	6.14E-01	6.20E-01	4.83E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	4.62E-01	1.68E+00	1.68E+00	2.45E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	1.17E+00	1.31E+00	1.31E+00	2.16E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	3.38E+00	7.45E-01	7.65E-01	9.67E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	2.45E-02	5.33E-01	5.33E-01	1.22E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	-1.18E-01	2.05E-01	2.05E-01	2.88E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	1.15E-02	2.06E-01	2.06E-01	2.99E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	-1.37E+00	1.18E+00	1.18E+00	6.01E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	-1.65E-01	5.22E-01	5.22E-01	3.00E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	-9.64E-02	3.38E-01	3.38E-01	4.83E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Gross Gamma	LANL ER-130 Modified	2.97E+01	1.15E+00	1.15E+00	1.43E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	8.37E+00	3.17E+00	3.20E+00	3.95E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	-5.87E-02	1.86E-01	1.86E-01	3.23E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	7.13E-02	1.81E-01	1.81E-01	3.00E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	1.61E+00	6.70E-01	6.75E-01	8.29E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	3.78E+00	9.48E-01	9.68E-01	7.27E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	8.44E-02	1.82E-01	1.82E-01	2.59E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	3.38E+00	7.45E-01	7.65E-01	9.67E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	3.06E+00	9.08E-01	9.22E-01	1.33E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	-1.92E-02	2.10E-01	2.10E-01	2.92E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	-4.88E-01	1.93E+00	1.93E+00	2.54E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	-1.98E-01	5.36E-01	5.36E-01	7.07E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	-1.68E-02	2.65E-01	2.65E-01	3.61E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	3.06E+00	9.08E-01	9.22E-01	1.33E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	8.03E-01	6.44E-01	6.45E-01	9.36E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	4.29E+00	2.42E+00	2.43E+00	3.82E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	8.03E-01	6.44E-01	6.45E-01	9.36E-01	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	-6.00E-01	9.06E-01	9.07E-01	1.27E+00	pCi/g
19-10133-05	TRG	Region 2 Filtercake Comp	10/21/19 13:45	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	2.60E-02	1.92E-01	1.92E-01	7.00E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	Work Order Details:	
Orval Osborne	SDG:	19-10133
CalEnergy Operating Corp	Purchase Order:	265610
7030 Gentry Road	Analysis Category:	ENVIRONMENTAL
Calipatria, CA 92233	Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	-3.98E-02	6.00E-02	6.00E-02	4.31E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	1.64E-02	5.37E-02	5.37E-02	6.74E-02	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	-2.11E-01	1.50E-01	1.51E-01	2.11E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	-1.74E-02	4.32E-02	4.32E-02	1.45E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	2.63E-02	4.77E-01	4.77E-01	7.41E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	3.62E-01	3.94E-01	3.95E-01	6.46E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	6.28E-01	1.55E-01	1.58E-01	4.72E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	4.23E-02	3.81E-01	3.81E-01	5.74E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	3.38E-02	8.09E-02	8.10E-02	1.03E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	1.71E-03	7.87E-02	7.87E-02	1.11E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	-4.33E-02	1.90E-01	1.90E-01	2.67E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	7.32E-02	1.40E-01	1.40E-01	1.33E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	7.21E-02	8.39E-02	8.40E-02	2.33E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Gross Gamma	LANL ER-130 Modified	1.02E+01	1.85E+00	1.85E+00	1.31E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	1.02E+01	1.85E+00	1.92E+00	1.31E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	2.61E-02	4.98E-02	4.99E-02	1.13E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	5.33E-02	5.97E-02	5.97E-02	9.42E-02	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	2.30E-01	1.38E-01	1.38E-01	2.97E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	5.45E-01	1.72E-01	1.74E-01	2.92E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	-1.59E-02	7.13E-02	7.13E-02	9.67E-02	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	6.28E-01	1.55E-01	1.58E-01	4.72E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	-3.98E-02	6.00E-02	6.00E-02	4.31E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	-4.52E-02	6.90E-02	6.90E-02	9.03E-02	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	4.76E-01	7.05E-01	7.05E-01	1.09E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	7.61E-02	1.54E-01	1.54E-01	2.50E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	2.53E-02	7.29E-02	7.29E-02	1.18E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	-3.98E-02	6.00E-02	6.00E-02	4.31E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	1.45E-02	2.33E-01	2.33E-01	3.33E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	3.48E+00	1.39E+00	1.41E+00	2.32E+00	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	1.45E-02	2.33E-01	2.33E-01	3.33E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	-2.33E-01	3.96E-01	3.97E-01	5.58E-01	pCi/g
19-10133-06	TRG	Elmore Filtercake Comp	10/21/19 14:00	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	-1.15E-02	7.62E-02	7.62E-02	2.28E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:	
Orval Osborne	
CalEnergy Operating Corp	
7030 Gentry Road	
Calipatria, CA 92233	

Work Order Details:	
SDG:	19-10133
Purchase Order:	265610
Analysis Category:	ENVIRONMENTAL
Sample Matrix:	SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Actinium-228	LANL ER-130 Modified	4.47E-01	3.39E-01	3.40E-01	6.31E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Silver-108m	LANL ER-130 Modified	-5.17E-02	8.76E-02	8.76E-02	9.17E-02	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Americium-241	LANL ER-130 Modified	-2.93E-01	1.62E-01	1.63E-01	2.15E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Barium-133	LANL ER-130 Modified	5.47E-03	4.87E-02	4.87E-02	1.87E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Beryllium-7	LANL ER-130 Modified	-1.63E-01	5.64E-01	5.64E-01	8.45E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Bismuth-212	LANL ER-130 Modified	7.92E-02	5.71E-01	5.71E-01	9.23E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Bismuth-214	LANL ER-130 Modified	6.16E-01	2.07E-01	2.10E-01	3.60E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Cerium-144	LANL ER-130 Modified	-2.09E-01	4.22E-01	4.22E-01	5.95E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Cobalt-60	LANL ER-130 Modified	2.25E-02	7.18E-02	7.18E-02	1.20E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Cesium-137	LANL ER-130 Modified	8.66E-02	5.03E-02	5.05E-02	6.38E-02	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Europium-152	LANL ER-130 Modified	-6.53E-02	2.48E-01	2.48E-01	3.39E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Europium-154	LANL ER-130 Modified	3.56E-02	1.92E-01	1.92E-01	1.69E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Europium-155	LANL ER-130 Modified	1.73E-02	1.52E-01	1.52E-01	2.92E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Gross Gamma	LANL ER-130 Modified	1.03E+01	2.18E+00	2.18E+00	1.88E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Potassium-40	LANL ER-130 Modified	1.03E+01	2.18E+00	2.24E+00	1.88E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Sodium-22	LANL ER-130 Modified	1.27E-02	6.85E-02	6.85E-02	1.16E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Niobium-94	LANL ER-130 Modified	-7.86E-02	8.91E-02	8.92E-02	9.67E-02	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Lead-212	LANL ER-130 Modified	2.45E-01	1.33E-01	1.33E-01	2.77E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Lead-214	LANL ER-130 Modified	6.68E-01	2.20E-01	2.23E-01	3.77E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Promethium-144	LANL ER-130 Modified	-4.01E-02	9.28E-02	9.28E-02	1.15E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Radium-226	LANL ER-130 Modified	6.16E-01	2.07E-01	2.10E-01	3.60E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Radium-228	LANL ER-130 Modified	4.47E-01	3.39E-01	3.40E-01	6.31E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Ruthenium-103	LANL ER-130 Modified	1.55E-02	6.92E-02	6.92E-02	1.10E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Ruthenium-106	LANL ER-130 Modified	-4.95E-01	7.90E-01	7.90E-01	1.09E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Antimony-125	LANL ER-130 Modified	-1.76E-01	2.39E-01	2.40E-01	3.01E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Tin-113	LANL ER-130 Modified	-4.69E-02	1.01E-01	1.01E-01	1.44E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Thorium-228	LANL ER-130 Modified	4.47E-01	3.39E-01	3.40E-01	6.31E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Thorium-232	LANL ER-130 Modified	1.12E-01	2.48E-01	2.48E-01	4.11E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Thorium-234	LANL ER-130 Modified	2.16E+00	1.32E+00	1.33E+00	2.30E+00	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Thallium-208	LANL ER-130 Modified	1.12E-01	2.48E-01	2.48E-01	4.11E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Uranium-235	LANL ER-130 Modified	9.26E-03	4.33E-01	4.33E-01	6.45E-01	pCi/g
19-10133-07	TRG	Leathers Filtercake Comp	10/21/19 14:10	10/28/2019	10/29/2019	19-10133	Zinc-65	LANL ER-130 Modified	7.06E-03	9.33E-02	9.33E-02	2.70E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (1-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

EBERLINE ANALYTICAL

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

REC'D OCT 28 2019 19-10133

EBERLINE ANALYTICAL CORPORATION

Standard CHAIN OF CUSTODY RECORD

601 Scarboro Road, Oak Ridge, TN 37830
Tel 865-481-0683 ♦ Fax 865-483-4621 ♦ www.eberlineanalytical.com

LAB WKO#_____

CLIENT NAME:	PROJECT:
CalEnergy Operating Corporation	2019 Annual Filtercake Composite
ADDRESS:	PHONE: (760) 348-4241
7030 Gentry Road	FAX: (760) 348-4222
Calipatria, CA 92233	EMAIL: Orval.Osborne@calenergy.com; Mahesh.Kaur@calenergy.com
PROJECT MANAGER: Orval Osborne	SAMPLER: Luis Polanco

SPECIAL HANDLING

- ☐ Same Day Rush 150%
- ☐ 24 Hour Rush 100%
- ☐ 48-72 Hour Rush 75%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extractions 50%
- ☑ NTAT 28 Business Days
- ☐ QA/QC Data Package
- X Level II Summary Report

Method of Shipment: UPS

ID# (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	Cl_2 Y/N	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	Gross Alpha	Gross Beta	Gamma Spectroscopy							COMMENTS	Lab Sample ID
4	10/21/19	13:40	SL		Region 1 Filtercake Composite	1	X	X	X								
5	10/21/19	13:45	SL		Region 2 Filtercake Composite	1	X	X	X								
6	10/21/19	14:00	SL		Elmore Filtercake Composite	1	X	X	X								
7	10/21/19	14:10	SL		Leathers Filtercake Composite	1	X	X	X								

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
Orval Osborne	10/22/2018 11:30	Jennifer Owens	10/28/19 9:35am
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

SAMPLE CONDITION:

Actual Temperature:

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Present	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:

AQ=Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

PRESCHEDULED RUSH ANALYSES WILL TAKE PRIORITY OVER UNSCHEDULED RUSH REQUESTS

SPECIAL REQUIREMENTS / BILLING INFORMATION
Send electronic invoices to payables@calenergy.com
CPA # 265610

Attachment 4

Hazardous Waste Bioassay Analysis

aquatic bioassay & consulting laboratories, inc

November 18, 2019

Ms. Regina Giancola
Weck Laboratories, Inc.
14859 Clark Avenue
City of Industry, CA 91745

Dear Ms Giancola:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	Weck Laboratories, Inc.
SAMPLE I.D.:	9J23021-01
DATE RECEIVED:	10/24/19
ABC LAB. NO.:	WEC1019.164

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Scott Johnson
Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Weck Laboratories, Inc.	Date:	10/24/19
SAMPLE I.D.:	9J23021-01	LAB #:	WEC1019.164

WATER QUALITY

DILUTION WATER: Reconst. Fresh			AERATION: Single Bubble Air		
CONTROL HARDNESS			CONTROL ALKALINITY		
Beg:	43 mg/l	End: 48 mg/l	Beg:	32 mg/l	End: 35 mg/l
SAMPLE HARDNESS			SAMPLE ALKALINITY		
Beg:	50 mg/l	End: 46 mg/l	Beg:	32 mg/l	End: 31 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	10/29/19
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.79 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL				24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	11/01/19				11/02/19				11/03/19				11/04/19				11/05/19			
TIME:	1600				1230				1235				1400				1450			
CONC.	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish
0 (Con.)	9.0	19.7	8.0	10	8.5	19.0	8.0	10	8.0	18.8	8.0	10	8.3	17.9	7.1	10	9.0	17.8	7.3	10
400 mg/l	9.2	19.2	7.6	10	8.1	19.0	7.8	10	7.9	18.8	7.8	10	9.1	17.9	6.9	10	8.6	18.0	6.9	10
400 mg/l	9.2	19.2	7.6	10	8.1	19.6	7.8	10	7.9	18.7	7.7	10	8.7	17.9	6.9	10	8.7	18.0	6.9	10
750 mg/l	9.2	19.2	7.8	10	8.1	18.1	7.7	10	7.9	18.5	7.7	10	8.9	17.8	7.0	10	8.6	18.1	6.9	10
750 mg/l	9.3	19.2	7.8	10	8.2	19.0	7.7	10	7.9	18.7	7.8	10	8.8	17.8	7.0	10	8.6	18.1	6.9	10

FINAL DATA

TOTAL	FISH SURVIVAL
0 (Con.)	10
400 mg/l	10
400 mg/l	10
750 mg/l	10
750 mg/l	10

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Joe Freas, Senior Toxicologist

Date 11/18/19

aquatic bioassay & consulting laboratories, inc

November 18, 2019

Ms. Regina Giancola
Weck Laboratories, Inc.
14859 Clark Avenue
City of Industry, CA 91745

Dear Ms Giancola:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	Weck Laboratories, Inc.
SAMPLE I.D.:	9J23021-02
DATE RECEIVED:	10/24/19
ABC LAB. NO.:	WEC1019.165

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Scott Johnson
Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Weck Laboratories, Inc.	Date:	10/24/19
SAMPLE I.D.:	9J23021-02	LAB #:	WEC1019.165

WATER QUALITY

DILUTION WATER: Reconst. Fresh			AERATION: Single Bubble Air		
CONTROL HARDNESS			CONTROL ALKALINITY		
Beg:	43 mg/l	End: 48 mg/l	Beg:	32 mg/l	End: 35 mg/l
SAMPLE HARDNESS			SAMPLE ALKALINITY		
Beg:	50 mg/l	End: 62 mg/l	Beg:	30 mg/l	End: 35 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	10/29/19
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.79 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL				24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	11/01/19				11/02/19				11/03/19				11/04/19				11/05/19			
TIME:	1600				1230				1235				1400				1450			
CONC.	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish
0 (Con.)	9.0	19.7	8.0	10	8.5	19.0	8.0	10	8.0	18.8	8.0	10	8.3	17.9	7.1	10	9.0	17.8	7.3	10
400 mg/l	9.3	19.2	7.9	10	8.7	19.0	7.8	10	8.5	18.7	7.7	10	8.6	17.7	7.0	10	8.3	17.8	6.9	10
400 mg/l	9.3	19.2	7.9	10	8.7	19.0	7.8	10	8.5	18.8	7.7	10	8.6	17.6	7.0	10	8.5	17.8	7.0	10
750 mg/l	9.3	19.1	7.8	10	8.7	19.0	7.7	10	8.4	18.7	7.7	10	7.5	17.5	6.9	10	7.0	17.8	6.9	10
750 mg/l	9.3	19.1	7.8	10	8.7	19.0	7.7	10	8.3	18.8	7.7	10	7.9	17.5	6.9	10	7.4	17.8	6.9	10

FINAL DATA

TOTAL	FISH SURVIVAL
0 (Con.)	10
400 mg/l	10
400 mg/l	10
750 mg/l	10
750 mg/l	10

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Joe Freas, Senior Toxicologist

Date 11/18/19

aquatic bioassay & consulting laboratories, inc

November 18, 2019

Ms. Regina Giancola
Weck Laboratories, Inc.
14859 Clark Avenue
City of Industry, CA 91745

Dear Ms Giancola:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	Weck Laboratories, Inc.
SAMPLE I.D.:	9J23021-03
DATE RECEIVED:	10/24/19
ABC LAB. NO.:	WEC1019.166

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Scott Johnson
Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Weck Laboratories, Inc.	Date:	10/24/19
SAMPLE I.D.:	9J23021-03	LAB #:	WEC1019.166

WATER QUALITY

DILUTION WATER: Reconst. Fresh				AERATION:	Single Bubble Air		
CONTROL HARDNESS				CONTROL ALKALINITY			
Beg:	43 mg/l	End:	48 mg/l	Beg:	32 mg/l	End:	35 mg/l
SAMPLE HARDNESS				SAMPLE ALKALINITY			
Beg:	60 mg/l	End:	62 mg/l	Beg:	31 mg/l	End:	31 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	10/29/19
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.79 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL				24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	11/01/19				11/02/19				11/03/19				11/04/19				11/05/19			
TIME:	1600				1230				1235				1400				1450			
CONC.	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish
0 (Con.)	9.0	19.7	8.0	10	8.5	19.0	8.0	10	8.0	18.8	8.0	10	8.3	17.9	7.1	10	9.0	17.8	7.3	10
400 mg/l	9.3	19.2	7.7	10	8.7	19.0	7.7	10	7.9	18.8	7.7	10	8.9	17.8	7.0	10	8.4	18.1	7.0	10
400 mg/l	9.3	19.2	7.7	10	8.5	19.0	7.7	10	8.1	18.8	7.7	10	9.1	17.7	7.0	10	8.4	18.1	7.0	10
750 mg/l	9.3	19.2	7.6	10	8.7	19.0	7.7	10	8.2	18.7	7.7	10	9.0	17.8	7.0	10	8.8	18.0	6.9	10
750 mg/l	9.4	19.2	7.6	10	8.7	18.9	7.7	10	8.1	18.8	7.7	10	9.0	17.8	7.0	10	9.0	18.0	7.0	10

FINAL DATA

TOTAL	FISH SURVIVAL
0 (Con.)	10
400 mg/l	10
400 mg/l	10
750 mg/l	10
750 mg/l	10

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Joe Freas, Senior Toxicologist

Date 11/18/19

aquatic bioassay & consulting laboratories, inc

November 18, 2019

Ms. Regina Giancola
Weck Laboratories, Inc.
14859 Clark Avenue
City of Industry, CA 91745

Dear Ms Giancola:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	Weck Laboratories, Inc.
SAMPLE I.D.:	9J23021-04
DATE RECEIVED:	10/24/19
ABC LAB. NO.:	WEC1019.167

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Scott Johnson
Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Weck Laboratories, Inc.	Date:	10/24/19
SAMPLE I.D.:	9J23021-04	LAB #:	WEC1019.167

WATER QUALITY

DILUTION WATER: Reconst. Fresh				AERATION: Single Bubble Air			
CONTROL HARDNESS				CONTROL ALKALINITY			
Beg:	43 mg/l	End:	48 mg/l	Beg:	32 mg/l	End:	35 mg/l
SAMPLE HARDNESS				SAMPLE ALKALINITY			
Beg:	50 mg/l	End:	67 mg/l	Beg:	31 mg/l	End:	31 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	10/29/19
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.79 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL				24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	11/01/19				11/02/19				11/03/19				11/04/19				11/05/19			
TIME:	1600				1230				1235				1400				1450			
CONC.	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish	Dis. Oxy.	Temp. dg.C	pH	#Fish
0 (Con.)	9.0	19.7	8.0	10	8.5	19.0	8.0	10	8.0	18.8	8.0	10	8.3	17.9	7.1	10	9.0	17.8	7.3	10
400 mg/l	9.2	19.2	7.6	10	8.1	18.9	7.7	10	8.0	18.7	7.8	10	8.9	17.5	7.0	10	8.9	17.9	7.0	10
400 mg/l	9.2	19.2	7.6	10	8.2	18.9	7.7	10	7.9	18.8	7.8	10	8.9	17.5	7.0	10	8.6	17.8	7.1	10
750 mg/l	9.3	19.1	7.6	10	8.2	19.0	7.7	10	7.8	18.7	7.7	10	9.1	17.5	7.0	10	8.9	17.7	7.0	10
750 mg/l	9.3	19.2	7.6	10	8.2	19.0	7.7	10	7.8	18.7	7.7	10	9.0	17.5	7.0	10	8.6	17.8	7.0	10

FINAL DATA

TOTAL	FISH SURVIVAL
0 (Con.)	10
400 mg/l	10
400 mg/l	10
750 mg/l	10
750 mg/l	10

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Joe Freas, Senior Toxicologist

Date 11/18/19

WECK LABORATORIES, INC.

Subcontract Order

Subcontracted Laboratory:

Aquatic Bioassay & Consulting Labs, Inc.
29 North Olive Street
Ventura, CA 93001
Phone: (805) 643-5621
Fax: (805) 643-2930

Turn Around Time: Normal unless noted in comments
Project Manager: Regina Giancola
Project Name: CalEnergy Corp. 190703
Project Number: 2019 Annual Filtercake Composite
Sampler Employed by: _____

Work Order: 9J23021

Analysis	Expires	Comments
Sample ID: 9J23021-01/Region 1 Filtercake Composite		**Sampled:** 10/21/2019 13:40
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Bioassay 22CCR66261.24 Hazardous Waste	10/20/2020 13:40	
Containers Supplied: 4 oz. Jar (A)		
Sample ID: 9J23021-02/Region 2 Filtercake Composite		**Sampled:** 10/21/2019 13:45
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Bioassay 22CCR66261.24 Hazardous Waste	10/20/2020 13:45	
Containers Supplied: 4 oz. Jar (A)		
Sample ID: 9J23021-03/Elmore Filtercake Composite		**Sampled:** 10/21/2019 14:00
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Bioassay 22CCR66261.24 Hazardous Waste	10/20/2020 14:00	
Containers Supplied: 4 oz. Jar (A)		
Sample ID: 9J23021-04/Leathers Filtercake Composite		**Sampled:** 10/21/2019 14:10
Sample comment:		**Matrix:**Water **Sampled By:** Luis Polanco
Bioassay 22CCR66261.24 Hazardous Waste	10/20/2020 14:10	
Containers Supplied: 4 oz. Jar (A)		

Remarks / Special Comments:

Sample Condition

Temperature:	22.0 °C
Preserved:	Yes / No
Evidence Seal Intact:	Yes / No
Container Attacked:	Yes / No
Preserved at Lab:	Yes / No

Relinquished By	Date / Time	Received By	Date / Time
[signature]	10/23/19 13:20	Fedex	
Relinquished By	Date / Time	Received By	Date / Time
		[signature]	10/24/19 1035

14859 Clark Avenue, City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

rej 10/23

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	4891
CONNECTION TEL	3512976
CONNECTION ID	
ST. TIME	10/07 13:21
USAGE T	01'49
PGS. SENT	2
RESULT	OK

E. Mull Addres
Engineer

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

- [x] BUILDING
- [x] ELECTRICAL
- [x] PLUMBING
- [x] MECHANICAL
- [ ] GRADING
- [ ] DEMOLITION

- [ ] NEW RESIDENTIAL
- [ ] NEW COMMERCIAL
- [x] NEW INDUSTRIAL
- [ ] NEW POOL
- [ ] NEW SIGN
- [ ] M. H. UTILITIES

- [ ] REMODEL RESIDENTIAL
- [ ] REMODEL COMMERCIAL
- [ ] REMODEL INDUSTRIAL
- [ ] _____
- [ ] _____
- [ ] _____

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1 PROPERTY OWNERS NAME: Desert Valley Co. — PHONE NO.: 348 4000

2 MAILING ADDRESS: 480 W. Sinclair Rd Calipatria — ZIP CODE: 92233

3 PROJECT SITE ADDRESS: 3301 West HWY 86 Westmoreland Ca.

4 ASSESSORS PARCEL NO.: 019100040 — LEGAL DESCRIPTION: Sec 33 T12S R11E 640AC

5 DESCRIBE INTENDED USE: OFFICE / MAINT SHOP SITE

6 DESCRIBE (CLEARLY) THE PROPOSED WORK: New office bldg 30'x34', RELOCATE 25'x40' SHOP

7 (ADDITIONAL SPACE FOR LINE 6): to site Approx 1100' NNE of PRESENT LOCATION

8 ARCHITECT / ENGINEER: Manuel Yedra — LICENSE NO.: C63467 — PHONE NO.: 357-5440

9 MAILING ADDRESS: 943 Imperial Ave Ste E Calexico Ca — ZIP CODE: 92231

10 CONTRACTORS NAME: DCG Inc. dba Reliance Const. — LICENSE NO.: 787325 — PHONE NO.: 760344 8434

11 MAILING ADDRESS: S/o East Shank Rd. Brawley Cal. — ZIP CODE: 92227

READ B 11/30/04

WORKERS' COMPENSATION DECLARATION

ZONE: M-2
OCCUPANCY GROUP: B-2
CONSTRUCTION TYPE: VN
VALUATION: $118,862.00
AREA: office 1020 ft - shop 1000 ft

QTY		FEE
1	ELECTRICAL PERMIT	40.00
1	MAIN SERVICE (200 AMP)	70.00
1	BREAKER-CONTROL DEVICE	11.00
28	SWITCHES / OUTLETS	8.40
	MOTORS / TRANSFORMERS	
21	OTHER Lights	6.30
	OTHER	
	OTHER	
	Sub-Total	124.70
1	PLUMBING PERMIT	40.00
6	EA FIXTURE OR TRAP	42.00
1	EA SEWER CONNECTION	15.00
1	WATER LINE(S)	7.00
	GAS LINE(S)	7.00
1	WATER HEATER	

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 03/30/2004

PRODUCER (417)358-4007 FAX (417)358-4052
BEIMDIEK INSURANCE AGENCY, INC
303 W. Third Street
P.O. Box 612
Carthage, MO 64836

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED DG Construction, Inc.
DBA: Reliance Construction
Post Office Box 1318
Anderson, MO 64831

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A: ESSEX	
INSURER B: Consumers Insurance	
INSURER C: Westport Insurance	
INSURER D: Scottsdale Insurance	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC	BINDER	03/31/2004	03/31/2005	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 50,000 $ excluded $ 1,000,000 $ 2,000,000 $ 1,000,000
B		AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [X] HIRED AUTOS [X] NON-OWNED AUTOS	BA28580286	01/27/2004	01/27/2005	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
—	—	GARAGE LIABILITY [ ] ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
D		EXCESS/UMBRELLA LIABILITY [X] OCCUR [ ] CLAIMS MADE [ ] DEDUCTIBLE [ ] RETENTION $	BINDER	03/31/2004	03/31/2005	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
C		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	WCX0019929	08/09/2003	08/09/2004	[X] WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

Cal Energy is named as additional insured as respects general liability coverage. Waiver of Subrogation is in favor of Cal Energy as respects general liability coverage.

CERTIFICATE HOLDER

Cal Energy
Attn. Magda
7030 Gentry
Calipatria, CA 92233

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
G S Beimdiek

©ACORD CORPORATION 1988

41504

#42867

UCM
UNDERGROUND CONSTRUCTION MANAGERS

415.951.0653
415.434.0734
FAX

June 20, 2005

Mr. Michael Kobler
c/o Mr. Doug Hackley
Desert Valley Company
7030 Gentry Road
Calipatria, CA 92223

Re: Report of Well Abandonment
Groundwater Monitoring Wells W303, W04, W09 and W10
Desert Valley Company Monofill
Imperial County, California

Dear Mr. Kobler:

Monitoring wells W303, W04, W09 and W10 were properly abandoned in January and April, 2005. The work was performed as described herein. Well locations are shown on the attached map. Well details are shown on the attached copies of the original boring logs. The abandonment schedule and procedures are described for each well below.

Monitoring Well W303

This well was drilled and constructed in 1999 for groundwater monitoring in the proposed Cell 3 area, as described in the September, 2002 report "Geologic Investigations, Proposed Cell 3 Area". The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was bentonite chips, hydrated in place with clean water.

Well W303 was abandoned on January 28, 2005. The work was done by Earl Williams Drilling of Indio, California. The monument and upper casing of the well had been damaged by construction, so an excavator was used to expose the lower, undamaged portion of the well. Then an 8-inch hollow-stem auger was used to drill over the casing

665 Davis Street
San Francisco
California
94111

to total depth. The void from the overdrilling was filled with Enviroplug medium bentonite chips, hydrated in place with clean water.

Monitoring Well W04

This well was drilled and constructed in 1999 for groundwater monitoring in the proposed Cell 3 area, as described in the September, 2002 report "Geologic Investigations, Proposed Cell 3 Area" by Balderman Consulting, Inc. The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was bentonite chips, hydrated in place with clean water.

Well W04 was abandoned on January 29, 2005. The work was done by UCM, Inc. of San Francisco, California (C-57 #794691) with equipment and labor from Granite Construction Company of Indio, California. The well casing was plugged by filling with Volclay crumbles, a chipped bentonite product suitable for sealing wells and borings that was mixed at the surface with clean water. The casing volume of the well was 10.6 gallons. About 25 gallons of fully hydrated bentonite was placed to plug the well. Hydrated bentonite was added to the well until the level remained stable near the top of casing indicating that the filter pack had been plugged. The casing was subsequently cut off approximately 5 feet below ground surface.

Monitoring Well W09

The well was drilled and constructed in on April 4, 1991 for groundwater monitoring in the Cells 1and 2 area, as described in the May 29, 1991 report "Installation Report, New Wells for Ground-Water Monitoring, Desert Valley Monofill Project" by Morris Balderman, Consulting Geologist. The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was cement grout from the surface to the top of the screened zone, which was sand packed.

The top of Well W09 was damaged by construction. We were unable to remove the pump and tubing installed in the well. As a result, we contracted with Anderson Drilling of Lakeside, California to overdrill the well with a Watson 2000 drilling rig driving an 18" auger, completely removing the casing, grout, tubing and pump. The resulting 65' deep void was backfilled with 8 yards of two-sack cement slurry mixed with 2% bentonite to the surface.

Monitoring Well W10

The well was drilled and constructed on April 5, 1991 for groundwater monitoring in the Cells 1 and 2 area, as described in the May 29, 1991 report "Installation Report, New Wells for Ground-Water Monitoring, Desert Valley Monofill Project" by Morris Balderman, Consulting Geologist. The well was drilled with 8-inch hollow-stem augers

and constructed with 2-inch Schedule 40 PVC casing. The annular seal was cement grout from the surface to the top of the screened zone, which was sand packed.

The top of Well W10 was damaged by construction. We were unable to remove the pump and tubing installed in the well. As a result, we contracted with Anderson Drilling of Lakeside, California to overdrill the well with a Watson 2000 drilling rig driving an 18" auger, completely removing the casing, grout, tubing and pump. The resulting 65' deep void was backfille with 8 yards of two-sack cement slurry mixed with 2% bentonite to the surface.

In summary, the four wells discussed were abandoned in accordance with the September 3, 2004 recommendations from Balderman Consulting, Inc. and the applicable DWR requirements.

We appreciate the opportunity to be of service. If you have any questions or concerns, please do not hesitate to call.

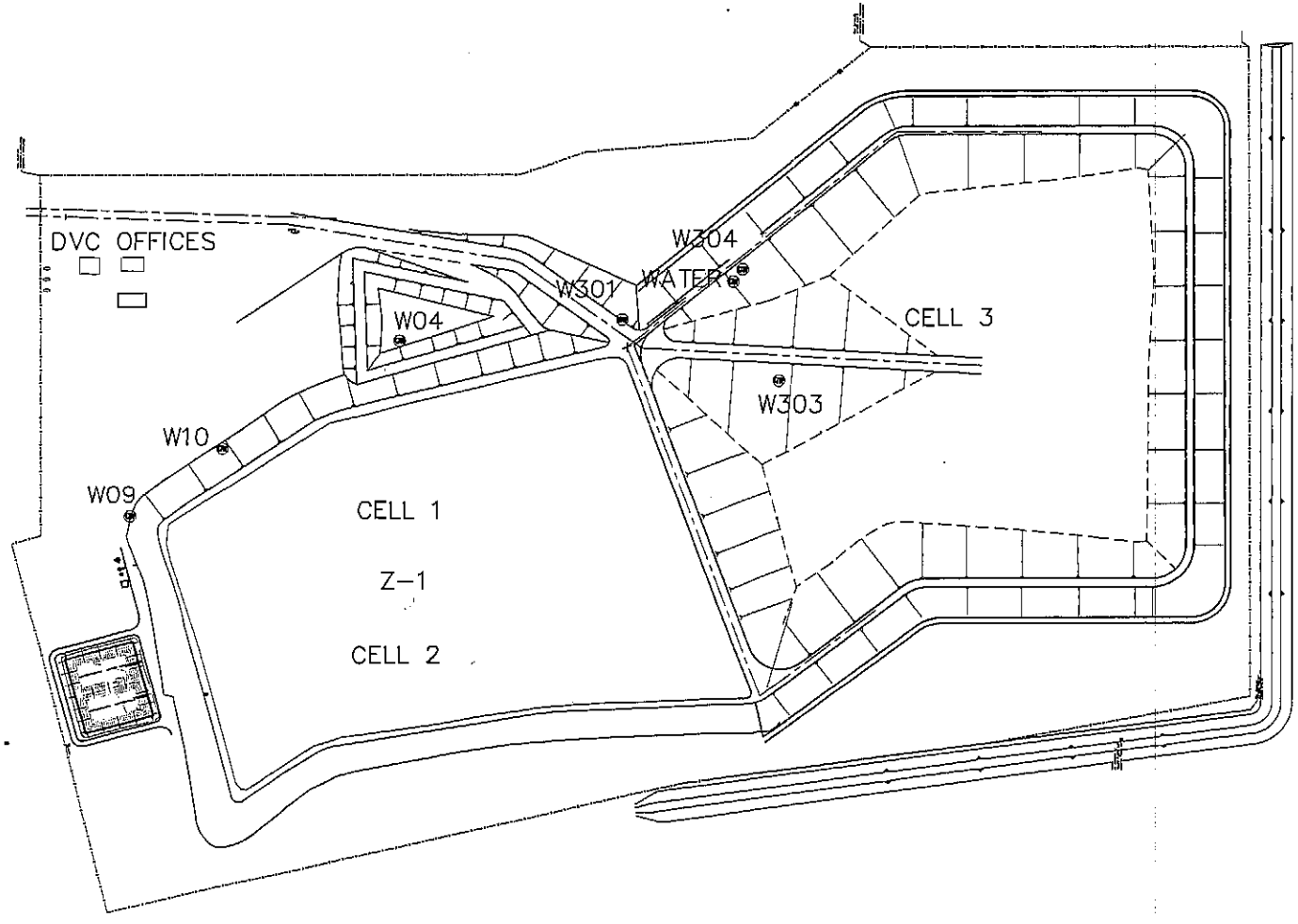
Best regards,

Dana J. Brock, P.E., C.E.G.
Principal

Attachments:

1. Well Locations
2. Boring Logs from Wells W303, W04, W09 and W10
3. DWR Well Completion Reports Nos. e026753 (for W303), e026763 (for W04), e026755 (for W09) and e026759 (for W10) prepared by UCM, Inc.

Attachment 1
Well Locations



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8855 FAX: 415. 394. 8856

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

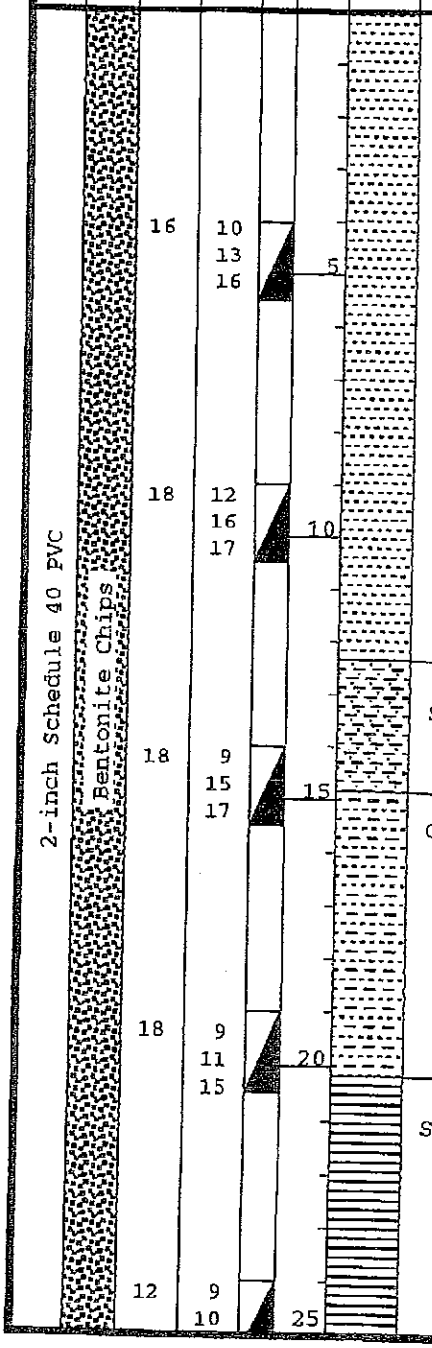
ABANDONED WELLS

PROJECT NO.	242-009
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

Attachment 2
Boring Logs

BALDERMAN CONSULTING INC.

NOTES	PROJECT	BORING NUMBER	PAGE
8-inch hollow stem auger; 2-inch split barrel sampler on 280 lb. down-hole hammer	Monofill	W303	1 of 3
	CONTRACTOR: Water Development Corp.		STARTED: 12/9/99-1610
	OPERATORS/EQUIPMENT: J. Pottroff/CME 1050		COMPLETED: 12/10/99-0905
	LOCATION: North 8007.5/East 9362.6 Ground Elev. -107.6; TOC -105.28		



Silt (ml) grayish orange (10 YR 7/4) minor fine sand, dry, dense

silt contains thin interbeds of Silty Clay (cl) moderate brown (5 YR 4/4)

Sandy Silt (ml) light brown (5 YR 6/4) 35% fine sand, dry, dense

Clayey Silt (ml) grayish orange (10 YR 7/4) dry, stiff

Silty Clay (cl) moderate brown (5 YR 4/4) dry, stiff

BALDERMAN CONSULTING INC.

NOTES	PROJECT	BORING NUMBER	PAGE
8-inch hollow stem auger; 2-inch split barrel sampler on 280 lb. down-hole hammer	Monofill	W303	2 of 3
	CONTRACTOR: Water Development Corp.		STARTED: 12/9/99-1610
	OPERATORS/EQUIPMENT: J. Pottroff/CME 1050		COMPLETED: 12/10/99-0905
	LOCATION: North 8007.5/East 9362.6 Ground Elev. -107.6; TOC -105.28		

CASING	SEAL	RECOVERY (in.)	BLOW COUNT	SAMPLES	DEPTH	COLUMN	
2-inch Schedule 40 PVC	Bentonite Chips	12	24				Silty Clay (cl) moderste brown (5 YR 4/4) dry, stiff, as above
			8				Silty Sand (sm) grayish orange (10 YR 7/4) 80% fine sand, trace fine mica, dry, dense
			12				
			22		30		
		16	7				
			12				
			23				
			30				
		12	7				
			19				
			35				
		17	18				
			24		35		
			28				
		21	6				
			15				
			25				
			33				
		18	4				Clay (ch) moderate brown (5 YR 4/4) damp, stiff
			5				
			7				interbed of fine Sandy Clay (cl)
			11				
		12	5				
			8		40		
		24	11				Silty Sand (sm) grayish orange (10 YR 7/4) 70% fine sand trace fine mica, dry, dense
			24				
			35				
			30				
		18	4				Sandy Clay (cl) moderate brown (5 YR 4/4) 30% fine sand, damp, stiff
			6				
			12				Silty Sand (sm) gray. orange (10 YR 7/4) dry, dense
		18	5				
			5		45		Clay (ch) moderate brown (5 YR 4/4) damp, stiff
			7				1/4-inch wide sand-filed vertical fracture @ 44.3 - 44.9 ft
		24	4				fine silt partings 46.7 - 47.3
			4				
			6				color change to dark yellowish brown (10 YR 4/2) below 47 ft
			7				
		18	4				
			5				
			7				
		18	4				
			4		50		

BALDERMAN CONSULTING INC.

NOTES
8-inch hollow stem auger;
2-inch split barrel
sampler on 280 lb.
down-hole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W303	3 of 3

CONTRACTOR	STARTED
Water Development Corp.	12/9/99-1610

OPERATORS/EQUIPMENT	COMPLETED
J. Pottroff/CME 1050	12/10/99-0905

LOCATION North 8007.5/East 9362.6
Ground Elev. -107.6; TOC -105.28

CASING	SEAL	RECOVERY (in.)	BLOW COUNT	SAMPLES	DEPTH	COLUMN
2-inch Schedule 40 PVC	Bentonite Chips	24	6 4 4 5 7			
		18	4 4 6			
		18	3 3 5		55	
		24	3 3 5 6			
		15	3 12 40			
		18	8 11 12		60	
		24	7 36 38 40			
		18	10 22 38			
		18	12 30 30		65	
0.010 slot	No. 1-C sand	18	4 5 7		70	
					75	

Clay (ch) dark yellowish brown (10 yr 4/2) damp, stiff, as above

silt parting @ 52.2

silt partings 53.0 - 54.0
sand parting @ 54.0

becoming moist

sand partings @ 57.1 - 57.5
color change to olive gray (5 Y 3/2)

Sand (sw) light brown (5 YR 6/4) fine to coarse grained, minor silt, moist, dense

Clay (ch) moderate brown (5 YR 4/4) moist, stiff contains scattered fine - coarse sand and narrow fractures filled w/fine sand

Sand (sw) light brown (5 YR 6/4) fine to coarse grained, minor silt & fine mica, wet, dense

Silty Sand (sm) dark yellowish orange (10 YR 6/6) 75% fine sand, trace fine mica, wet, dense

Clay (ch) light brown (5 YR 6/4) wet, stiff contains thin vertical fractures filled with fine sand

Total depth 70.5 feet
Well constructed 12/10/99

Log prepared by:

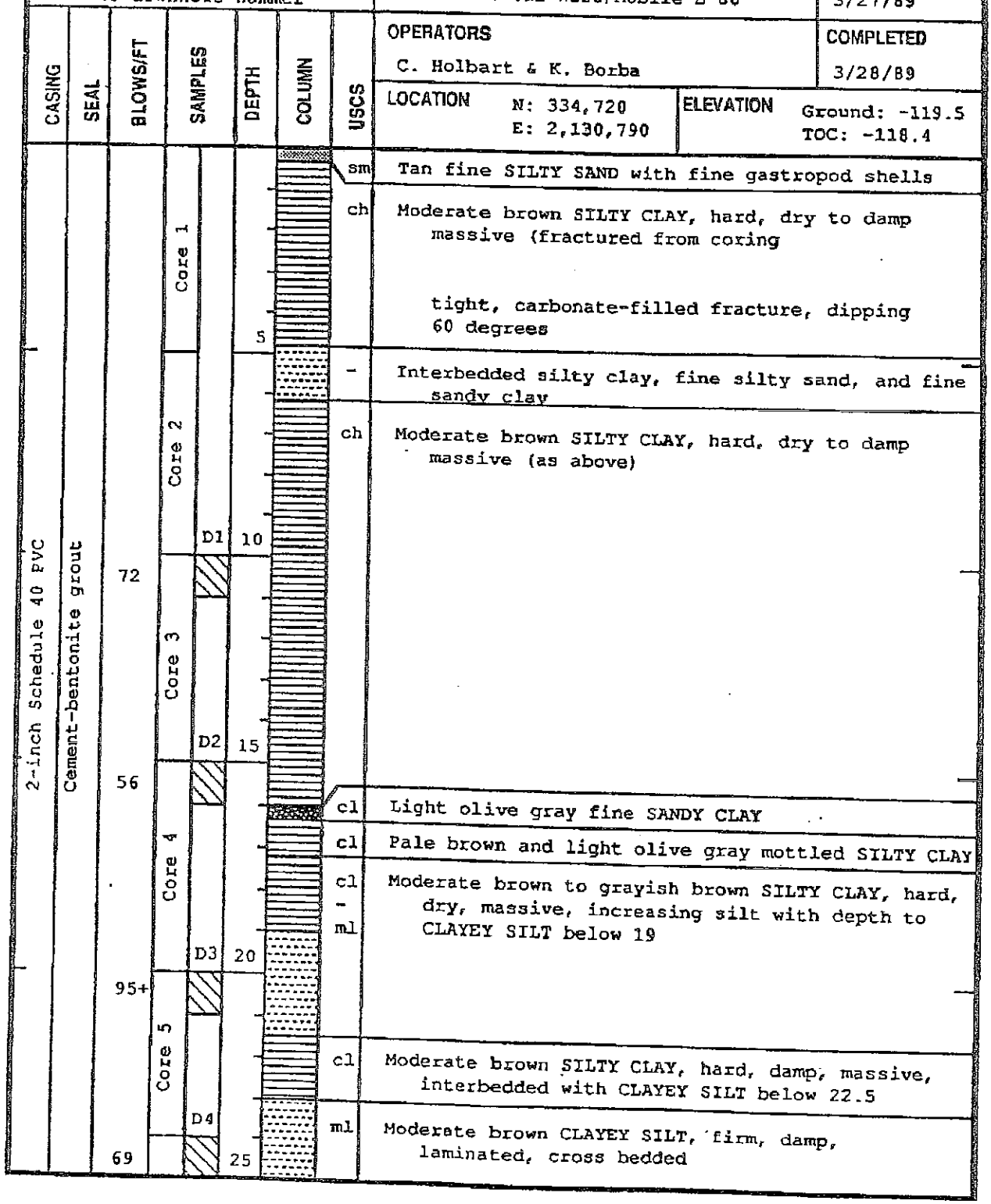
Morris A. Balderman
Engineering Geologist EG 940

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT April 20, 1989

NOTES
8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W-4	1 of 3
CONTRACTOR/EQUIPMENT		**STARTED**
Environmental West/Mobile B-80		3/27/89
OPERATORS		**COMPLETED**
C. Holbart & K. Borba		3/28/89
LOCATION N: 334,720 E: 2,130,790	**ELEVATION**	Ground: -119.5 TOC: -118.4



USCS	Description
sm	Tan fine SILTY SAND with fine gastropod shells
ch	Moderate brown SILTY CLAY, hard, dry to damp massive (fractured from coring tight, carbonate-filled fracture, dipping 60 degrees
-	Interbedded silty clay, fine silty sand, and fine sandy clay
ch	Moderate brown SILTY CLAY, hard, dry to damp massive (as above)
cl	Light olive gray fine SANDY CLAY
cl	Pale brown and light olive gray mottled SILTY CLAY
cl - ml	Moderate brown to grayish brown SILTY CLAY, hard, dry, massive, increasing silt with depth to CLAYEY SILT below 19
cl	Moderate brown SILTY CLAY, hard, damp, massive, interbedded with CLAYEY SILT below 22.5
ml	Moderate brown CLAYEY SILT, firm, damp, laminated, cross bedded

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT April 20, 1989

NOTES
8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

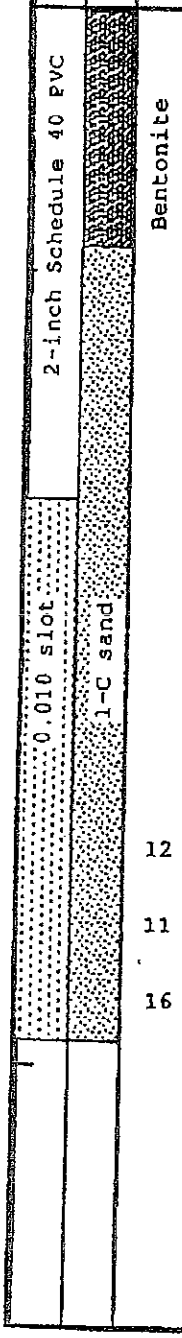
PROJECT	BORING NUMBER	PAGE
Monofill	W-4	2 of 3
CONTRACTOR/EQUIPMENT		**STARTED**
Environmental West/Mobile B-80		3/27/89
OPERATORS		**COMPLETED**
C. Holbart & K. Borba		3/28/89
LOCATION N: 334,720 E: 2,130,790	**ELEVATION**	Ground: -119.5 TOC: -118.4

CASING: 2-inch Schedule 40 PVC
SEAL: Cement-bentonite grout; Bentonite
BLOWS/FT
SAMPLES: Core 6; Core 7; Core 8; Core 9; Core 10; Core 11
DEPTH
COLUMN
USCS

DEPTH	USCS	
	ml	Brown CLAYEY SILT mottled with SILTY CLAY, dry to damp, hard
	cl	Brown SILTY CLAY, hard, dry to damp, laminated
	ml	Pale brown SILT, hard, dry, massive
	ch	Moderate brown SILTY CLAY, hard, damp, few silt laminations 0.2' brown silt @ 28.9
30	ml	Pale brown SILT, firm, dry, laminated
	cl	Moderate brown SILTY CLAY, hard, dry, interbedded with pale brown CLAYEY SILT
	ch	Moderate brown SILTY CLAY, hard, dry
35	ml	Pale brown CLAYEY SILT, firm, dry, laminated
	sm	Light brown fine SILTY SAND, firm, dry, laminated
	ch	Moderate brown SILTY CLAY, hard, damp, laminated
	ml	Pale brown SILT, firm, damp, laminated
	ch	Moderate brown SILTY CLAY, hard, damp
	ml	Pale brown very fine SANDY SILT, firm, dry
	cl	Moderate brown SILTY CLAY, hard, damp, laminated with pale brown silt
40	ml	Brown CLAYEY SILT, firm, damp, finely cross bedded
	ch	Moderate brown SILTY CLAY, hard, damp, locally contains fine sand and mica color change to grayish brown @ 43 0.3' brown CLAYEY SILT @ 43.9 0.2' yellowish brown fine SILTY SAND @ 44.8 0.1' brown fine SILTY SAND @ 46.5 color change to light olive gray @ 46.6 color change to moderate brown @ 46.9
45	ml	Brown fine SILTY SAND w/mica, moist
	cl	Gray and brown SILTY CLAY and SANDY CLAY
50		

NOTES
8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W-4	3 of 3
CONTRACTOR/EQUIPMENT: Environmental West/Mobile B-80		STARTED: 3/27/89
OPERATORS: C. Holbart & K. Borba		COMPLETED: 3/28/89
LOCATION: N: 334,720 E: 2,130,790	ELEVATION: Ground: -119.5 TOC: -118.4	



USCS	
sm	(continued from 49.8) Brown fine SILTY SAND with fine mica, moist, massive
cl	Brown SILTY CLAY, hard, moist, interbeds of fine SANDY CLAY increasing to about 40% by 54
sm	Moderate brown fine SILTY SAND, micaceous, wet
ml	Moderate brown fine SANDY SILT, firm, wet
ml	Brown CLAYEY SILT with fine sand, hard, wet
sm	Brown fine SILTY SAND, micaceous, wet (no return from Core 14; interpreted to be wet silty sand, based on material above and below) (Brown fine SILTY SAND with mica, wet, as above)

Total depth 69.5 feet

Log prepared by:

Morris A. Balderman
Certified Engineering Geologist 940

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
Drilled w/8" O.D. augers
See accompanying
General Notes

PROJECT	BORING NUMBER	PAGE
Monofill	W-9	1 of 4
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/4/91-0810
OPERATORS		COMPLETED
A. Vega		4/4/91-1145
LOCATION N: (survey E: pending)	ELEVATION Ground: (survey TOC: pending)	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout					ch	Red - brown silty clay, dry, hard
		35 71 100	D-1	5		sm	Brown fine silty sand, dry, dense
				10		ch	Light red brown silty clay, dry, hard, thin bedded to laminated
		15 20 21	D-2				
				15		ml	Light yellow brown silt, dry, firm, minor fine sand
		18 30 46	D-3				
				20			
		18 26 35	D-4				
				25			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES	PROJECT	BORING NUMBER	PAGE
See Page 1	Monofill	W-9	2 of 4
	CONTRACTOR/EQUIPMENT: HF Drilling/Mobile B-61		STARTED: 4/4/91-0810
	OPERATORS: A. Vega		COMPLETED: 4/4/91-1145
	LOCATION: N: E:	ELEVATION: Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	15 25 34	D-5			ml	Silt, as above, light red brown in color
				30		ch	Red brown silty clay, dry, firm, thin bedded
		6 8 12	D-6				
				35			
		15 25 29	D-7			ml	Brown silt with minor clay, dry, firm, thin bedded to laminated
				40		ch	Dark red brown silty clay, dry, firm
		10 15 21	D-8			ml	Light red brown silt, dry, firm, thin bedded
				45			
		15 20 23	D-9				
				50			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST DRAFT - May 7, 1991

NOTES	PROJECT	BORING NUMBER	PAGE
See Page 1	Monofill	W-9	3 of 4
	CONTRACTOR/EQUIPMENT		STARTED
	HF Drilling/Mobile B-61		4/4/91-0810
	OPERATORS		COMPLETED
	A. Vega		4/4/91-1145
	LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	10 15 20	D-10		ml	Light red brown silt, as above
		9 19 20	D-11		sp	Brown fine sand, dry
		15 18 18	D-12		ml	Light, red brown silt, dry, firm
		12 15 18	D-13	55	ch	Dark brown silty clay, dry, firm
		12 18 22	D-14			
		12 20 30	D-15			
		12 14 28	D-16	60	sp	Gray sand, dry, dense
		15 30 40	D-17		cl	Blue gray silty clay with thin silt interbeds, dry to moist, firm
	Bentonite	15 20 20	D-18			
		15 18 25	D-19	65	ch	Brown silty clay, dry to moist, firm
		18 20 20	D-20			
		20 30 30	D-21			
		19 26 31	D-22			
0.006 continuous slot	#0/30 sand	18 20 25	D-23	70	sm	Brown fine silty sand, wet, dense
		12 20 30	D-24		ml	Brown clayey silt with fine sand, wet, firm
		20 30 35	D-25		ch	Brown silty clay, moist, firm
		12/18	D-26	75		

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES	PROJECT	BORING NUMBER	PAGE
See Page 1	Monofill	W-9	4 of 4
	CONTRACTOR/EQUIPMENT		STARTED
	HF Drilling/Mobile B-61		4/4/91-0810
	OPERATORS		COMPLETED
	A. Vega		4/4/91-1145
	LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		26	D-26			ch	Brown silty clay, as above
		8					
		12	D-27				
		15				ml	Brown silt, moist, firm
		20	D-28				
		30				ch	Brown silty clay, moist, firm
		30					
		21	D-29				
		19					
		31		80			
0.006 continuous slot	#0/30 sand			85			Total depth 80 feet Well installed 4/4/91 Field log by Marc Egli Final log prepared and approved by: Morris A. Balderman Certified Engineering Geologist 940
				90			
				95			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
Drilled w/8" O.D. augers
See accompanying
General Notes

PROJECT	BORING NUMBER	PAGE
Monofill	W-10	1 of 3
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/5/91-0730
OPERATORS		COMPLETED
A. Vega		4/5/91-1000
LOCATION N: (survey E: pending)	ELEVATION Ground: (survey TOC: pending)	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout					ml	Light red brown silt with fine sand, dry, firm
		11 20 25	D-1	5			
		18 22 33	D-2	10		ch	Red brown silty clay, dry to damp, firm, thin bedded
		21 21 24	D-3	15			
		9 19 31	D-4	20			
				25			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
See Page 1

PROJECT	BORING NUMBER	PAGE
Monofill	W-10	2 of 3
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/5/91-0730
OPERATORS		COMPLETED
A. Vega		4/5/91-1000
LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	15 25 29	D-5			ch	Brown silty clay, as above
		10 20 25	D-6	30			laminated with fine sand
		15 18 21	D-7	35			
		8 15 20	D-8	40			
		16 21 20	D-9	45		ml - cl	Brown clayey silt - silty clay, wet, firm
				50			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
See Page 1

PROJECT	BORING NUMBER	PAGE
Monofill	W-10	3 of 3
CONTRACTOR/EQUIPMENT: HF Drilling/Mobile B-61		STARTED: 4/5/91-0730
OPERATORS: A. Vega		COMPLETED: 4/5/91-1000
LOCATION: N: E:	ELEVATION: Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		10 16 19	D-10			ml - cl	Red brown clayey silt - silty clay, as above
	Bentonite	12 21 21	D-11			ch	Red brown silty clay, moist, firm
		12 18	D-12				
0.006 continuous slot	#0/30 sand	20 10 16 22 18 20 26 18 22 26 8 14 22 8 16 22 18 25 25 14 21 23	D-13 D-14 D-15 D-16 D-17 D-18 D-19	55 60 65 70 75		ml	Red brown clayey silt with minor fine sand wet, firm thin interbeds of silty clay 59 to 63 ft

Total depth 65.5 feet
Well installed 4/5/91
Field log by Marc Egli
Final log prepared and approved by:

Morris A. Balderman
Certified Engineering Geologist 940

Attachment 3
DWR Well Completion Reports

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Owner's Well No. W303 No. e026753

Date Work Began 1-28-05, Ended 1-28-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
	Overdrilled casing to total depth. Filled void with bentonite chips. Hydrated with clean water.

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Country Road

City Calipatria State CA ZIP 92223

WELL LOCATION

Address 3301 W. Hwy 86

City Imp

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

EAST

See attached map

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

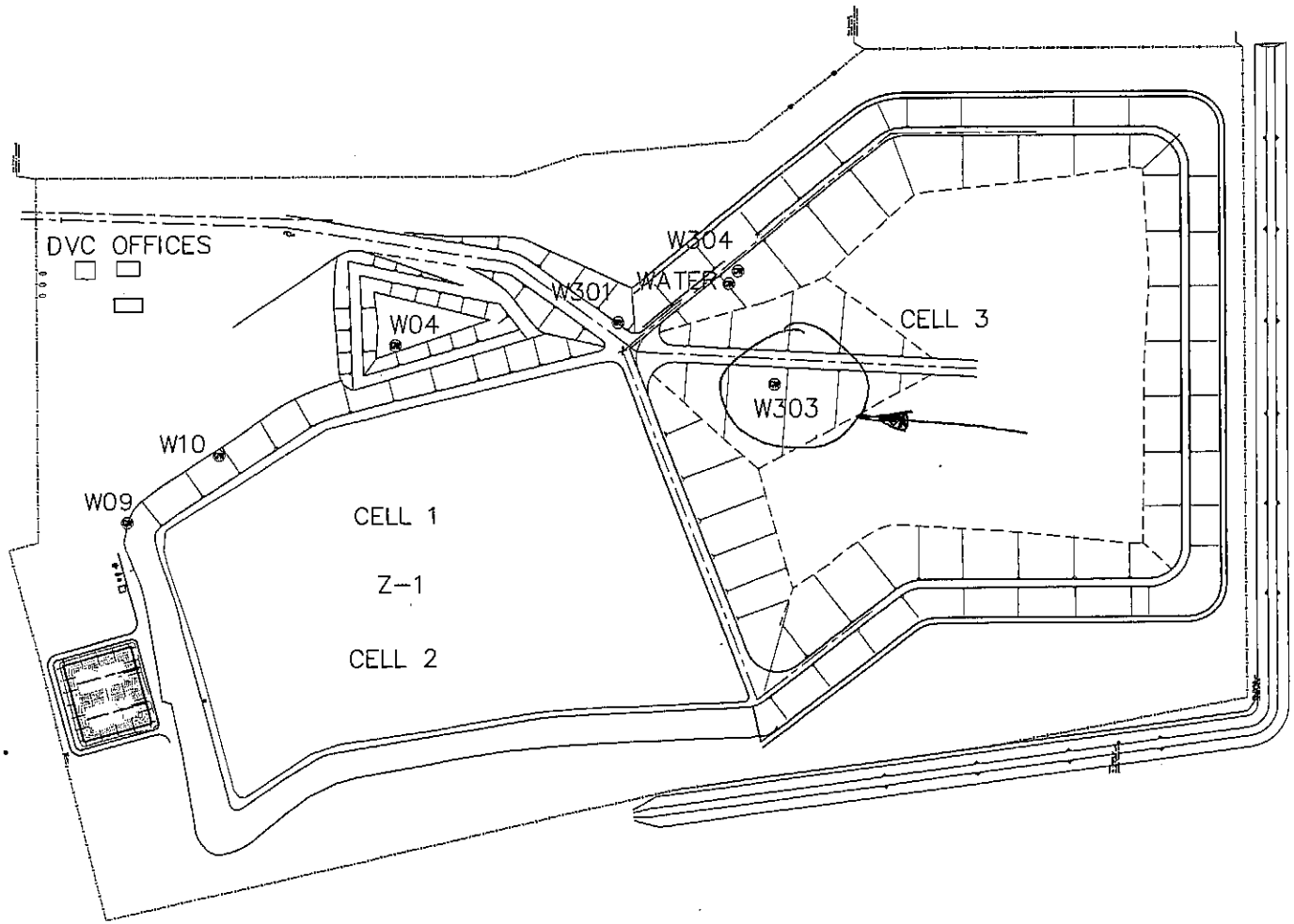
NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

665 Davis St. San Francisco CA 94111
ADDRESS CITY STATE ZIP

Signed ___ 6-20-05 794691
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8855 FAX: 415. 394. 8886

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

A:\242\008\GENERAL PLAN.DWG 01/2005

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. W04

Date Work Began 1-29-05, Ended 1-29-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e026763

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Gentry Road

Calipatria CA 92223
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Hwy 86

City Brawley, CA

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
X OTHER (SPECIFY) Abandon

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

DEPTH FROM SURFACE Ft. to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

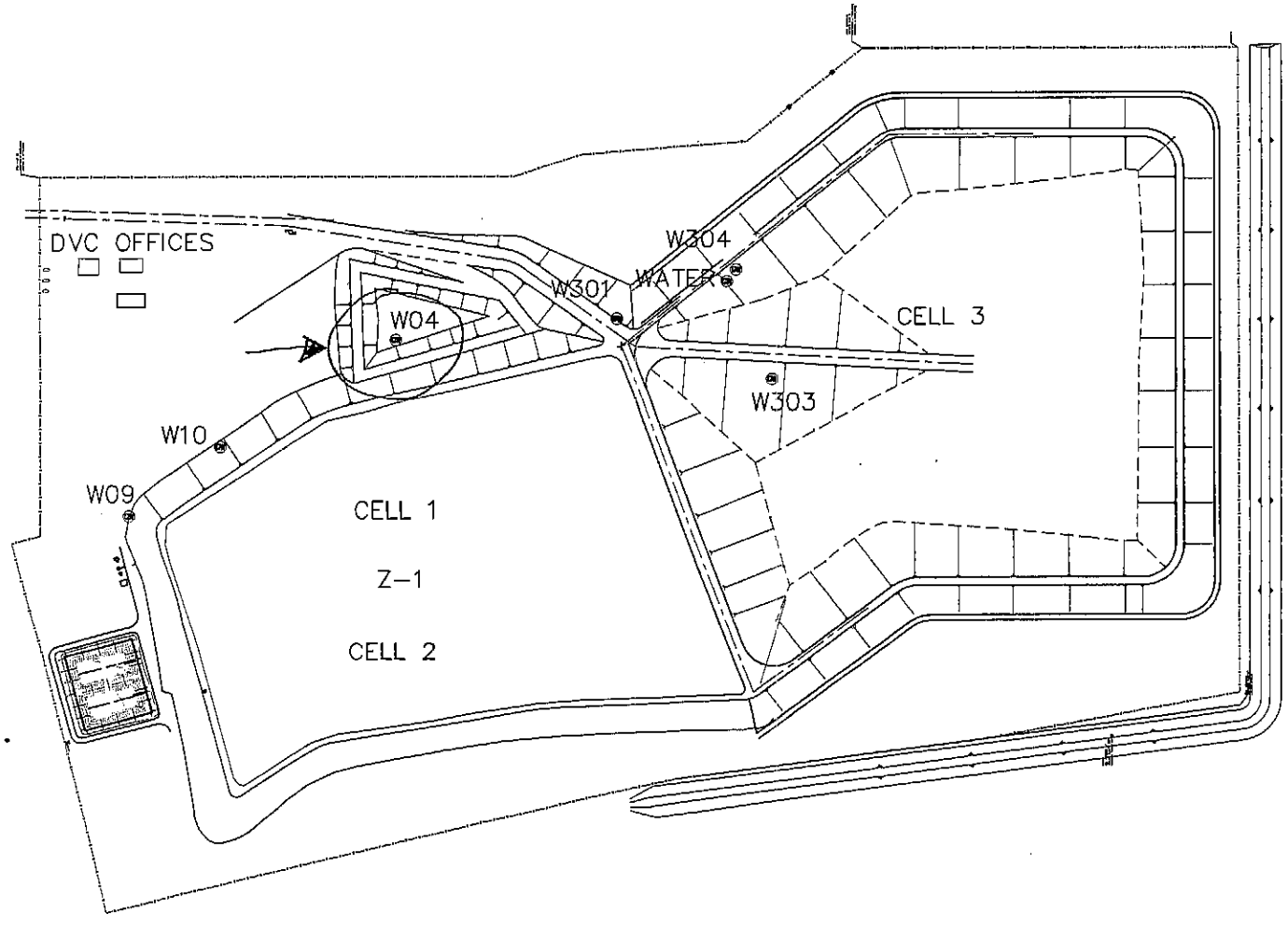
NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

665 Davis St. San Francisco CA 94111
ADDRESS CITY STATE ZIP

Signed ___ 6-20-05 794691
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

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5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 6855 FAX: 415. 394. 6865

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

J:\242\008\GENERAL PLAN.DWG 01/2005

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Owner's Well No. W09 No. e026755

Date Work Began 4-4-05, Ended 4-4-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
	Overdrilled entire well with 18" auger to total depth. Filled void with 8 yds 2-sack cement slurry to surface. (Cement slurry w/ 20% bentonite)

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Gentry Road

Calipatria CA 92223
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Hwy 86

City Brawley, CA

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

665 Davis St. San Francisco CA 94111
ADDRESS CITY STATE ZIP

Signed ___
WELL DRILLER/AUTHORIZED REPRESENTATIVE

6-20-05
DATE SIGNED

794691
C-57 LICENSE NUMBER

DWR 188 REV. 11-97

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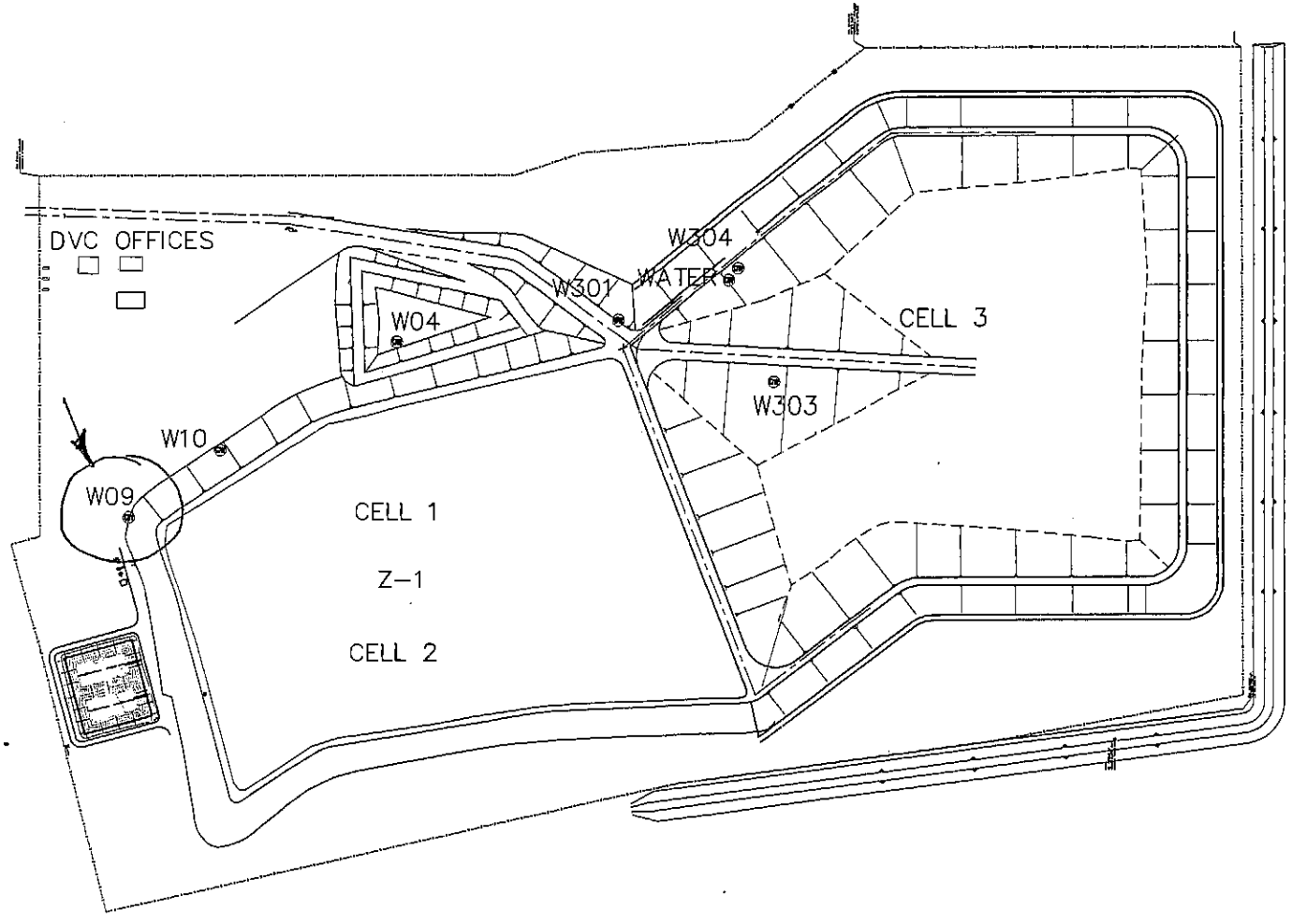

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VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8855 FAX: 415. 394. 8866

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CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

J:\242\008\DWG\GENERAL PLAN.DWG 01/2005

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e026759

Owner's Well No. W10
Date Work Began 4-5-05, Ended 4-5-05
Local Permit Agency Imperial County
Permit No. — Permit Date —

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
	Overdrilled entire well with 18" auger to total depth. Filled void with 8 yds. 2-sack cement w/ 2% bentonite slurry to surface.

TOTAL DEPTH OF BORING ___ (Feet)
TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Country Road
CITY Calipatria STATE CA ZIP 92233

WELL LOCATION

Address 3301 W. Hwy 86
City Brawley, CA
County Imperial
APN Book ___ Page ___ Parcel ___
Township 12S Range 11E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH
Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 665 Davis St. CITY San Francisco STATE CA ZIP 94111
Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE
DATE SIGNED 6-20-05 C-57 LICENSE NUMBER 794691

DWR 188 REV. 11-97

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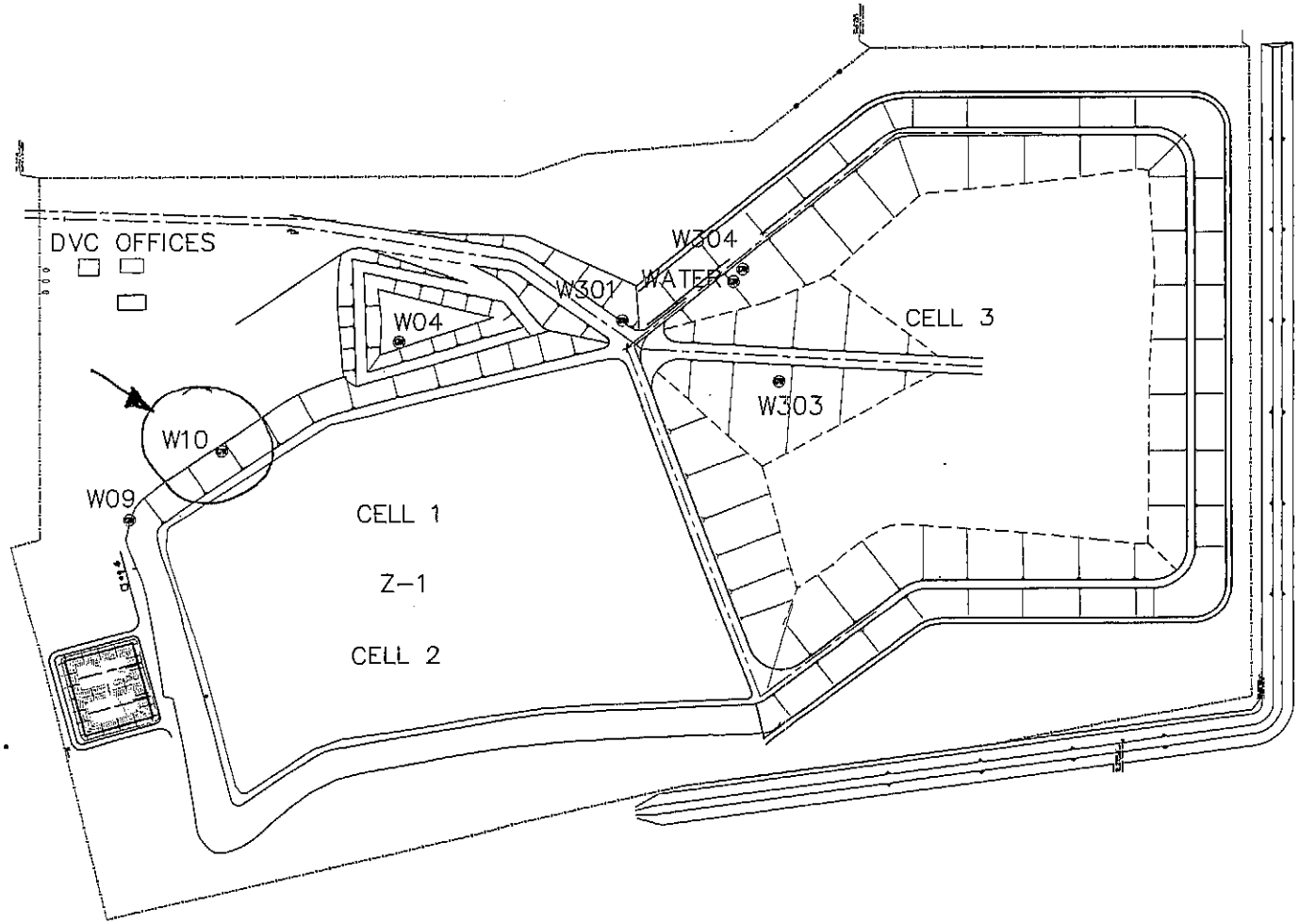

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TEL: 415. 394. 8855 FAX: 415. 394. 8868

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DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

#42867
#42953
#42999

UCM
UNDERGROUND CONSTRUCTION MANAGERS

415.951.0653
415.434.0734
FAX

June 8, 2005

Mr. Michael Kobler
c/o Mr. Doug Hackley
Desert Valley Company
7030 Gentry Road
Calipatria, CA 92223

Re: Report of Well Construction
Monitoring Wells W09A, W10A, W307, W308 and W309 and
Neutron Access Tube Z7
Desert Valley Company Monofill
Imperial County, California

The attached report describes drilling and construction of two new replacement and three new groundwater monitoring wells and one new neutron access probe at Monofill Cell 3.

We appreciate the opportunity to be of service. Don't hesitate to call with any questions regarding this report.

Sincerely,

Dana J. Brock, P.E., C.E.G.

Enclosures

665 Davis Street
San Francisco
California
94111

INSTALLATION REPORT
FIVE MONITORING WELLS AND ONE VADOSE ZONE ACCESS TUBE
FOR
DESERT VALLEY COMPANY MONOFILL CELL 3
IMPERIAL COUNTY, CALIFORNIA

Prepared for:

DESERT VALLEY COMPANY
7030 Gentry Road
Calipatria, CA 92223

Prepared by:

UNDERGROUND CONSTRUCTION MANAGERS, INC.
665 Davis Street
San Francisco, CA 94111

June, 2005

INSTALLATION REPORT
FIVE MONITORING WELLS AND ONE VADOSE ZONE ACCESS TUBE
FOR
DESERT VALLEY COMPANY MONOFILL CELL 3
IMPERIAL COUNTY, CALIFORNIA

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3.0	NEUTRON PROBE ACCESS TUBE	4
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FIGURES

Figure 1	Site Map
Figure 2	Monitoring Well Construction (typical)

APPENDICES

Appendix A	Boring Logs
Appendix B	Water Content/Density of Soil Samples from Z7 – Lab Report
Appendix C	Well Completion Reports by Water Development Corporation of Montclair, California (C-57 License #283326)

1.0 INTRODUCTION

This report describes drilling and construction of two replacements and three new monitoring wells and one new neutron-probe access tube at Monofill Cell 3. This work was done in conformance with October 13, 1999 recommendations by Balderman Consulting, Inc for groundwater and vadose zone monitoring. Background information and hydrogeology of the Monofill Cell 3 site are described in previous correspondence and are not repeated here.

Drilling, well construction, development and permanent pump installation, where appropriate, were completed in April 2005. The drilling contractor was Water Development Corporation of Montclair, California (C-57 License #283326). The work was done with a CME 85 truck mounted drilling rig. Methods used to construct the wells and access probe are described in Sections 2.0 and 3.0 respectively. Boring logs are included in Appendix A.

These monitoring points were located as recommended by Balderman Consulting, Inc. and are shown on the site map (Figure 1). Locations of the wells have not been specifically surveyed, but have been checked with a GPS system used by Granite Construction Company at the site. Well coordinates are listed in Table 1, which describe locations of all currently operating monitoring well locations and include site coordinates and corresponding latitude and longitudes.

Table 1
Monitoring Well Locations

Well Name	Type	Northing	Easting	Longitude* (decimal degrees)	Latitude** (decimal degrees)	Longitude* (deg/min/ sec)	Latitude** (deg/min/ sec)
GW01	Groundwater	8646.5	8635.7	-136.1581297	25.9731346	136/9/29.27 W	25/58/23.28 N
GW09A	Groundwater	9191.7	9130.0	-136.1569767	25.9748517	136/9/25.12 W	25/58/29.47 N
GW10A	Groundwater	9019.6	9262.5	-136.1564852	25.9744591	136/9/23.35 W	25/58/28.05 N
GW11	Groundwater	9127.4	8901.1	-136.1576185	25.9745608	136/9/27.43 W	25/58/28.44 N
GW12	Groundwater	9077.5	8714.4	-136.1581434	25.9743304	136/9/29.32 W	25/58/27.59 N
GW302	Groundwater	7795.5	8691.3	-136.1574772	25.970883	136/9/26.92 W	25/58/15.18 N
GW305	Groundwater	7900.2	9927.9	-136.1538711	25.971804	136/9/13.94 W	25/58/18.49 N
GW306	Groundwater	7045.1	9320.7	-136.1551813	25.969198	136/9/18.65 W	25/58/9.11 N
GW307	Groundwater	8585.3	9349.9	-136.1559772	25.9733406	136/9/21.52 W	25/58/24.03 N
GW308	Groundwater	8294.9	9425.5	-136.1555867	25.9726015	136/9/20.11 W	25/58/21.37 N
GW309	Groundwater	7986.7	9780.6	-136.1543574	25.9719595	136/9/15.69 W	25/58/19.05 N
Z2	VADOSE	9094.7	9023.3	-136.1572374	25.9745365	136/9/8.55 W	25/58/28.33 N
Z4	VADOSE	8184.7	9137.6	-136.1563771	25.9721571	136/9/22.96 W	25/58/19.77 N
Z5	VADOSE	9030.7	8793.4	-136.1578823	25.9742459	136/9/28.38 W	25/58/27.29 N
Z6	VADOSE	8826.0	8692.7	-136.1580636	25.9736452	136/9/31.09 W	25/58/25.12 N
Z7	VADOSE	8071.3	9605.3	-136.1549256	25.9720954	136/9/17.73 W	25/58/19.54 N

2.0 GROUNDWATER MONITORING WELLS

The five groundwater monitoring wells, designated W09A, W10A, W307, W308 and W309 are located as shown on Figure 1. Section 2.1 describes the drilling and soil sampling procedures used for the monitoring wells. Well Construction is described in Section 2.2 and well development is described in Section 2.3. After all the wells were developed, new sampling pumps were installed in the new wells as described in Section 2.4.

2.1 Well Drilling and Soil Sampling

The borings for the five wells were drilled from March 29, 2005 to April 5, 2005. They were drilled using 8-inch (nominal O.D.) hollow-stem augers. Soil samples were collected using a 2-inch (nominal I.D.) split barrel drive sampler on a 140 pound down-hole slide hammer. Eighteen inch long samples were driven every 5 feet (nominal). Sample depths and blow counts for each 6-inch interval are depicted on the boring logs.

The augers and other equipment that could contact the in-place soils were steam-cleaned prior to use. The sample barrels were rinsed with clean water prior to each use. New 6-inch by 2-inch stainless steel sample rings lined the sample barrels. The contents of each ring was examined and the ring and sample nearest the sampler tip was retained for each sampling interval.

Boring logs were prepared by the Registered Geologist, based on field observation of the drilling and examination of the samples and the cuttings brought to the surface by the auger flighting. Soils were described visually, generally following the Unified Soils Classification System, but without reference to laboratory results. Soil color was described by direct comparison in sunlight to Munsell Soil Color Charts, 1988 Edition.

2.2 Well Construction

The wells were constructed at the times shown on the following table:

Table 2
Well Construction Dates

Well	Date Drilling Started	Date Drilling Completed	Date Developed	Date Sampling Pump installed
W09A	3-29-05	3-30-05	3-30-05	4-7-05
W10A	3-30-05	3-31-05	3-31-05	4-7-05
W307	3-31-05	4-1-05	4-1-05	4-7-05
W308	4-4-05	4-4-05	4-4-05	4-7-05
W309	3-31-05	3-31-05	3-31-05	4-21-05*

*The pump for W309 was supplied with a bent part, a replacement of which was ordered and replaced prior to installation.

Typical construction of the five wells is depicted on Figure 2. Depths of the screened intervals and filter pack are listed in Table 2 as well as indicated on the Boring Logs (Appendix A).

Table 3
Well Construction Depths

Well	Total Depth	Sealed interval	Screened interval
W09A	80	0-70	70-80
W10A	70	0-60	60-70
W307	65	0-54	54-64
W308	84	0-74	74-84
W309	65	0-55	55-65

The wells were screened from the first indication of saturation during drilling down 10 feet to approximately total depth. Soil materials in the screened zone varied from silts and clays in W09A and W10A to silts and sands in W307, W308, and W309.

The well casings and screens installed are Schedule 40 PVC. These materials were clean when delivered to the site in original packaging, which was removed just prior to installation. Each well was constructed with a 10-foot screen interval of factory-cut 0.010-inch slots. The casing and screen are flush-threaded. No glues were used in the well construction. The wells were constructed through the hollow stem auger so no centralizers were used or needed.

The filter packs are all washed Lonestar Monterey No. 1-C sand. The sand was placed through the hollow-stem augers from the bottom of the borings to about three feet above the hollow-stem augers. The wells were surged with a surge block in order to settle the sand prior to placement of the well seals. Surging was continued until the sand level stabilized. Sand was then added to three feet above the screen. The casing, screen and sandpack were added without adding water to the wells.

The wells were sealed from the top of the filter sand to the surface using Volclay bentonite grout which is designed for sealing monitoring wells. The bentonite was hydrated with clean water at the surface and then introduced to the well.

Each well was enclosed at the surface in a locking steel casing surrounded by a concrete pad, graded to drain outward from the well casing.

2.3 Well Development

The wells were surged and bailed after each was installed. Observations during bailing are presented in the following table:

Table 4
Well Development

Well	1st Bailing	Result	2nd Bailing	Turbidity*	Total removed
W09A	20 gal	Bailed dry	10 gal	High	30 gal
W10A	5 gal	Bailed dry	3 gal	High	8 gal
W307	30 gal	Continued producing		Moderate	30 gal
W308	35 gal	"		Moderate	35 gal
W309	35 gal	"		Moderate	35 gal

* Very high is > 250 NTU, Moderate is 50-150 NTU

Turbidity remained moderate to high during bailing because the bailer kept fines in suspension in the water column. It is expected that the water produced from the dedicated pumps will be far less turbid because the fines will have settled and the pumping rates are relatively low.

2.4 Pump Installation

After completion of well development, dedicated bladder pumps were installed in each well to facilitate periodic purging and sampling. GeoPump 57400 pumps were installed with manufacturer-supplied tubing. The pumps were installed with the bottom of the pump inlet installed at about 3 feet above the bottom of each well. Depths are listed in the following table:

Table 5
Depth of Pump Installation

Well	Total Depth (feet bgs)	Pump Inlet Depth (feet bgs)
W09A	80	77
W10A	70	67
W307	65	62
W308	85	82
W309	65	62

3.0 NEUTRON PROBE ACCESS TUBE

One new neutron-probe access tube, designated Z7 was placed in the west embankment of Cell 3 (Figure 1). Section 3.1 describes the drilling and soil sampling procedures used for the neutron-probe access tube. Section 3.2 describes the laboratory testing. Placement of the casings is discussed in Section 3.3.

3.1 Neutron-Probe Drilling and Soil Sampling

The boring for Z7 was drilled April 1, 2005. It was drilled using 8-inch (nominal O.D.) hollow-stem augers. Soil samples were collected using a 2-inch (nominal I.D.) split barrel drive sampler on a 140 pound down-hole slide hammer. Eighteen inch long samples were driven every 5 feet (nominal) once the approximately 25' thickness of fill recently placed at the location of Z7 as part of the construction of Cell 3 was penetrated. Sample depths and blow counts for each of the three 6-inch drive intervals are depicted on the boring log, which is included in Appendix A.

The augers and other equipment that could contact the in-place soils were steam-cleaned prior to use. The sample barrels were rinsed with clean water prior to each use. New 6-inch by 2-inch stainless steel sample rings lined the barrels. The contents of each ring was examined and the ring and sample nearest the sampler tip was retained for each sampling.

Boring logs were prepared by the Registered Geologist, based on field observation of the drilling and examination of the samples and the cuttings brought to the surface by the auger flighting. Soils were described visually, generally following the Unified Soils Classification System, but without reference to laboratory results. Soil color was described by direct comparison in sunlight to Munsell Soil Color Charts, 1988 Edition.

Total depth of the boring was several feet above the estimated groundwater elevation at that location. Groundwater elevations were estimated from groundwater depths observed while drilling W307 and W309. Elevations of the ground surface were estimated from the Cell 3 construction drawings and were compared with the estimated groundwater elevations in order to plan drilling depths.

Soil samples were retained in two-inch diameter, six-inch long stainless steel rings. One sample was submitted for laboratory analysis of of water content and density at nominal five-foot intervals.

3.2 Laboratory Water Content Determinations

Water content of the selected soil samples was determined by Southland Geotechnical of Brawley, California. These tests were performed in accordance with ASTM D 2216-98, the standard engineering test to determine water content in soil samples.

The sealed tubes were opened in the laboratory and soil was removed and weighed. Each sample was then oven dried and the dry weight was measured. The moisture contained in the soil is indicated by the loss in weight, and the original moisture content is calculated as a percentage of the dry weight. The laboratory report is provided in Appendix C. Moisture content are also summarized on the boring log. Results of testing of samples for water content are listed in Table 6.

Table 6
Results of Laboratory Analyses for Moisture Content

Sample Interval	Moisture Content (%)	Dry Density (psf)
35-35 ½	5.8	97.7
40-40 ½	17.1	107.8
45-45 ½	19	89.8
50-50 ½	1.7	110.5
55-55 ½	Not enough sample	Not enough sample
60-60 ½	1.9	101.3
65-65 ½	26.2	101.8
70-70 ½	30.6	95.6

3.3 Casing Installation

Casing was placed in each boring promptly after drilling was completed. The casing used was new flush-threaded, 6-inch x .028 wall A36 carbon steel. The casing was a tight fit in the boring and was installed by pushing slowly with the hydraulic rams on the drill rig. The casing was tightly screwed together to ensure alignment. Total casing depth is recorded on the boring log.

After the casing was installed it was cut off below ground surface. The casing was enclosed at the surface in a traffic rated vault set at the anticipated elevation of final grade of Cell 3 at the location of the access tube. An approximately three-foot square concrete pad, graded to drain outward was constructed around the vault. The casing was capped with a 6" PVC cap and covered enclosed with the vault top.

4.0 SUMMARY

Results of this work are summarized as follows:

- Two new replacement and three new groundwater monitoring wells (W09A, W10A, W307, W308 and W309) and a new neutron-access probe tube Z7 were constructed as recommended for Monofill Cell 3.
- Soils encountered in this drilling were consistent with observations of previous site explorations.
- The new groundwater monitoring wells were developed and new dedicated bladder purge and sampling pumps were installed.
- Wells W09A, W10A, W307, W308 and W309 are considered suitable for groundwater monitoring.

- Selected samples from the neutron-probe boring were tested to determine water content and selected samples were archived at the Monofill facility.

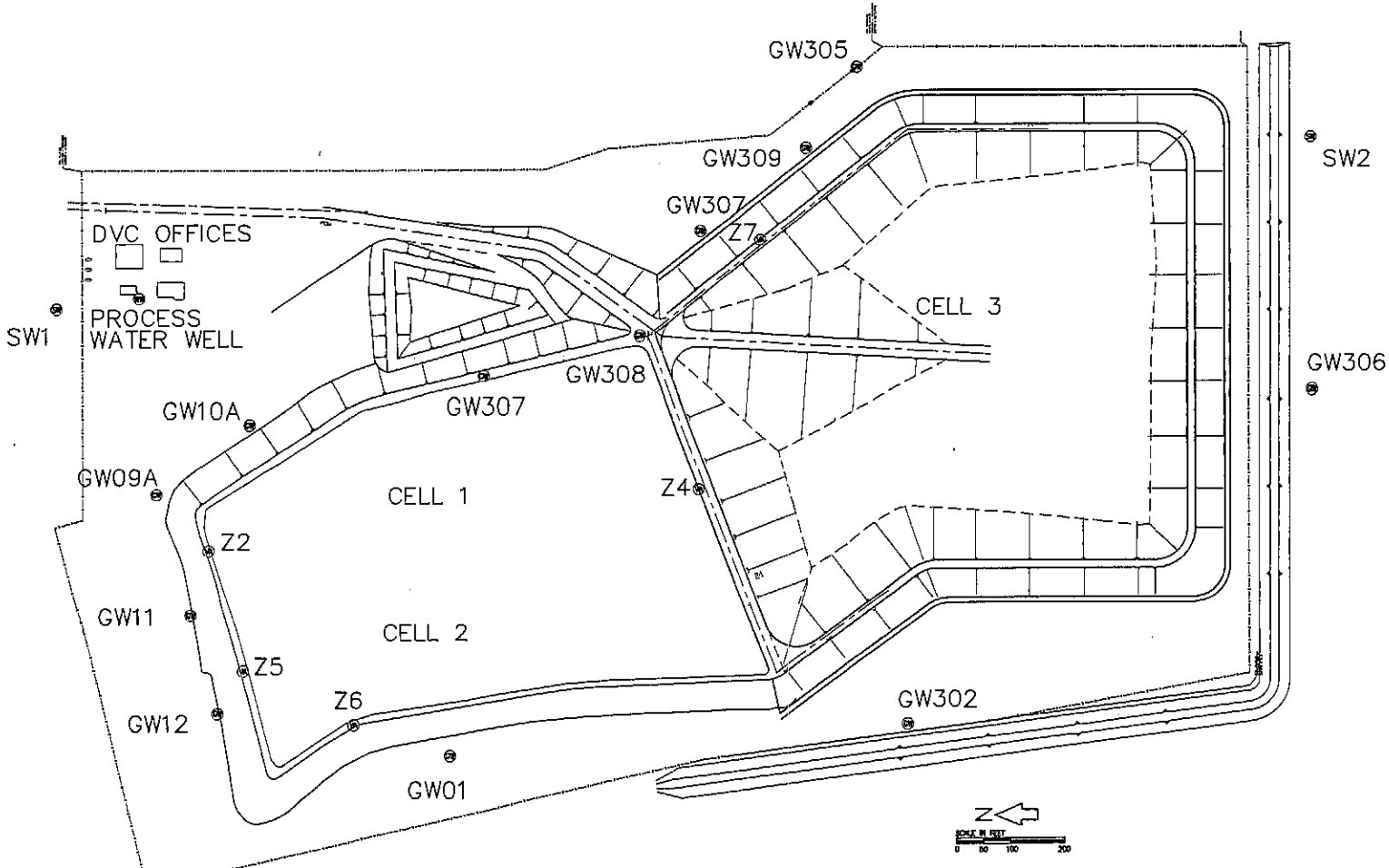
- Neutron-probe access tube Z7 is considered suitable for use in monitoring the unsaturated zone.

5.0 ATTACHMENTS

The following attachments complete this report:

Figure 1	Site Map
Figure 2	Monitoring Well Construction
Appendix A	Boring Logs
Appendix B	Water Content/Density of Soil Samples from Z7 – Lab Report
Appendix C	Well Completion Reports by Water Development Corporation of Montclair, California (C-57 License #283326)

Figures



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WARNING
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1 INCH

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CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA
FIELD 415. 394. 8855 FAX: 415. 394. 8856

DESIGNED BY HEV
CHECKED BY
DRAFTED BY JCH
APPROVED BY HEV
DATE 10/13/04
SCALE 1"=100'

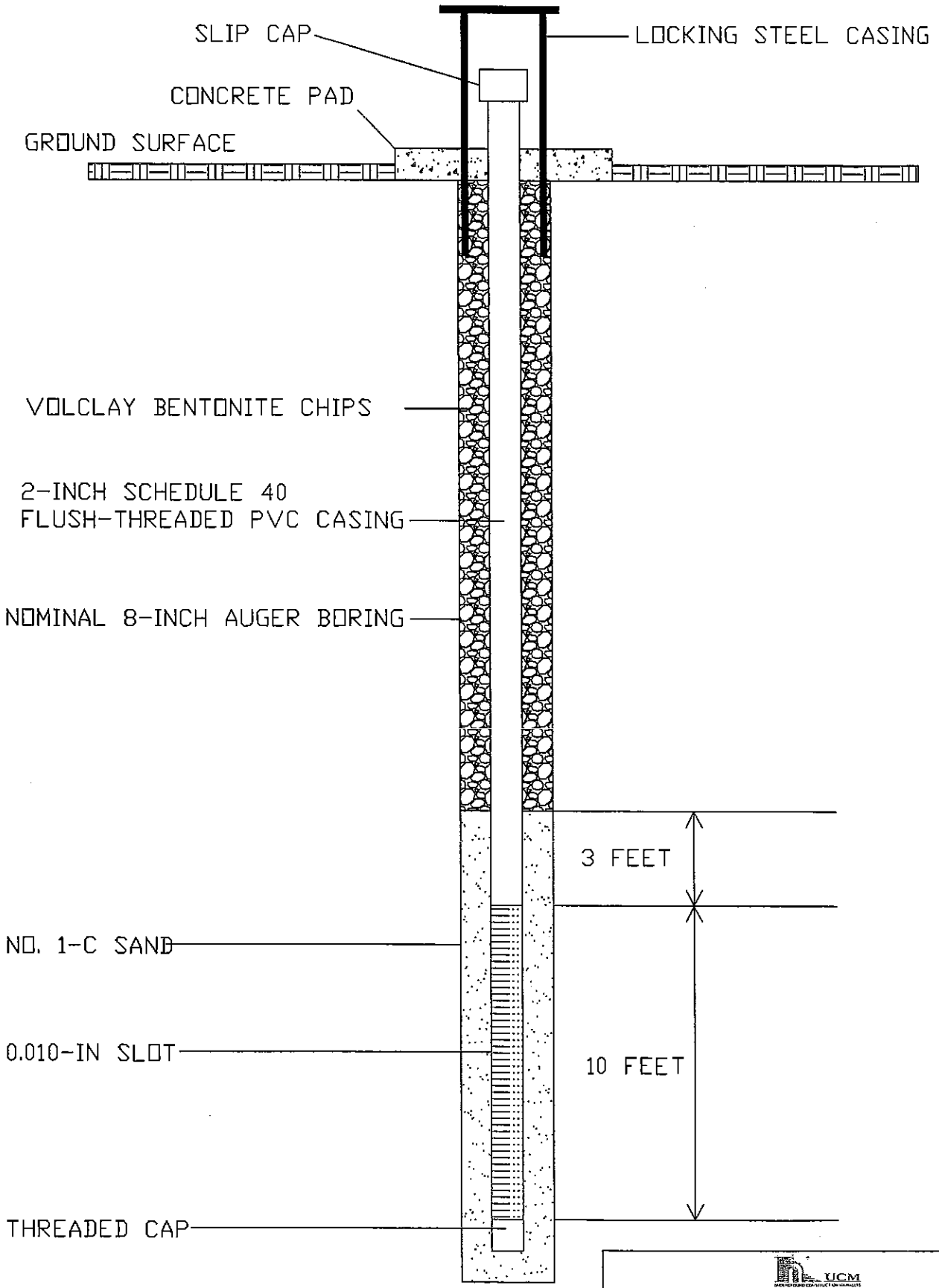
CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND
FENCE PLAN

CELL 3 GENERAL PLAN

PROJECT NO. 242-008
CONTRACT NO.
CADFILE NO. GENERAL PLAN.DWG
SHEET NO. R1
REV. NO. 0

S:\242\008\GENERAL PLAN.DWG 01/20/05



UCM

MONITORING WELL CONSTRUCTION

DESERT VALLEY COMPANY
MONOFILL CELL 3

NOT TO SCALE 6/21/05 JMD

Appendix A
Boring Logs

UNDERGROUND CONSTRUCTION MANAGERS, INC

665 Davis Street, San Francisco, CA 94111 Tel. (415) 951-0653 Fax. (415) 434-0734

NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	W09A	1 of 3

CONTRACTOR/EQUIPMENT:	STARTED:
WDC/CME 85	3/29/05
OPERATORS: PAUL ALMANZA	COMPLETED: 3/30/05
LOCATION: N: 9191.7 E: 9130.0	ELEVATION:

CASING: 2" SCHEDULE 40 PVC BLANK
SEAL: BENTONITE GROUT

BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
12 20 21		5		CH	BROWN CLAY (7.5 YR 5/4) WITH SILT, DRY, DRY STIFF WITH GYPSUM CRYSTALS
18 25 33		10			
30 32 50		15		CL	PINKISH GRAY CLAY (7.5 YR 6/2), DRY, HARD
39 79		20			LIGHT BROWN (7.5 YR 6/4), DRY, DENSE
17 25 27		25			WITH VERY FINE GRAINED SAND
10 20		30		ML	BROWN CLAYEY SILT (7.5 YR 5/4), DRY, DENSE

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W09A

PAGE: 2 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/29/05

OPERATORS: PAUL ALMANZA

COMPLETED: 3/30/05

LOCATION: N: 9191.7 E: 9130.0

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	26					
		12					
		18		35		CH	BROWN CLAY (7.5 YR 4/6), VERY STIFF, DAMP
		24					
		15					
		18		40			
		24					
		26				SP	YELLOW BROWN SAND (10 YR 5/4), DENSE, FINE GRAINED, DRY
		32		45			
		39					
		14				CH	BROWN CLAY (10 YR 3/4) HARD WITH SAND
		27		50			
		33					
		17					
		20		55			
		29					
		16					
		18		60			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	W09A	3 of 3

CONTRACTOR/EQUIPMENT:	STARTED:
WDC/CME 85	3/29/05
OPERATORS:	**COMPLETED:**
PAUL ALMANZA	3/30/05
LOCATION: N: 9191.7 E: 9130.0	**ELEVATION:**

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC BLANK		30					
		18					
		27		65			
		36					
		9				CL	DARK BROWN CLAY (10 YR 3/3), VERY STIFF, MOIST
		17		70			
		20					
2" SCHEDULE 40 PVC 0.010" SLOTS	MONTEREY 1C SAND	12				ML	DARK BROWN SILT (10 YR 3/3), VERY DENSE, MOIST
		17		75			
		26					
		12				CH	DARK BROWN CLAY (10 YR 3/3), VERY STIFF, MOIST
		16		80			
		26					
							TOTAL DEPTH = 80 1/2 FEET
				85			
				90			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W10A

PAGE: 1 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/30/05

OPERATORS: PAUL ALMANZA

COMPLETED: 3/31/05

LOCATION: N: 9019.6 E: 9262.5

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
						CH	SANDY CLAY (10 YR 7/3)
						ML	PALE BROWN SILT (10 YR 6/3) WITH CLAY, VERY DENSE, DRY
		26					
		43		5			
		78					
		16					
		30		10			
		40					
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	21					LAYERED SILT AND CLAY (10 YR 7/3, 4, 6, 8)
		56		15			
		56					
		20					
		27		20			
		38					
		11					
		29		25			
		44					
		17				CH	BROWN CLAY (10 YR 4/3), HARD, DAMP
		26		30			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	W10A	2 of 3
CONTRACTOR/EQUIPMENT: WDC/CME 85		STARTED: 3/30/05
OPERATORS: PAUL ALMANZA		COMPLETED: 3/31/05
LOCATION: N: 9019.6 E: 9262.5	ELEVATION:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	36				CH	
		12					SANDY
		17		35			
		23					
		20					
		36		40			
		48					
		23					YELLOW BROWN (10 YR 4/4)
		38		45			
		39					
		21					BROWN (10 YR 4/3)
		28		50			
		32					
						ML	BROWN SILT (10 YR 4/3), MOIST, DENSE
		21					
		24		55			
		32					
	MONTEREY 1C SAND	19					
		23		60			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W10A

PAGE: 3 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/30/05

OPERATORS: PAUL ALMANZA

COMPLETED: 3/31/05

LOCATION: N: 9019.6 E: 9262.5

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC 0.010" SLOTS	MONTEREY 1C SAND	25					
		12		65		CH	DARK GRAY BROWN CLAY (10 YR 4/2), HARD, MOIST
		23					
		36					
		15		70			DARK BROWN (10 YR 3/3)
		25					
		30					
							TOTAL DEPTH = 71 FEET
				75			
				80			
				85			
				90			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W307

PAGE: 1 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/31/05

OPERATORS: PAUL ALMANZA

COMPLETED: 4/1/05

LOCATION: N: 8585.3 E: 9349.9

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
						CH	PALE BROWN CLAY (10 YR 7/3), FIRM WITH SAND AND SILT
		17 20 22		5		ML	PALE BROWN SILT (10 YR 6/3) WITH CLAY, VERY DENSE, DRY
		11 19 24		10		CH	PALE BROWN CLAY (10 YR 6/3), DRY, VERY STIFF
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	14 18 27		15		SM	PALE BROWN SILT (10 YR 6/3), VERY FIRM, DRY WITH FINE GRAINED SAND
		16 25 26		20			
		18 24 28		25			
		13 10		30		CH	DARK YELLOW BROWN CLAY (10 YR 4/4), HARD, TRACE MOISTURE

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W307

PAGE: 2 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/31/05

OPERATORS: PAUL ALMANZA

COMPLETED: 4/1/05

LOCATION: N: 8585.3 E: 9349.9

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		37					
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	14 19 37		35		SP	PALE BROWN SAND (10 YR 6/3), DRY, DENSE, FINE GRAINED
		17 18 33		40			
		11 20		45		CH	RED BROWN CLAY (5 YR 4/3), DAMP, HARD
		30					
		18 23		50			
	MONTEREY 1C SAND	42				SP	LIGHT YELLOW BROWN SAND (10 YR 6/4), DENSE, MOIST, FINE-MEDIUM GRAINED
		19 23		55			
.0 PV. CHED 0.010" SLOTS		40					
		22 25 38		60			YELLOW BROWN (10 YR 5/4), WET

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	W307	3 of 3

CONTRACTOR/EQUIPMENT:	STARTED:
WDC/CME 85	3/31/05

OPERATORS:	COMPLETED:
PAUL ALMANZA	4/1/05

LOCATION:	ELEVATION:
N: 8585.3 E: 9349.9	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		37	■				
		23		65		CH	DARK BROWN CLAY (10 YR 3/3), DAMP, HARD
		29					
		40	■				TOTAL DEPTH = 65 1/2 FEET
				70			
				75			
				80			
				85			
				90			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W308

PAGE: 1 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 4/4/05

OPERATORS: TED LITTLE

COMPLETED: 4/5/05

LOCATION: N: 8294.9 E: 9425.5

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
						CL	BROWN SANDY CLAY (7.5 YR 5/4), DRY, HARD FILL
		21 36 37		5			
		12 24 28		10			PALE BROWN (10 YR 6/3)
		16 27		15			YELLOW BROWN (10 YR 5/4)
		21 30 33		20			
		28 50		25			BROWN
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	50		30		ML	PALE BROWN SILT (10 YR 7/3), DRY, HARD WITH CLAY

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W308

PAGE: 2 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 4/4/05

OPERATORS: TED LITTLE

COMPLETED: 4/5/05

LOCATION: N: 8294.9 E: 9425.5

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	28 50 for 4"		35			
		40 50 for 5"		40		SP	PALE BROWN SAND (10 YR 6/3), DRY, VERY DENSE FINE GRAINED
		50		45			YELLOW BROWN (10 YR 6/4)
		29 50		50		CH	BROWN CLAY (10 YR 5/3), DAMP, HARD
		50		55		SW	YELLOW BROWN SAND (10 YR 6/4), DENSE, DAMP, VERY FINE GRAINED WITH CLAY
		77		60			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W308

PAGE: 3 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 4/4/05

OPERATORS: TED LITTLE

COMPLETED: 4/5/05

LOCATION: N: 8294.9 E: 9425.5

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	50		65			
		35 50 for 3"		70		CH	BROWN CLAY (10 YR 5/3), DAMP, HARD WITH SAND
2" SCHEDULE 40 PVC 0.010" SLOTS	MONTEREY 1C SAND	61 for 64		75			YELLOW BROWN (10 YR 5/4), MOIST
		15 27		80		SP	YELLOW BROWN SAND (10 YR 5/4), VERY FIRM, MOIST, FINE-MEDIUM GRAINED
		22 50		85			WET
				90			TOTAL DEPTH = 85 1/2 FEET

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W309

PAGE: 1 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/31/05

OPERATORS: PAUL ALMANZA

COMPLETED: 4/1/05

LOCATION: N: 7986.7 E: 9780.6

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
						CH	PALE BROWN CLAY (10 YR 7/3), DRY WITH SAND
		13 16 17		5		CH	PALE BROWN CLAY (10 YR 6/3), VERY STIFF, DRY WITH SAND
		12 15 18		10			LAYERED WITH SILT
		14 17 25		15		CH	PALE BROWN SAND (10 YR 6/3), VERY STIFF, DRY, VERY FINE GRAINED
		16 21 24		20		SM	PALE BROWN SILT (10 YR 6/3), VERY STIFF, DRY WITH CLAY
		10 19 25		25		CH	YELLOW BROWN CLAY (10 YR 6/4), VERY STIFF, DAMP
2" SCHEDULE 40 PVC BLANK	BENTONITE GROUT	18 25		30		SP	PALE BROWN SAND (10 YR 6/3), DENSE, FINE-MEDIUM GRAINED

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: W309

PAGE: 2 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 3/31/05

OPERATORS: PAUL ALMANZA

COMPLETED: 4/1/05

LOCATION: N: 7986.7 E: 9780.6

ELEVATION:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		36					
		20					
		28		35			
		36					
		17					
		26		40		CH	PALE BROWN SILT (10 YR 6/3), DAMP, DENSE GRAINED
		31					
		20					
		22		45		SM	LIGHT GRAY SAND (10 YR 7/2), VERY FIRM, DAMP, FINE GRAINED
		28					
		13					
		23		50			
		40					
		16					
		30		55			YELLOW BROWN, WET, FINE-MEDIUM GRAINED
		30					
		20					
		23		60			WET, MEDIUM GRAINED

2" SCHEDULE 40 PVC BLANK

BENTONITE GROUT

MONTEREY IC SAND

2" SCHEDULE 40 PVC 0.010" SLOTS

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	W309	3 of 3

CONTRACTOR/EQUIPMENT:	STARTED:
WDC/CME 85	3/31/05
OPERATORS:	**COMPLETED:**
PAUL ALMANZA	4/1/05
LOCATION: N: 7986.7 E: 9780.6	**ELEVATION:**

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
SCHEDULE 40 PVC 0.010" SLOTS	MONTEREY IC SAND	26 21 26 27		65			WET, MEDIUM GRAINED
							TOTAL DEPTH = 65 1/2 FEET
				70			
				75			
				80			
				85			
				90			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT:	BORING NUMBER:	PAGE:
Cal-Energy Monofill Cell 3	Z-7	1 of 3

CONTRACTOR/EQUIPMENT:	STARTED:
WDC/CME 85	4/1/05
OPERATORS:	**COMPLETED:**
Ted Little	4/2/05
LOCATION: N: 8071.3 E: 9605.3	**ELEVATION:**

CASING	MOISTURE (PERCENT)	SAMPLES	DEPTH	COLUMN	USCS	
6" STEEL WITH FLUSH THREADED JOINTS					CL	SANDY CLAY FILL, DENSE, DAMP
			5			
			10			
			15			
			20			
			25			
		17 20	30			

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: Z-7

PAGE: 2 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 4/1/05

OPERATORS: Ted Little

COMPLETED: 4/2/05

LOCATION: N: 8071.3 E: 9605.3

ELEVATION:

CASING	MOISTURE (PERCENT)	SAMPLES	DEPTH	COLUMN	USCS	
6" STEEL WITH FLUSH THREADED JOINTS	7.2	23			ML	PALE BROWN SILT (10 YR 6/3), VERY FIRM, DRY
		13				
	5.8	21	35		ML / CH	INTERBEDDED 1/8" THICK SILT AND CLAY (10 YR 7/3 AND 3/3)
		30				
		19				
	17.1	32	40			
		40				
		22			CH	BROWN CLAY (10 YR 4/3), VERY STIFF, DAMP WITH SILT
	19	23	45			
		25				
		19				
	1.7	28	50		SP	PALE BROWN SAND (10 YR 6/3), DENSE, DAMP
		45				
		16				
	--	34	55			WITH VERY FINE GRAINED SAND
		35				
		16				
		34	60			WITH CLAY

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NOTES:
8" HSA
2" Split barrel sampler with 140# downhole hammer

PROJECT: Cal-Energy Monofill Cell 3

BORING NUMBER: Z-7

PAGE: 3 of 3

CONTRACTOR/EQUIPMENT: WDC/CME 85

STARTED: 4/1/05

OPERATORS: Ted Little

COMPLETED: 4/2/05

LOCATION: N: 8071.3 E: 9605.3

ELEVATION:

CASING	MOISTURE (PERCENT)	SAMPLES	DEPTH	COLUMN	USCS	
6" STEEL WITH FLUSH THREADED JOINTS	1.9	35				SANDY CLAY FILL, DENSE, DAMP
		15				
	26.2	16	65			DARK GRAY BROWN CLAY (10 YR 3/2), VERY STIFF, MOIST
		26				
		14				
	30.6	18	70			
		20				TOTAL DEPTH = 70 1/2 FEET
			75			
			80			
			85			
			90			

Appendix B
Water Content/Density of Samples from Z7

SOUTHLAND GEOTECHNICAL
EL CENTRO, BERMUDA DUNES, AND SAN DIEGO, CALIFORNIA

MOISTURE AND DENSITY LAB FORM

Date:	4-11-05	Page: ____ of ____	
Initals:		Project Name: Cal energy Cell 3	
Project Number:	LEO 4260	Veizades + Assoc	

Sample Number:	Z-7	Z-7	Z-7	Z-7	
Depth (ft):	35/35½	40/40½	45-45½	50-50½	
VOLUME OF SAMPLE					
Diameter (d) of Tube or Rings (inches):	1.89	188	1.86	1.88	
Radius (r)= d/2 (inches):	0.945	0.94	0.93	0.94	
Height of Sample (n) (inches):	5.825	5.875	5.50	5.625	
Volume (ft^2)= ($\pi r^2(h)$)/1728	.0095 ✓	.0094 ✓	.0086 ✓	.0090 ✓	
WET DENSITY					
Wet Weight of Sample + Tube or Rings (grams):	661.9	752.2	634.3	673.4	
Weight of Tube or Rings (grams):	216.4	214.1	217.6	214.3	
Wet Weight of Sample (grams):	445.5	538.1	416.7	459.1	
Convert to Pounds (lbs): Wet Weight of Sample/453.6	0.982 ✓	1.186	0.919	1.012	
Wet Densty (lbs/ft^3) WD= Weight of Sample/Volume:	103.4 ✓	126.2	106.9 ✓	112.4	
MOISTURE CONTENT					
Wet Weight of Sample to Dry (grams):	445.5	538.1	416.7	459.1	
Dry Weight (DW) of Sample (grams):	421.0	459.6	350.3	451.4	
Weight of Water (grams): WW= Weight - Dry Weight:	24.5	78.5	66.4	7.7	
Moisture Content (%) MC= WW/DW	5.8 ✓	17.1 ✓	19 ✓	1.7	
DRY DENSITY					
Dry Density (lbs/ft^3) DD=WD/1+MC (decimal):	97.7 ✓	107.8 ✓	89.8 ✓	110.5 ✓	
DW+Tare:	637.4 ✓	673.7 ✓	567.9 ✓	665.7 ✓	
	SM-ML	SM-ML	Silty Clay	Sandy Silt	

SOUTHLAND GEOTECHNICAL
EL CENTRO, BERMUDA DUNES AND SAN DIEGO, CALIFORNIA

MOISTURE AND DENSITY LAB FORM

Date:	4-11-05	Page:	of
Initals:		Project Name:	Call energy cell 3
Project Number:	LE04200		Veizades & Assoc

Sample Number:	2-7	2-7	2-7	2-7	2-7
Depth (ft):	70-70½	60-60½	30-30½	55-55½	65-65½
VOLUME OF SAMPLE					
Diameter (d) of Tube or Rings (inches):	1.89	1.89	1.89	1.89	1.89
Radius (r)= d/2 (inches):	0.95	0.95	0.95		0.95
Height of Sample (n) (inches):	6.00	5.00	6.00	6.00	6.00
Volume (ft^2)= ($\pi r^2(h)$)/1728	.0098 ✓	.0082 ✓	.0098 ✓		.0098 ✓
WET DENSITY					
Wet Weight of Sample + Tube or Rings (grams):	770.1	597.7	603.8	255.1	788.7
Weight of Tube or Rings (grams):	215.5	214.0	217.6	217.7	212.4
Wet Weight of Sample (grams):	554.6	383.7	386.2	37.4	571.3
Convert to Pounds (lbs): Wet Weight of Sample/453.6	1.223	0.846	0.851		1.259
Wet Densty (lbs/ft^3) WD= Weight of Sample/Volume:	124.8 ✓	103.2	86.8 ✓		128.5
MOISTURE CONTENT					
Wet Weight of Sample to Dry (grams):	554.6	383.7	386.2		571.3
Dry Weight (DW) of Sample (grams):	424.7	376.5	360.1	36.0	452.6
Weight of Water (grams): WW= Weight - Dry Weight:	129.9	7.2	26.1		118.7
Moisture Content (%) MC= WW/DW	30.6 ✓	1.9 ✓	7.2 ✓		26.2
DRY DENSITY					
Dry Density (lbs/ft^3) DD=WD/1+MC (decimal):	95.6	101.3 ✓	80.9 ✓		101.8 ✓
DW+Tare:	640.2 ✓	540.5 ✓	577.7 ✓		670.0 ✓
	(CL-CH)	(silty clay)	silty clay		(CL-CH)

Appendix C
Well Completion Reports

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. E004762

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W09A
Date Work Began 3/29/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042999 Permit Date 3/11/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 15	Brown fat clay
15 20	Gray clay
20 25	Brown clay
25 35	Brown clayey silt
35 50	Brown fine grained sand
50 70	Brown fat clay
70 75	Clay /Silt
75 80	Dark brown fat clay

TOTAL DEPTH OF BORING 80 (Feet)
TOTAL DEPTH OF COMPLETED WELL 80 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude DEG. MIN. SEC DEG. MIN. SEC

LOCATION SKETCH
NORTH / WEST / EAST / SOUTH
Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc and attach a map Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 70 (Ft) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 57 (Ft.) & DATE MEASURED 3/7/2005
ESTIMATED YIELD * <1/4 (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 70	8	✓				PVC	2	0.15	
70 80	8		✓			PVC	2	0.15	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 67		✓		
67 80			✓	Mont 1C

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 5566 Arrow Highway CITY Montclair STATE CA ZIP 91763
Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE
DATE SIGNED 06/15/05
C-57 LICENSE NUMBER 283326

DWR 188 REV. 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004763

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W10A
Date Work Began 3/30/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042953 Permit Date 2/24/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 – 15	Brown silt w/clay
15 – 20	Brown clay
20 – 30	Brown silt with clay
30 – 35	Brown fat clay
35 – 40	Brown clay
40 – 55	Brown fat clay
55 – 65	Brown silt with clay
65 – 70	Brown fat clay w/ silt

TOTAL DEPTH OF BORING 71 (Feet)
TOTAL DEPTH OF COMPLETED WELL 70 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude DEG. MIN. SEC. DEG. MIN SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 59 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 60 (Ft.) & DATE MEASURED 3/7/2005
ESTIMATED YIELD * <1/4 (GPM) & TEST TYPE Bailer
TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 – 60	8	✓				PVC	2	SCH40	
60 – 70	8		✓			PVC	2	SCH40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 – 57		✓		
57 – 70			✓	Mont. 1C

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004764

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W307
Date Work Began 3/31/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 10	Brown silt w/ clay
10 15	Brown fat clay
15 30	Brown silt with clay
30 35	Brown fat clay
35 45	Brown sand fine grained
45 55	Brown fat clay
55 64	Brownn sand fine grain
64 65	Brown fat clay

TOTAL DEPTH OF BORING 65 (Feet)
TOTAL DEPTH OF COMPLETED WELL 64 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude DEG. MIN. SEC. DEG MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 59 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 1 (Ft.) & DATE MEASURED
ESTIMATED YIELD <1 (GPM) & TEST TYPE Bailer
TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 51	8	✓				PVC	2	SCH40	
51 65	8		✓			PVC	2	SCH40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 51		✓		
51 65			✓	Mont.1C

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP

Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. E004765

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W308
Date Work Began 4/4/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042867 Permit Date 1/25/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA ___ FLUID NONE

DEPTH FROM SURFACE Ft	to Ft	DESCRIPTION *Describe material, grain, size, color, etc.*
0	30	Brown clay
30	40	Brown silt
40	45	Brown sugar sand
45	50	Brown silt
50	55	Brown fat clay
55	60	Brown sugar sand w/ clay
60	70	Brown sugar sand
70	80	Brown fat clay
80	85	Brown sand, fine med. grade

TOTAL DEPTH OF BORING 85 (Feet)
TOTAL DEPTH OF COMPLETED WELL 84 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH
NORTH / WEST / EAST / SOUTH
Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 75 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 75 (Ft.) & DATE MEASURED 4/7/2005
ESTIMATED YIELD * <1. (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft	to Ft	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	74	8	✓				PVC	2	SCH 40	
74	84	8		✓			PVC	2	SCH 40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft	to Ft	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	71		✓		
71	84			✓	Mont. 1C

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 5566 Arrow Highway CITY Montclair STATE CA ZIP 91763
Signed [signature] WELL DRILLER/AUTHORIZED REPRESENTATIVE
DATE SIGNED 06/15/05
C-57 LICENSE NUMBER 283326

DWR 188 REV 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004766

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W309
Date Work Began 3/31/2005, Ended 4/7/2005
Local Permit Agency Inperial County Planning Build
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Fl.	to Fl.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	15	Brown fat clay
15	20	Brown fine grained sand
20	25	Brown silt w/ clay
25	30	Brown fat clay
30	40	Brown sand fine grained
40	45	Brown silt clay
45	55	Gray sand fine grained
55	65	Brown sand, fine med. grain

TOTAL DEPTH OF BORING 65 (Feet)
TOTAL DEPTH OF COMPLETED WELL 65 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. MIN. SEC. ___ DEG MIN. SEC

LOCATION SKETCH

NORTH
WEST
EAST
SOUTH
Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 55 (Fl.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Fl.) & DATE MEASURED ___
ESTIMATED YIELD * 1 (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Fl.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Fl.	to Fl.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	55	8	✓				PVC	2	SCH40	
55	65	8		✓			PVC	2	SCH40	010

ANNULAR MATERIAL

DEPTH FROM SURFACE Fl.	to Fl.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	52		✓		
52	65			✓	Mont. 1C

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED
283326
C-57 LICENSE NUMBER

DWR 188 REV 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. E004767

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./ STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Owner's Well No. Z-7

Date Work Began 3/31/2005, Ended 4/7/2005

Local Permit Agency Imperial County

Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)

DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft	to Ft	DESCRIPTION *Describe material, grain, size, color, etc.*
0	30	Brofwn silty clay (fill)
30	35	Brown silt
35	45	Brown silt & clay
45	50	Brown fat clay
50	65	Brown sugar sand
65	70	Brown fat clay

TOTAL DEPTH OF BORING 71 ½ (Feet)

TOTAL DEPTH OF COMPLETED WELL 71 ½ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Gentry Road

Calipatria CA 92233

CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86

City Brawley CA

County Imperial

APN Book 019 Page 100 Parcel 04-01

Township 12 S Range 11 E Section 33

Latitude DEG MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary, PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)

WATER SUPPLY

— Domestic — Public

— Irrigation — Industrial

— MONITORING

— TEST WELL

— CATHODIC PROTECTION

— HEAT EXCHANGE

— DIRECT PUSH

— INJECTION

— VAPOR EXTRACTION

— SPARGING

— REMEDIATION

OTHER (SPECIFY) ✓ Vadose probe

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER — (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL — (Ft.) & DATE MEASURED

ESTIMATED YIELD * — (GPM) & TEST TYPE

TEST LENGTH — (Hrs.) TOTAL DRAWDOWN — (Ft.)

May not be representative of a well's long-term yield.

DEPTH FROM SURFACE Ft	to Ft	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	70½	8	✓				STEEL	6		

DEPTH FROM SURFACE Ft	to Ft	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

— Geologic Log

— Well Construction Diagram

— Geophysical Log(s)

— Soil/Water Chemical Analysis

✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

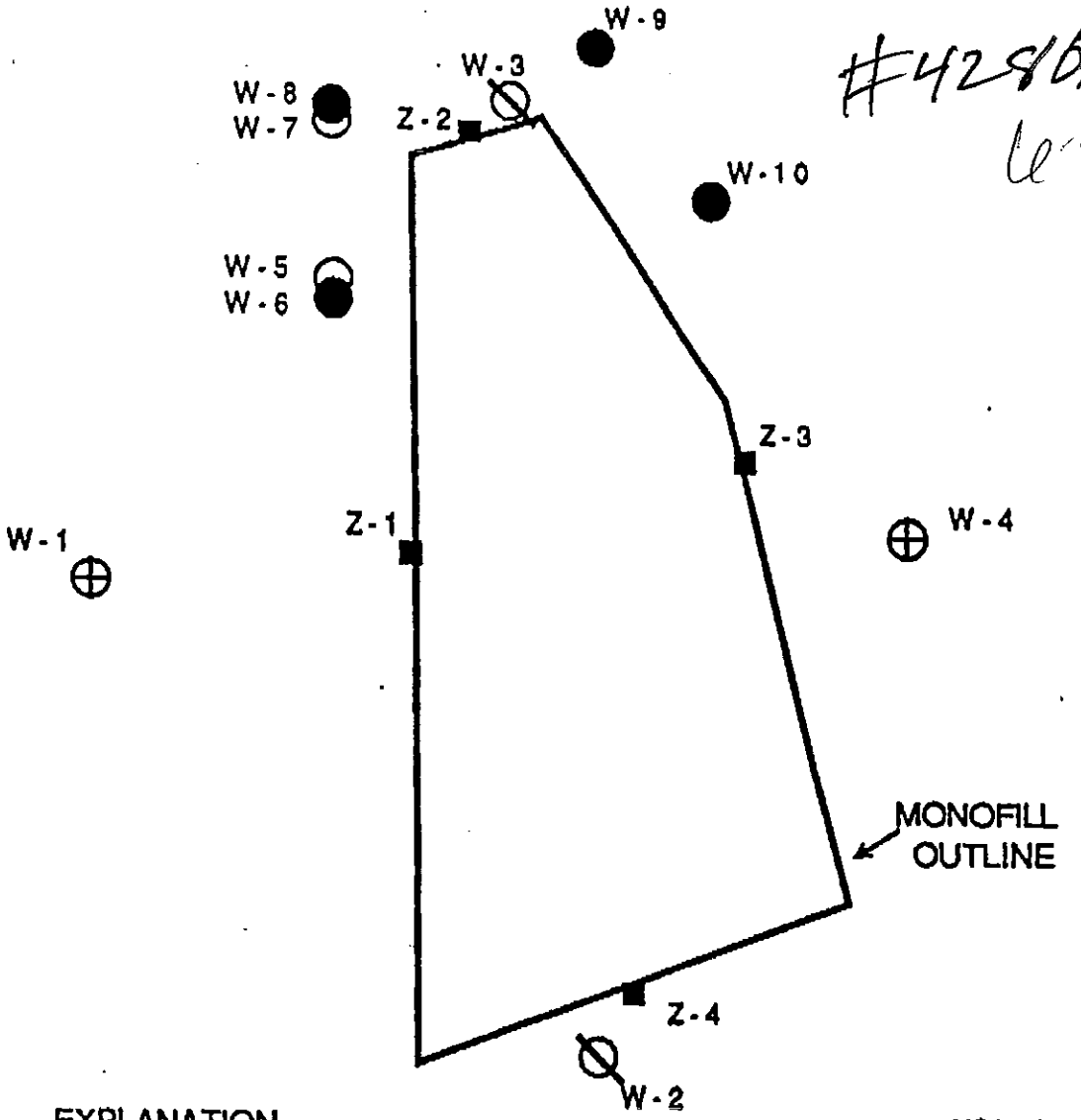
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP

Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

#42867
6-2005



EXPLANATION

W-10 NEW WELL

W-7 BORING DRILLED AND PLUGGED MAR. 91

W-4 PREEXISTING WELL

W-3 PREEXISTING WELL, PLUGGED OCT. 90

Z-4 NEUTRON TUBE

FIGURE 1

WELL LOCATIONS

ATTACHMENT A

SITE MAP

DESERT VALLEY COMPANY, OWNER/OPERATOR
DESERT VALLEY COMPANY, LANDOWNER
CLASS II SOLID WASTE MANAGEMENT FACILITY
Imperial County

#42867

UCM
UNDERGROUND CONSTRUCTION MANAGERS

415.951.0653
415.434.0734
FAX

June 20, 2005

Mr. Michael Kobler
c/o Mr. Doug Hackley
Desert Valley Company
7030 Gentry Road
Calipatria, CA 92223

Re: Report of Well Abandonment
Groundwater Monitoring Wells W303, W04, W09 and W10
Desert Valley Company Monofill
Imperial County, California

Dear Mr. Kobler:

Monitoring wells W303, W04, W09 and W10 were properly abandoned in January and April, 2005. The work was performed as described herein. Well locations are shown on the attached map. Well details are shown on the attached copies of the original boring logs. The abandonment schedule and procedures are described for each well below.

Monitoring Well W303

This well was drilled and constructed in 1999 for groundwater monitoring in the proposed Cell 3 area, as described in the September, 2002 report "Geologic Investigations, Proposed Cell 3 Area". The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was bentonite chips, hydrated in place with clean water.

Well W303 was abandoned on January 28, 2005. The work was done by Earl Williams Drilling of Indio, California. The monument and upper casing of the well had been damaged by construction, so an excavator was used to expose the lower, undamaged portion of the well. Then an 8-inch hollow-stem auger was used to drill over the casing

665 Davis Street
San Francisco
California
94111

to total depth. The void from the overdrilling was filled with Enviroplug medium bentonite chips, hydrated in place with clean water.

Monitoring Well W04

This well was drilled and constructed in 1999 for groundwater monitoring in the proposed Cell 3 area, as described in the September, 2002 report "Geologic Investigations, Proposed Cell 3 Area" by Balderman Consulting, Inc. The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was bentonite chips, hydrated in place with clean water.

Well W04 was abandoned on January 29, 2005. The work was done by UCM, Inc. of San Francisco, California (C-57 #794691) with equipment and labor from Granite Construction Company of Indio, California. The well casing was plugged by filling with Volclay crumbles, a chipped bentonite product suitable for sealing wells and borings that was mixed at the surface with clean water. The casing volume of the well was 10.6 gallons. About 25 gallons of fully hydrated bentonite was placed to plug the well. Hydrated bentonite was added to the well until the level remained stable near the top of casing indicating that the filter pack had been plugged. The casing was subsequently cut off approximately 5 feet below ground surface.

Monitoring Well W09

The well was drilled and constructed in on April 4, 1991 for groundwater monitoring in the Cells 1and 2 area, as described in the May 29, 1991 report "Installation Report, New Wells for Ground-Water Monitoring, Desert Valley Monofill Project" by Morris Balderman, Consulting Geologist. The well was drilled with 8-inch hollow-stem augers and constructed with 2-inch Schedule 40 PVC casing. The annular seal was cement grout from the surface to the top of the screened zone, which was sand packed.

The top of Well W09 was damaged by construction. We were unable to remove the pump and tubing installed in the well. As a result, we contracted with Anderson Drilling of Lakeside, California to overdrill the well with a Watson 2000 drilling rig driving an 18" auger, completely removing the casing, grout, tubing and pump. The resulting 65' deep void was backfilled with 8 yards of two-sack cement slurry mixed with 2% bentonite to the surface.

Monitoring Well W10

The well was drilled and constructed on April 5, 1991 for groundwater monitoring in the Cells 1 and 2 area, as described in the May 29, 1991 report "Installation Report, New Wells for Ground-Water Monitoring, Desert Valley Monofill Project" by Morris Balderman, Consulting Geologist. The well was drilled with 8-inch hollow-stem augers

and constructed with 2-inch Schedule 40 PVC casing. The annular seal was cement grout from the surface to the top of the screened zone, which was sand packed.

The top of Well W10 was damaged by construction. We were unable to remove the pump and tubing installed in the well. As a result, we contracted with Anderson Drilling of Lakeside, California to overdrill the well with a Watson 2000 drilling rig driving an 18" auger, completely removing the casing, grout, tubing and pump. The resulting 65' deep void was backfille with 8 yards of two-sack cement slurry mixed with 2% bentonite to the surface.

In summary, the four wells discussed were abandoned in accordance with the September 3, 2004 recommendations from Balderman Consulting, Inc. and the applicable DWR requirements.

We appreciate the opportunity to be of service. If you have any questions or concerns, please do not hesitate to call.

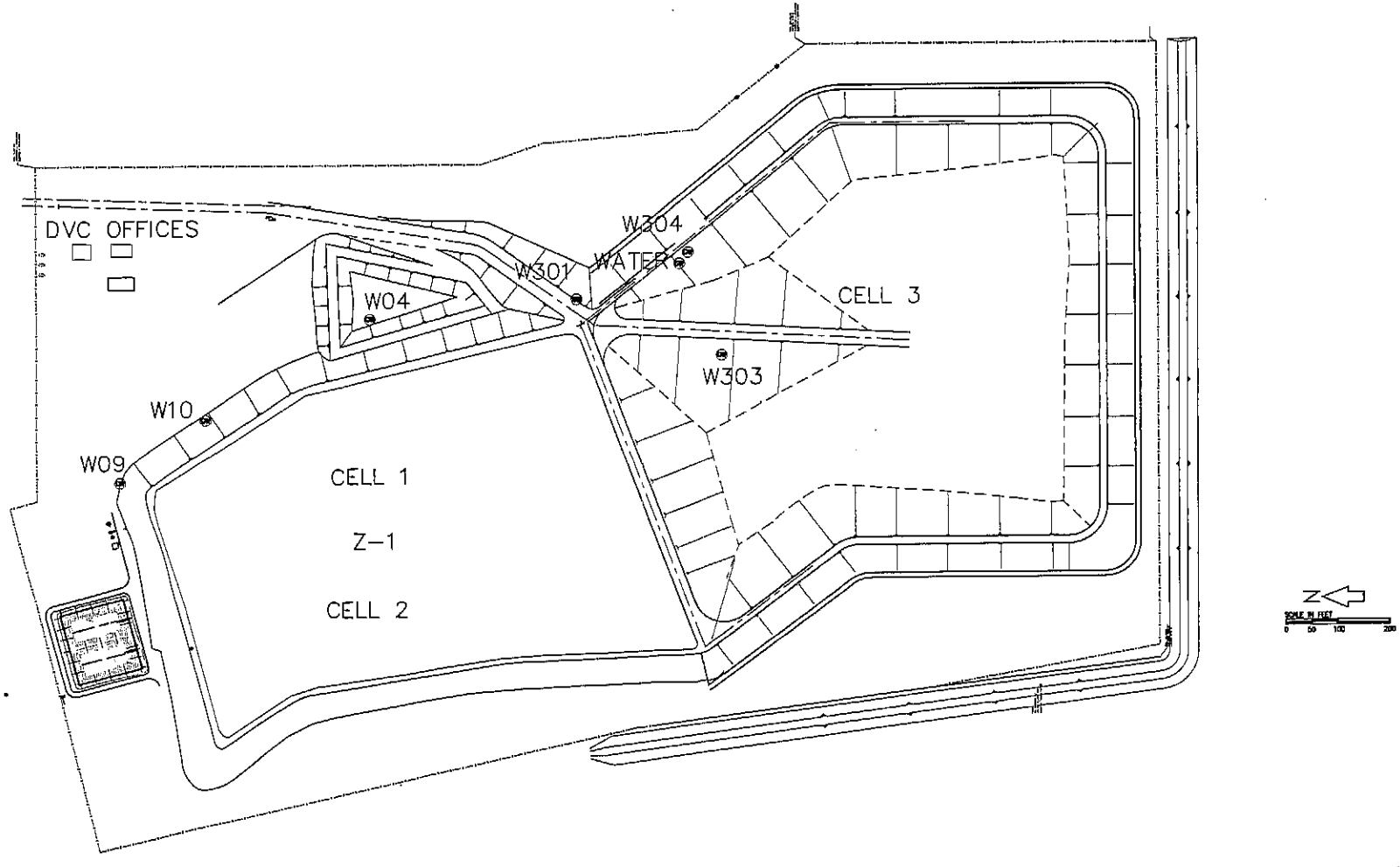
Best regards,

Dana J. Brock, P.E., C.E.G.
Principal

Attachments:

1. Well Locations
2. Boring Logs from Wells W303, W04, W09 and W10
3. DWR Well Completion Reports Nos. e026753 (for W303), e026763 (for W04), e026755 (for W09) and e026759 (for W10) prepared by UCM, Inc.

Attachment 1
Well Locations



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8855 FAX: 415. 394. 6856

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-005
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

J:\242\005\GENERAL PLAN.DWG 01/2005

Attachment 2
Boring Logs

BALDERMAN CONSULTING INC.

NOTES	PROJECT	BORING NUMBER	PAGE
8-inch hollow stem auger; 2-inch split barrel sampler on 280 lb. down-hole hammer	Monofill	W303	1 of 3
	CONTRACTOR: Water Development Corp.		STARTED: 12/9/99-1610
	OPERATORS/EQUIPMENT: J. Pottroff/CME 1050		COMPLETED: 12/10/99-0905
	LOCATION: North 8007.5/East 9362.6; Ground Elev. -107.6; TOC -105.28		

CASING	SEAL	RECOVERY (in.)	BLOW COUNT	SAMPLES	DEPTH	COLUMN	
2-inch Schedule 40 PVC	Bentonite Chips	16	10 13 16		5		Silt (ml) grayish orange (10 YR 7/4) minor fine sand, dry, dense
		18	12 16 17		10		silt contains thin interbeds of Silty Clay (cl) moderate brown (5 YR 4/4)
		18	9 15 17		15		Sandy Silt (ml) light brown (5 YR 6/4) 35% fine sand, dry, dense
		18	9 11 15		20		Clayey Silt (ml) grayish orange (10 YR 7/4) dry, stiff
		12	9 10		25		Silty Clay (cl) moderate brown (5 YR 4/4) dry, stiff

BALDERMAN CONSULTING INC.

NOTES	PROJECT	BORING NUMBER	PAGE
8-inch hollow stem auger; 2-inch split barrel sampler on 280 lb. down-hole hammer	Monofill	W303	2 of 3
	CONTRACTOR: Water Development Corp.		STARTED: 12/9/99-1610
	OPERATORS/EQUIPMENT: J. Pottroff/CME 1050		COMPLETED: 12/10/99-0905
	LOCATION: North 8007.5/East 9362.6 Ground Elev. -107.6; TOC -105.28		

CASING	SEAL	RECOVERY (in.)	BLOW COUNT	SAMPLES	DEPTH	COLUMN	
2-inch Schedule 40 PVC	Bentonite Chips		24				Silty Clay (cl) moderste brown (5 YR 4/4) dry, stiff, as above
		12	8				Silty Sand (sm) grayish orange (10 YR 7/4) 80% fine sand, trace fine mica, dry, dense
			12				
			22		30		
		16	7				
			12				
			23				
			30				
		12	7				
			19				
			35				
		17	18				
			24		35		
			28				
		21	6				
			15				
			25				
			33				
		18	4				Clay (ch) moderate brown (5 YR 4/4) damp, stiff
			5				
			7				interbed of fine Sandy Clay (cl)
			11				
		12	5				
			8		40		
		24	11				Silty Sand (sm) grayish orange (10 YR 7/4) 70% fine sand trace fine mica, dry, dense
			24				
			35				
			30				
		18	4				Sandy Clay (cl) moderate brown (5 YR 4/4) 30% fine sand, damp, stiff
			6				
			12				Silty Sand (sm) gray. orange (10 YR 7/4) dry, dense
		18	5				
			5		45		Clay (ch) moderate brown (5 YR 4/4) damp, stiff
			7				1/4-inch wide sand-filed vertical fracture @ 44.3 - 44.9 ft
		24	4				
			4				fine silt partings 46.7 - 47.3
			6				
			7				color change to dark yellowish brown (10 YR 4/2) below 47 ft
		18	4				
			5				
			7				
		18	4				
			4		50		

BALDERMAN CONSULTING INC.

NOTES	PROJECT	BORING NUMBER	PAGE
8-inch hollow stem auger; 2-inch split barrel sampler on 280 lb. down-hole hammer	Monofill	W303	3 of 3
	CONTRACTOR: Water Development Corp.	STARTED: 12/9/99-1610	
	OPERATORS/EQUIPMENT: J. Pottroff/CME 1050	COMPLETED: 12/10/99-0905	
	LOCATION: North 8007.5/East 9362.6; Ground Elev. -107.6; TOC -105.28		

CASING	SEAL	RECOVERY (in.)	BLOW COUNT	SAMPLES	DEPTH	COLUMN
2-inch Schedule 40 PVC	Bentonite Chips	24	6 4 4 5 7			
		18	4 4 6			
		18	3 3 5		55	
		24	3 3 5 6			
		15	3 12 40			
		18	8 11 12		60	
		24	7 36 38 40			
		18	10 22 38			
0.010 slot	No. 1-C sand	18	12 30 30		65	
		18	4 5 7		70	
					75	

Clay (ch) dark yellowish brown (10 yr 4/2) damp, stiff, as above

silt parting @ 52.2

silt partings 53.0 - 54.0
sand parting @ 54.0

becoming moist

sand partings @ 57.1 - 57.5
color change to olive gray (5 Y 3/2)

Sand (sw) light brown (5 YR 6/4) fine to coarse grained, minor silt, moist, dense

Clay (ch) moderate brown (5 YR 4/4) moist, stiff contains scattered fine - coarse sand and narrow fractures filled w/fine sand

Sand (sw) light brown (5 YR 6/4) fine to coarse grained, minor silt & fine mica, wet, dense

Silty Sand (sm) dark yellowish orange (10 YR 6/6) 75% fine sand, trace fine mica, wet, dense

Clay (ch) light brown (5 YR 6/4) wet, stiff contains thin vertical fractures filled with fine sand

Total depth 70.5 feet
Well constructed 12/10/99

Log prepared by:

Morris A. Balderman
Engineering Geologist EG 940

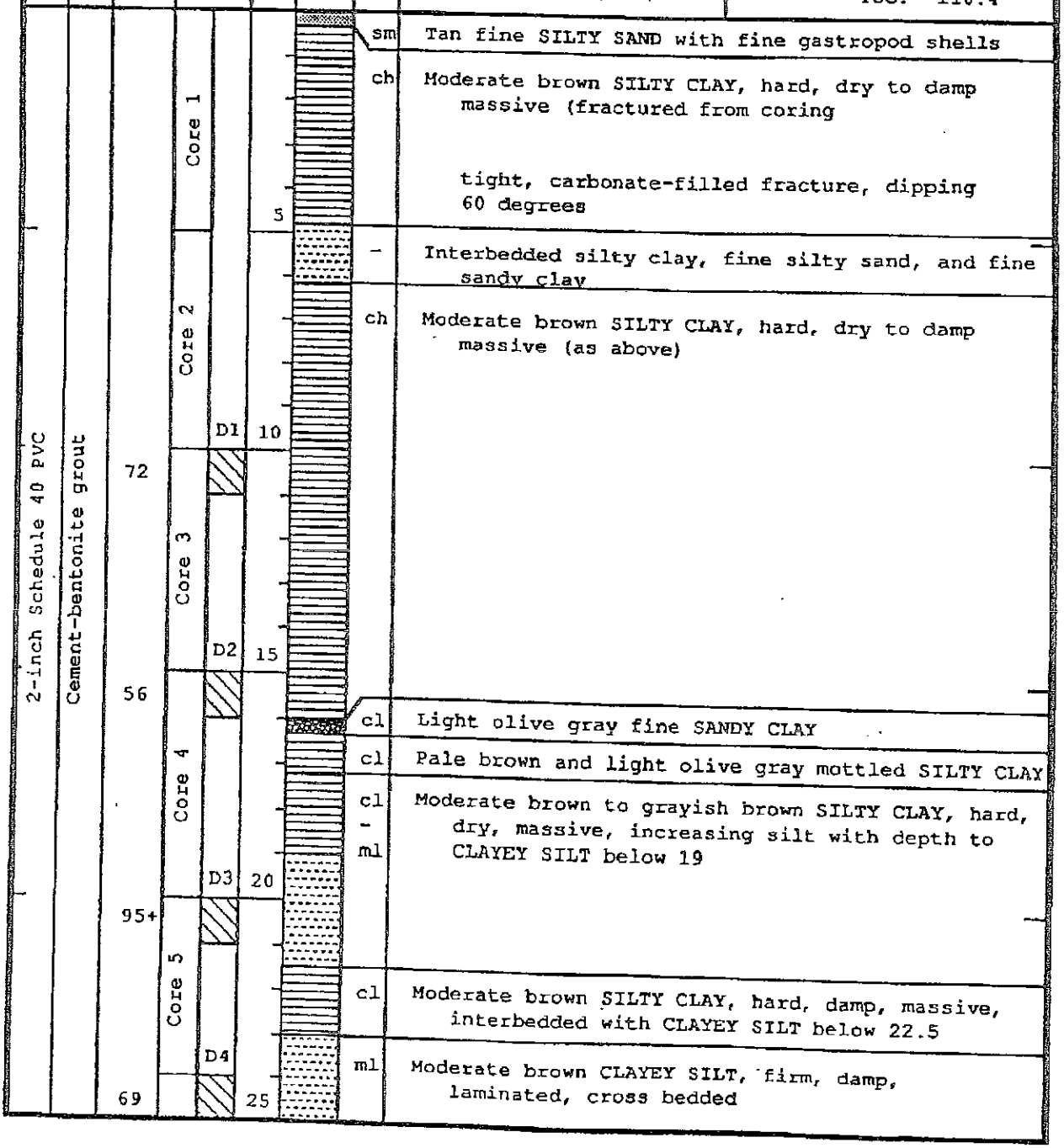
MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT April 20, 1989

NOTES

8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W-4	1 of 3
CONTRACTOR/EQUIPMENT		**STARTED**
Environmental West/Mobile B-80		3/27/89
OPERATORS		**COMPLETED**
C. Holbart & K. Borba		3/28/89
LOCATION N: 334,720 E: 2,130,790	**ELEVATION**	Ground: -119.5 TOC: -118.4



USCS	Description
sm	Tan fine SILTY SAND with fine gastropod shells
ch	Moderate brown SILTY CLAY, hard, dry to damp massive (fractured from coring tight, carbonate-filled fracture, dipping 60 degrees
–	Interbedded silty clay, fine silty sand, and fine sandy clay
ch	Moderate brown SILTY CLAY, hard, dry to damp massive (as above)
cl	Light olive gray fine SANDY CLAY
cl	Pale brown and light olive gray mottled SILTY CLAY
cl - ml	Moderate brown to grayish brown SILTY CLAY, hard, dry, massive, increasing silt with depth to CLAYEY SILT below 19
cl	Moderate brown SILTY CLAY, hard, damp, massive, interbedded with CLAYEY SILT below 22.5
ml	Moderate brown CLAYEY SILT, firm, damp, laminated, cross bedded

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT April 20, 1989

NOTES
8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W-4	2 of 3
CONTRACTOR/EQUIPMENT		**STARTED**
Environmental West/Mobile B-80		3/27/89
OPERATORS		**COMPLETED**
C. Holbart & K. Borba		3/28/89
LOCATION N: 334,720 E: 2,130,790	**ELEVATION**	Ground: -119.5 TOC: -118.4

CASING: 2-inch Schedule 40 PVC
SEAL: Cement-bentonite grout; Bentonite
BLOWS/FT
SAMPLES: Core 6; Core 7; Core 8; Core 9; Core 10; Core 11
DEPTH
COLUMN
USCS

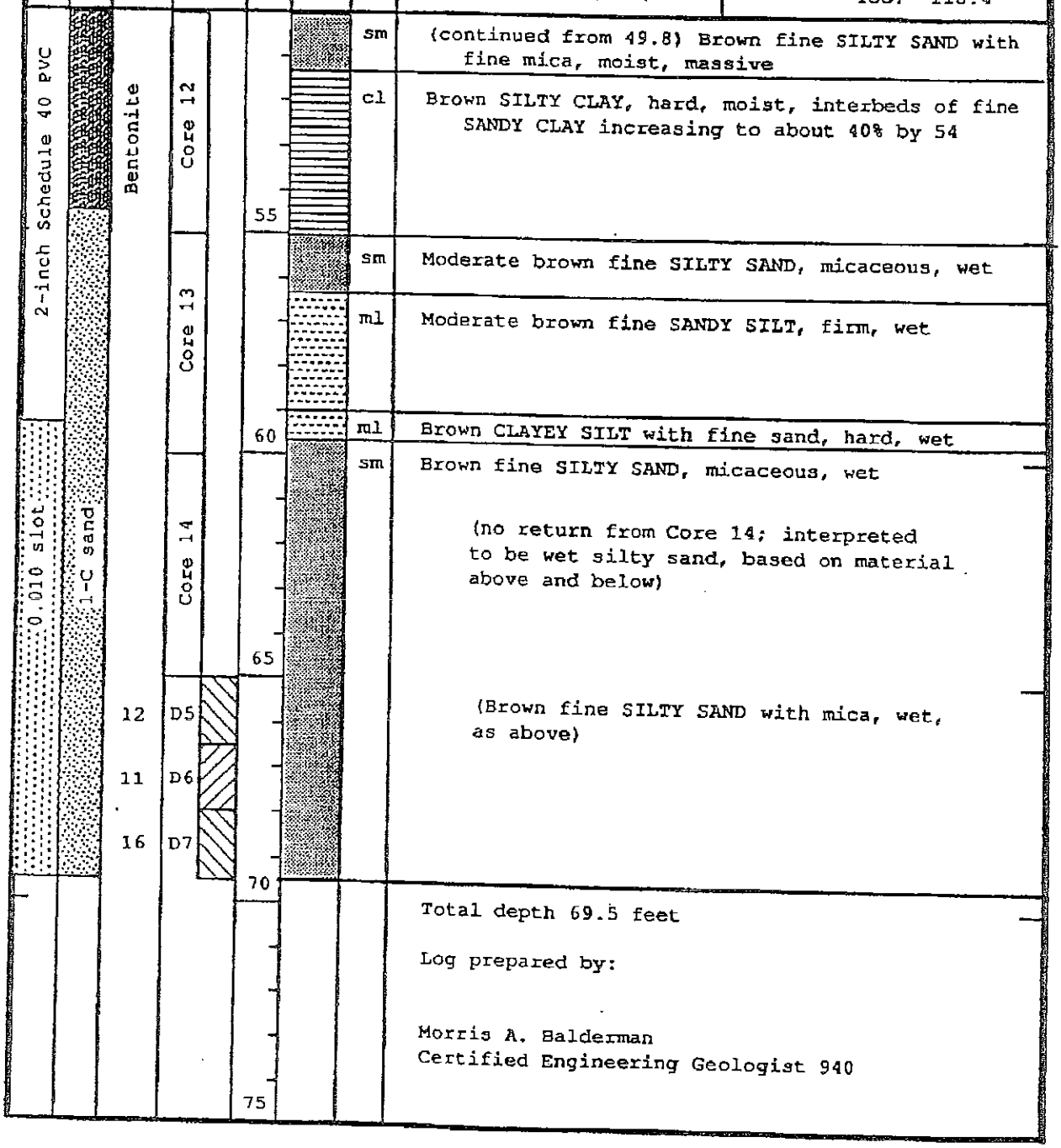
DEPTH	USCS	
	ml	Brown CLAYEY SILT mottled with SILTY CLAY, dry to damp, hard
	cl	Brown SILTY CLAY, hard, dry to damp, laminated
	ml	Pale brown SILT, hard, dry, massive
	ch	Moderate brown SILTY CLAY, hard, damp, few silt laminations
30		0.2' brown silt @ 28.9
	ml	Pale brown SILT, firm, dry, laminated
	cl	Moderate brown SILTY CLAY, hard, dry, interbedded with pale brown CLAYEY SILT
	ch	Moderate brown SILTY CLAY, hard, dry
35	ml	Pale brown CLAYEY SILT, firm, dry, laminated
	sm	Light brown fine SILTY SAND, firm, dry, laminated
	ch	Moderate brown SILTY CLAY, hard, damp, laminated
	ml	Pale brown SILT, firm, damp, laminated
	ch	Moderate brown SILTY CLAY, hard, damp
	ml	Pale brown very fine SANDY SILT, firm, dry
	cl	Moderate brown SILTY CLAY, hard, damp, laminated with pale brown silt
40	ml	Brown CLAYEY SILT, firm, damp, finely cross bedded
	ch	Moderate brown SILTY CLAY, hard, damp, locally contains fine sand and mica
		color change to grayish brown @ 43
45		0.3' brown CLAYEY SILT @ 43.9 0.2' yellowish brown fine SILTY SAND @ 44.8
		0.1' brown fine SILTY SAND @ 46.5 color change to light olive gray @ 46.6 color change to moderate brown @ 46.9
	ml	Brown fine SILTY SAND w/mica, moist
50	cl	Gray and brown SILTY CLAY and SANDY CLAY

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT April 20, 1989

NOTES
8"-OD hollow-stem auger with continuous dry core; drive samples 2"-ID driven with 140-lb downhole hammer

PROJECT	BORING NUMBER	PAGE
Monofill	W-4	3 of 3
CONTRACTOR/EQUIPMENT Environmental West/Mobile B-80		**STARTED** 3/27/89
OPERATORS C. Holbart & K. Borba		**COMPLETED** 3/28/89
LOCATION N: 334,720 E: 2,130,790	**ELEVATION** Ground: -119.5 TOC: -118.4	



USCS	
sm	(continued from 49.8) Brown fine SILTY SAND with fine mica, moist, massive
cl	Brown SILTY CLAY, hard, moist, interbeds of fine SANDY CLAY increasing to about 40% by 54
sm	Moderate brown fine SILTY SAND, micaceous, wet
ml	Moderate brown fine SANDY SILT, firm, wet
ml	Brown CLAYEY SILT with fine sand, hard, wet
sm	Brown fine SILTY SAND, micaceous, wet (no return from Core 14; interpreted to be wet silty sand, based on material above and below) (Brown fine SILTY SAND with mica, wet, as above)

Total depth 69.5 feet

Log prepared by:

Morris A. Balderman
Certified Engineering Geologist 940

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
Drilled w/8" O.D. augers
See accompanying
General Notes

PROJECT	BORING NUMBER	PAGE
Monofill	W-9	1 of 4
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/4/91-0810
OPERATORS		COMPLETED
A. Vega		4/4/91-1145
LOCATION N: (survey E: pending)	ELEVATION Ground: (survey TOC: pending)	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	35 71 100	D-1	5		ch	Red - brown silty clay, dry, hard
						sm	Brown fine silty sand, dry, dense
		15 20 21	D-2	10		ch	Light red brown silty clay, dry, hard, thin bedded to laminated
		18 30 46	D-3	15		ml	Light yellow brown silt, dry, firm, minor fine sand
		18 26 35	D-4	20			
				25			

NOTES
See Page 1

PROJECT: Monofill
BORING NUMBER: W-9
PAGE: 2 of 4
CONTRACTOR/EQUIPMENT: HF Drilling/Mobile B-61
STARTED: 4/4/91-0810
OPERATORS: A. Vega
COMPLETED: 4/4/91-1145
LOCATION: N: E:
ELEVATION: Ground: TOC:

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	15 25 34	D-5		ml	Silt, as above, light red brown in color
					ch	Red brown silty clay, dry, firm, thin bedded
				30		
		6 8 12	D-6			
				35		
		15 25 29	D-7		ml	Brown silt with minor clay, dry, firm, thin bedded to laminated
					ch	Dark red brown silty clay, dry, firm
				40		
		10 15 21	D-8		ml	Light red brown silt, dry, firm, thin bedded
				45		
		15 20 23	D-9			
				50		

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST DRAFT - May 7, 1991

NOTES
See Page 1

PROJECT: Monofill | BORING NUMBER: W-9 | PAGE: 3 of 4

CONTRACTOR/EQUIPMENT: HF Drilling/Mobile B-61 | STARTED: 4/4/91-0810

OPERATORS: A. Vega | COMPLETED: 4/4/91-1145

LOCATION N: E: | ELEVATION Ground: TOC:

CASING: 2-inch Schedule 40 PVC; 0.006 continuous slot
SEAL: Cement-bentonite grout; Bentonite
SAMPLES: #0/30 sand

BLOW COUNT	SAMPLES	DEPTH	USCS	
10 15 20	D-10		ml	Light red brown silt, as above
9 19 20	D-11		sp	Brown fine sand, dry
15 18 18	D-12		ml	Light, red brown silt, dry, firm
12 15 18	D-13	55	ch	Dark brown silty clay, dry, firm
12 18 22	D-14			
12 20 30	D-15			
12 14 28	D-16	60		
15 30 40	D-17		sp	Gray sand, dry, dense
15 20 20	D-18		cl	Blue gray silty clay with thin silt interbeds, dry to moist, firm
15 18 25	D-19			
18 20 20	D-20	65	ch	Brown silty clay, dry to moist, firm
20 30 30	D-21			
19 26 31	D-22			
18 20 25	D-23	70		
12 20 30	D-24		sm	Brown fine silty sand, wet, dense
20 30 35	D-25		ml	Brown clayey silt with fine sand, wet, firm
12/18	D-26	75	ch	Brown silty clay, moist, firm

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST DRAFT - May 7, 1991

NOTES	PROJECT	BORING NUMBER	PAGE
See Page 1	Monofill	W-9	4 of 4
	CONTRACTOR/EQUIPMENT		STARTED
	HF Drilling/Mobile B-61		4/4/91-0810
	OPERATORS		COMPLETED
	A. Vega		4/4/91-1145
	LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		26	D-26			ch	Brown silty clay, as above
		8					
		12	D-27				
		15				ml	Brown silt, moist, firm
		20	D-28				
		30				ch	Brown silty clay, moist, firm
		30					
		21	D-29				
		19					
		31		80			
0.006 continuous slot	#0/30 sand			85			Total depth 80 feet Well installed 4/4/91 Field log by Marc Egli Final log prepared and approved by: Morris A. Balderman Certified Engineering Geologist 940
				90			
				95			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST DRAFT - May 7, 1991

NOTES
Drilled w/8" O.D. augers
See accompanying General Notes

PROJECT	BORING NUMBER	PAGE
Monofill	W-10	1 of 3
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/5/91-0730
OPERATORS		COMPLETED
A. Vega		4/5/91-1000
LOCATION N: (survey) E: pending)	ELEVATION	Ground: (survey) TOC: pending)

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	11 20 25	D-1	5		ml	Light red brown silt with fine sand, dry, firm
		18 22 33	D-2	10		ch	Red brown silty clay, dry to damp, firm, thin bedded
		21 21 24	D-3	15			
		9 19 31	D-4	20			
				25			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES
See Page 1

PROJECT	BORING NUMBER	PAGE
Monofill	W-10	2 of 3
CONTRACTOR/EQUIPMENT		STARTED
HF Drilling/Mobile B-61		4/5/91-0730
OPERATORS		COMPLETED
A. Vega		4/5/91-1000
LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
2-inch Schedule 40 PVC	Cement-bentonite grout	15 25 29	D-5			ch	Brown silty clay, as above
				30			
		10 20 25	D-6				laminated with fine sand
				35			
		15 18 21	D-7				
				40			
		8 15 20	D-8				
				45			
		16 21 20	D-9			ml - cl	Brown clayey silt - silty clay, wet, firm
				50			

MORRIS A. BALDERMAN/CONSULTING GEOLOGIST

DRAFT - May 7, 1991

NOTES	PROJECT	BORING NUMBER	PAGE
See Page 1	Monofill	W-10	3 of 3
	CONTRACTOR/EQUIPMENT		STARTED
	HF Drilling/Mobile B-61		4/5/91-0730
	OPERATORS		COMPLETED
	A. Vega		4/5/91-1000
	LOCATION N: E:	ELEVATION Ground: TOC:	

CASING	SEAL	BLOW COUNT	SAMPLES	DEPTH	COLUMN	USCS	
		10 16 19	D-10			ml - cl	Red brown clayey silt - silty clay, as above
	Bentonite	12 21 21	D-11			ch	Red brown silty clay, moist, firm
		12 18 20	D-12	55		ml	Red brown clayey silt with minor fine sand wet, firm
0.006 continuous slot	#0/30 sand	10 16 22	D-13				
		18 20 26	D-14				
		18 22 26	D-15				thin interbeds of silty clay 59 to 63 ft
		8 14 22	D-16	60			
		8 16 22	D-17				
		18 25 25	D-18				
		14 21 23	D-19	65			
				70			Total depth 65.5 feet Well installed 4/5/91 Field log by Marc Egli Final log prepared and approved by: Morris A. Balderman Certified Engineering Geologist 940
				75			

Attachment 3
DWR Well Completion Reports

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Owner's Well No. W303 No. e026753

Date Work Began 1-28-05 Ended 1-28-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
		Overdrilled casing to total depth. Filled void with bentonite chips. Hydrated with clean water.

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Country Road

City Calipatria, State CA ZIP 92223

WELL LOCATION

Address 3301 W. Hwy 86

City Imp

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

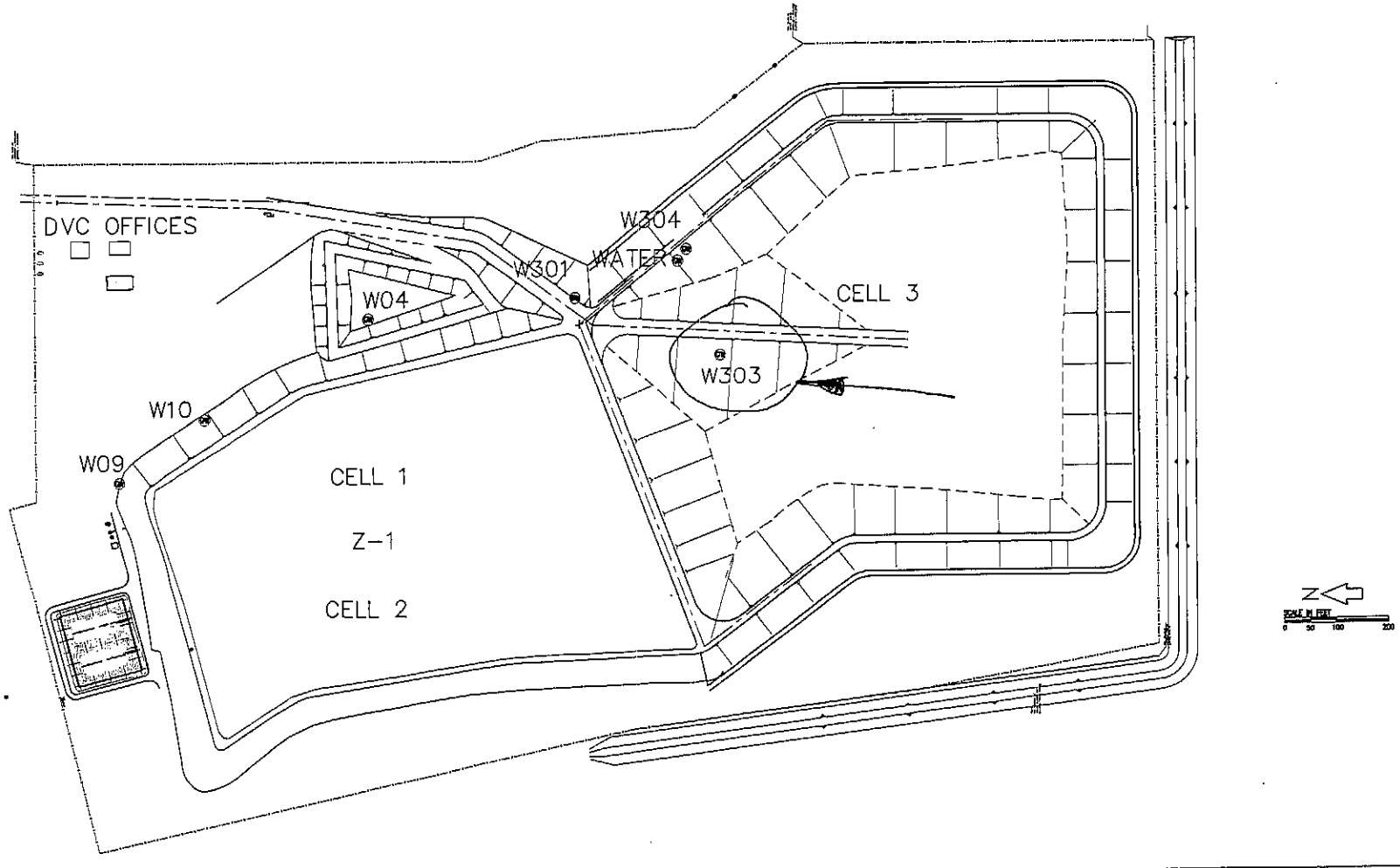
NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

665 Davis St. San Francisco CA 94111
ADDRESS CITY STATE ZIP

Signed [signature] 6-20-05 794691
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8855 FAX: 415. 394. 8865

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

J:\242\008\GEN\GENERAL PLAN.DWG 05/05/10 - 9:43:47AM

ORIGINAL
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Page 1 of 1

Owner's Well No. W04

Date Work Began 1-29-05, Ended 1-29-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

STATE OF CALIFORNIA
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e026763

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Country Road

City Calipatria State CA ZIP 92223

WELL LOCATION

Address 3301 W. Hwy 86

City Brawley, CA

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
X OTHER (SPECIFY) Abandon

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

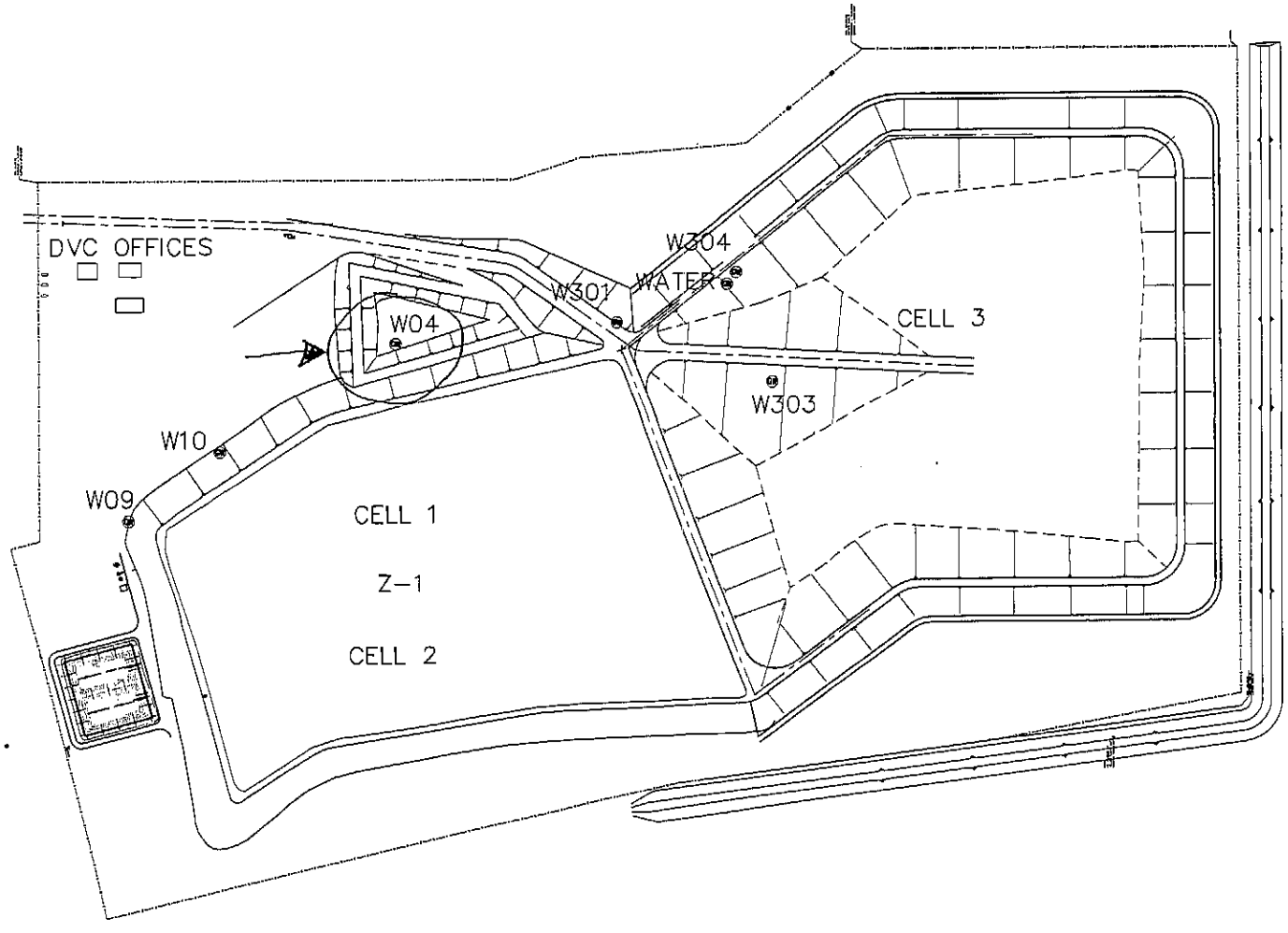
NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

665 Davis St. San Francisco CA 94111
ADDRESS CITY STATE ZIP

Signed ___ 6-20-05 794691
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8655 FAX: 415. 394. 8866

DESIGNED BY SSC
CHECKED BY STM
DRAFTED BY SSC
APPROVED BY HEV
DATE 04/05/05
SCALE 1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO. 242-008
CONTRACT NO.
CADFILE NO. GENERAL PLAN.DWG
SHEET NO. R2
REV. NO. 0

J:\242\008\GENERAL PLAN.DWG 01/2005

ORIGINAL
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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Owner's Well No. W09 No. e026755

Date Work Began 4-4-05, Ended 4-4-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
	Overdrilled entire well with 18" auger to total depth. Filled void with 8 yds 2-sack cement slurry to surface. (Cement slurry w/ 2% bentonite)

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Gentry Road

City Calipatria State CA Zip 92223

WELL LOCATION

Address 3301 W. Hwy 86

City Brawley, CA

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST — See attached map — EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

DEPTH FROM SURFACE Ft. to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

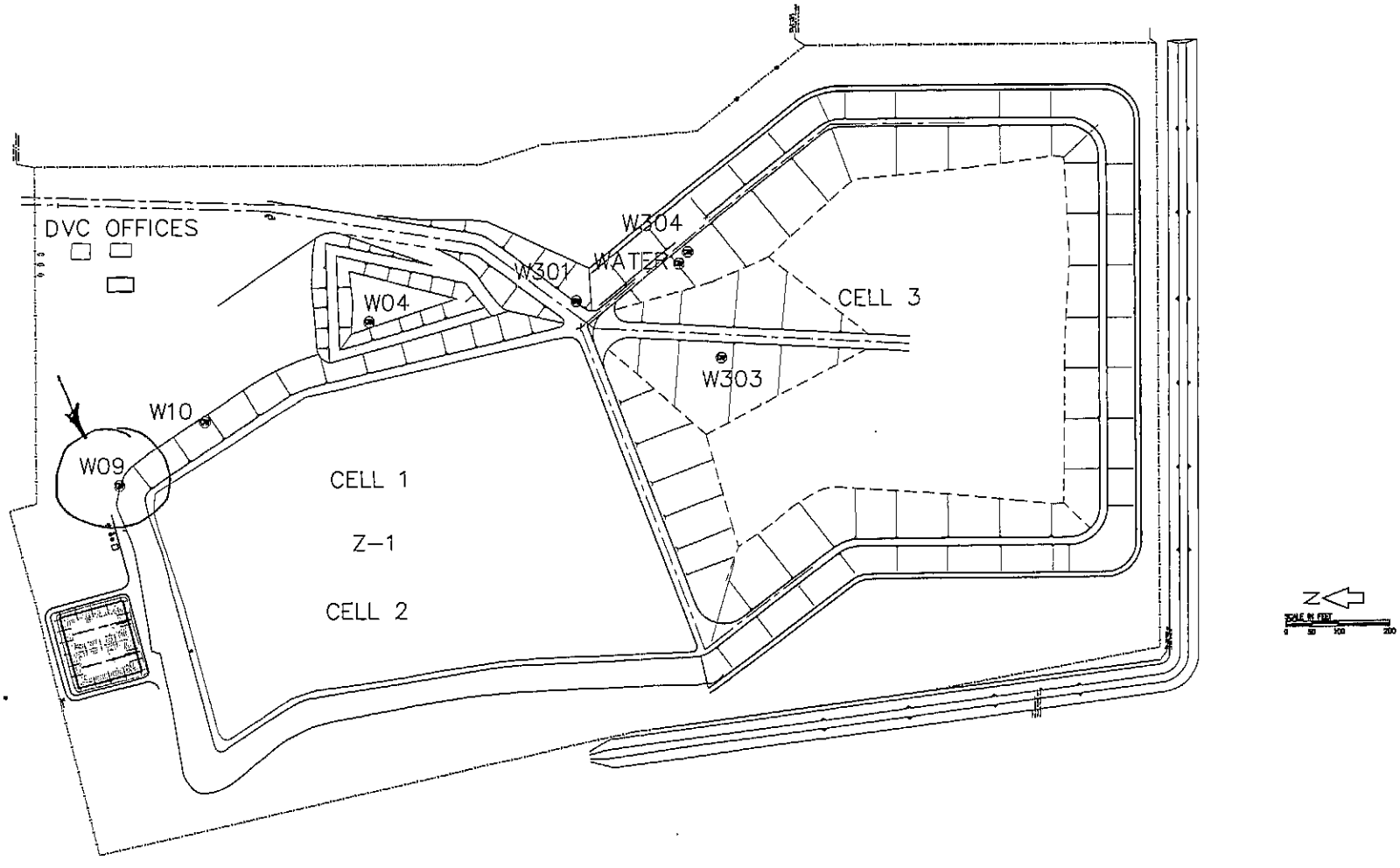
NAME Underground Construction Managers, Inc. (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 665 Davis St. CITY San Francisco STATE CA ZIP 94111

Signed ___ (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 6-20-05 C-57 LICENSE NUMBER 794691

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
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0 1
1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 6855 FAX: 415. 394. 6856

DESIGNED BY	SSC
CHECKED BY	STM
DRAFTED BY	SSC
APPROVED BY	HEV
DATE	04/05/05
SCALE	1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO.	242-008
CONTRACT NO.	
CADFILE NO.	GENERAL PLAN.DWG
SHEET NO.	R2
REV. NO.	0

K:\242\008\GENERAL PLAN.DWG 01/2005

ORIGINAL
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Page 1 of 1

Owner's Well No. W10

Date Work Began 4-5-05 Ended 4-5-05

Local Permit Agency Imperial County

Permit No. — Permit Date —

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e026759

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
	Overdrilled entire well with 18" auger to total depth. Filled void with 8 yds. 2-sack cement w/ 2% bentonite slurry to surface.

TOTAL DEPTH OF BORING ___ (Feet)

TOTAL DEPTH OF COMPLETED WELL ___ (Feet)

WELL OWNER

Name Desert Valley Company

Mailing Address 7030 Gentry Road

City Calipatria State CA ZIP 92233

WELL LOCATION

Address 3301 W. Hwy 86

City Brawley, CA

County Imperial

APN Book ___ Page ___ Parcel ___

Township 12S Range 11E Section 33

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH

Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST

See attached map

EAST

SOUTH

*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___

ESTIMATED YIELD * ___ (GPM) & TEST TYPE ___

TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Watar Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Underground Construction Managers, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 665 Davis St. CITY San Francisco STATE CA ZIP 94111

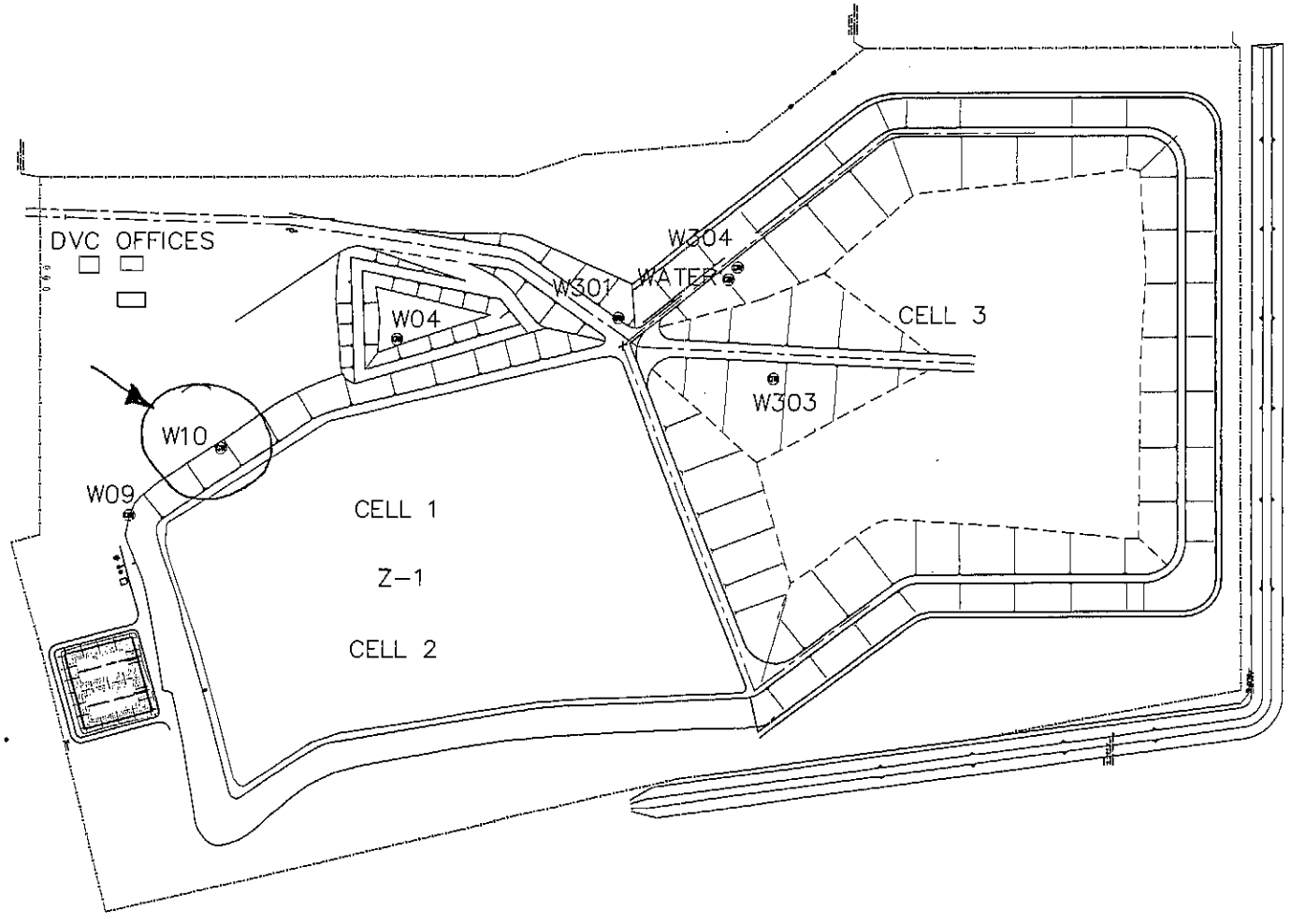
Signed ___ (WELL DRILLER/AUTHORIZED REPRESENTATIVE)

DATE SIGNED 6-20-05

C-57 LICENSE NUMBER 794691

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	04/05/05

WARNING
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0 1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA 94103
TEL: 415. 394. 8655 FAX: 415. 394. 8888

DESIGNED BY SSC
CHECKED BY STM
DRAFTED BY SSC
APPROVED BY HEV
DATE 04/05/05
SCALE 1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
MONOFILL FACILITY

ABANDONED WELLS

PROJECT NO. 242-006
CONTRACT NO.
CADFILE NO. GENERAL PLAN.DWG
SHEET NO. R2
REV. NO. 0

41242\006\GENERAL PLAN.DWG 01/2005

1-28-05

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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. E004761

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. NWSW
Date Work Began 3/7/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID BENTONITE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
	SEE ATTACHED

TOTAL DEPTH OF BORING 605 (Feet)
TOTAL DEPTH OF COMPLETED WELL 605 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ✓ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ✓ Water Well

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 70 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 44 (Ft.) & DATE MEASURED 3/30/2005
ESTIMATED YIELD 37 (GPM) & TEST TYPE Pumping
TEST LENGTH 6 (Hrs.) TOTAL DRAWDOWN 22 (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	40	17	✓				STEEL	12		
0	490	10	✓				PVC	4-8	0.375	
490	600	10		✓			PVC	4-8	0.375	.020
600	605	10	✓				PVC	4-8	0.375	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	40	✓			
1	330	✓			
330	340			✓	#60 Sand
340	605			✓	12/20 Sand

ATTACHMENTS (✓)

✓ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other LOCATION MAP

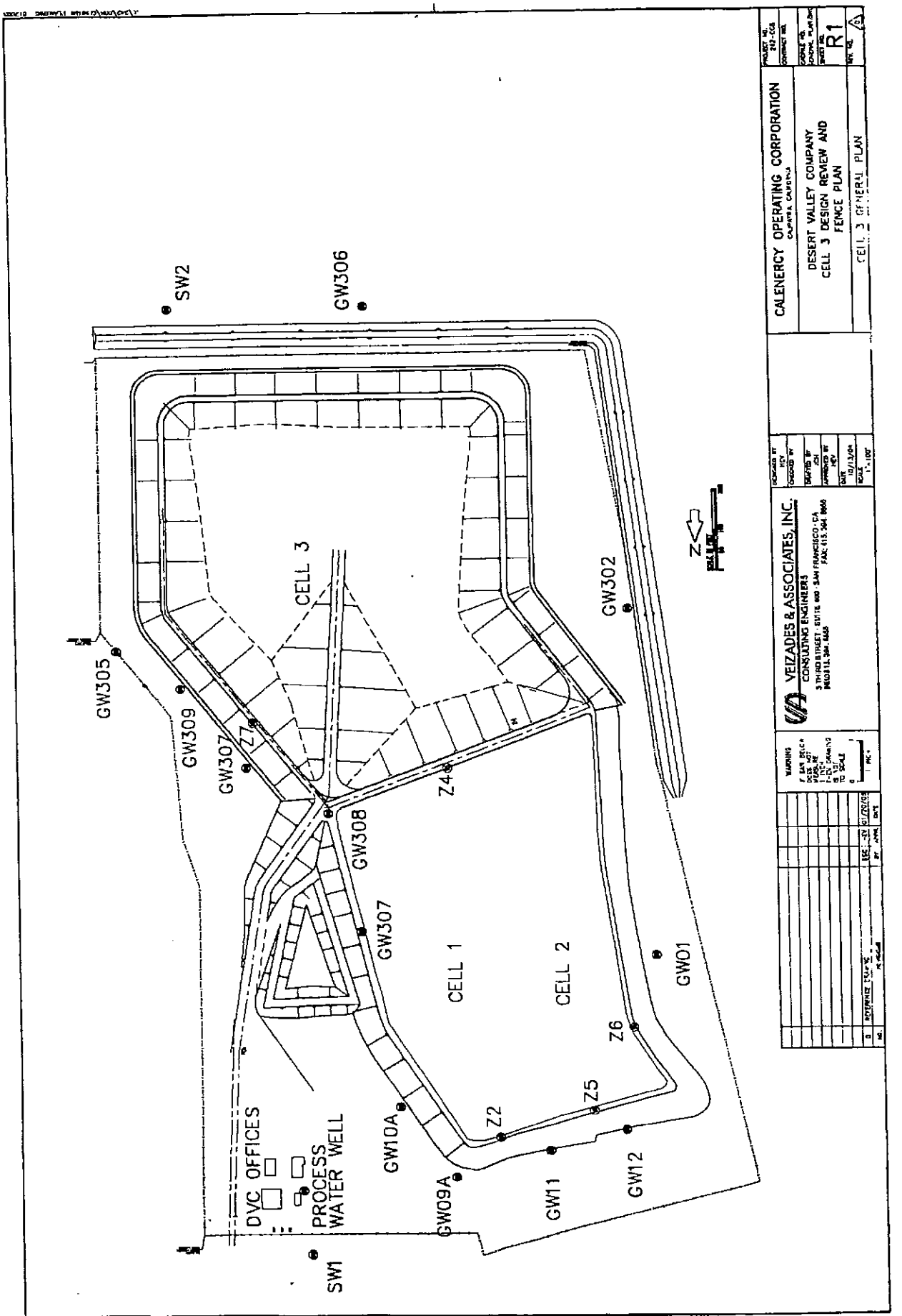
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed Jeffrey P. O'Connor WELL DRILLER/AUTHORIZED REPRESENTATIVE
06/15/05 DATE SIGNED
283326 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM


SW2
GW306
GW305
GW309
GW307
Z7
Z4
GW308
GW307
GW302
CELL 3
CELL 1
CELL 2
GW01
Z6
Z5
Z2
GW10A
GW09A
GW11
GW12
DVC OFFICES
PROCESS WATER WELL
SW1
Z
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
CELL 3 GENERAL PLAN
R1
VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

0	75	Brown fat clay
75	80	Brown sand
80	86	Brown sand fat clay
86	87	Sand lens
87	100	Brown fat clay
100	105	Organic Clay
105	143	Brown fat clay
143	180	Brown clay
180	190	Gray fat clay w/ sand
190	198	Clayey silt plastic
198	208	Sand
208	221	Brown fat clay
221	240	White & Black Sand (rounded)
240	250	Becomes clayey
250	258	Increasing sand
258	280	Brown sand w/ clay
280	290	Brown clay
290	303	Brown clay w/ med. Sand
303	340	Brown fat clay, heavy
340	352	Sand w/ clay
352	360	Light brown clay plastic
360	380	Brown sand
380	384	Brown fat clay
384	410	Brown silt hard
410	490	Brown fat clayey w/ sand
490	510	Sand
510	530	Brown fat clay, heavy
530	605	Sand, fine gravel

ORIGINAL
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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004762

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W09A
Date Work Began 3/29/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042999 Permit Date 3/11/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 15	Brown fat clay
15 20	Gray clay
20 25	Brown clay
25 35	Brown clayey silt
35 50	Brown fine grained sand
50 70	Brown fat clay
70 75	Clay /Silt
75 80	Dark brown fat clay

TOTAL DEPTH OF BORING 80 (Feet)
TOTAL DEPTH OF COMPLETED WELL 80 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 70 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 57 (Ft.) & DATE MEASURED 3/7/2005
ESTIMATED YIELD * <1/4 (GPM) & TEST TYPE Bailer
TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 70	8	✓				PVC	2	0.15	
70 80	8		✓			PVC	2	0.15	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 67		✓		
67 80			✓	Mont 1C

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

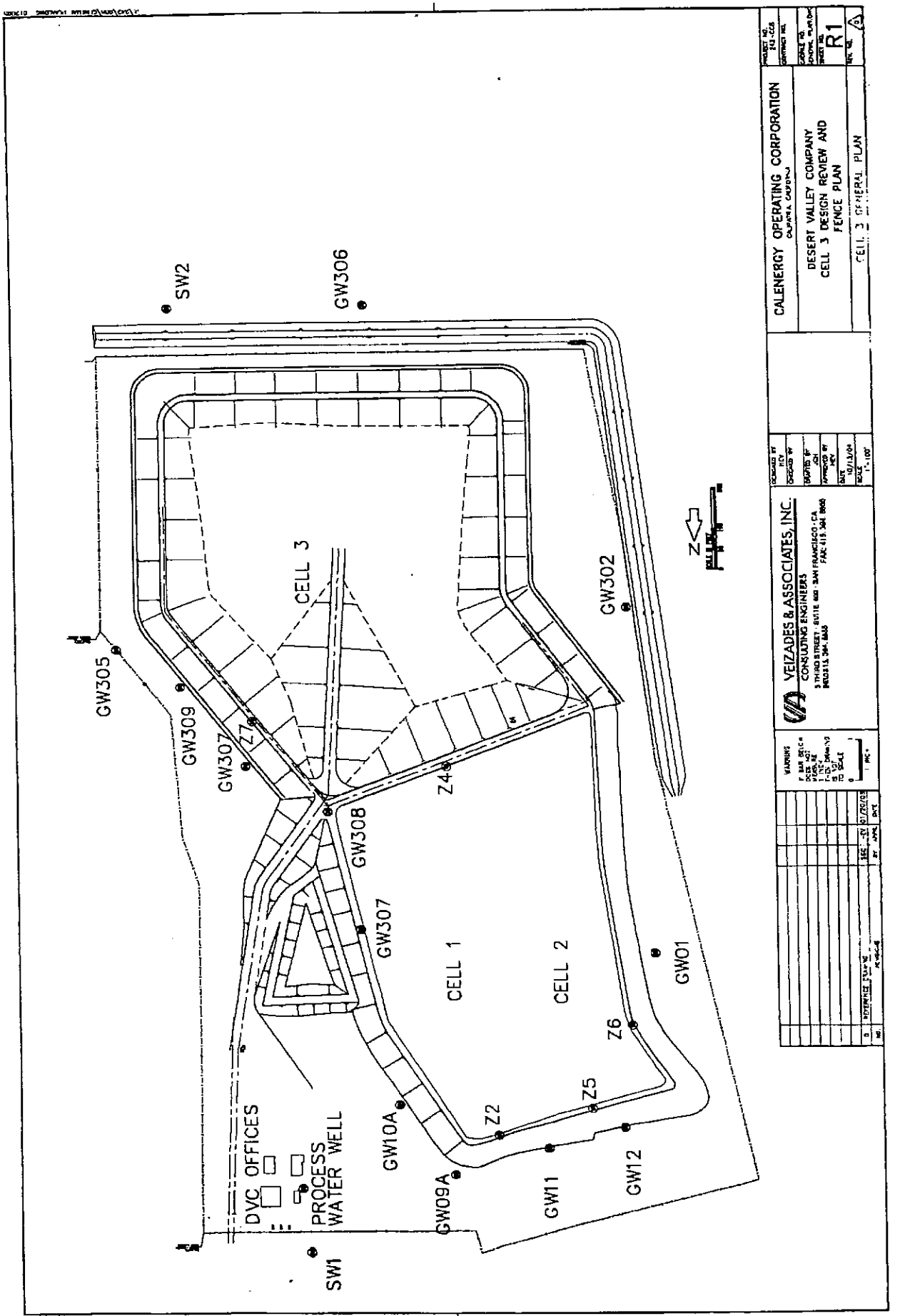
CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED
283326
C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM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GW09A
GW11
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SW1
DVC OFFICES
PROCESS WATER WELL
N
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
CELL 3 GENERAL PLAN
R1
VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. **E004763**

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W10A
Date Work Began 3/30/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042953 Permit Date 2/24/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 to 15	Brown silt w/clay
15 to 20	Brown clay
20 to 30	Brown silt with clay
30 to 35	Brown fat clay
35 to 40	Brown clay
40 to 55	Brown fat clay
55 to 65	Brown silt with clay
65 to 70	Brown fat clay w/ silt

TOTAL DEPTH OF BORING 71 (Feet)
TOTAL DEPTH OF COMPLETED WELL 70 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 59 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 60 (Ft.) & DATE MEASURED 3/7/2005
ESTIMATED YIELD <1/4 (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 to 60	8	✓				PVC	2	SCH40	
60 to 70	8		✓			PVC	2	SCH40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE FILL (✓)	FILTER PACK (TYPE/SIZE) (✓)
0 to 57	✓		
57 to 70		✓	Mont. 1C

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP

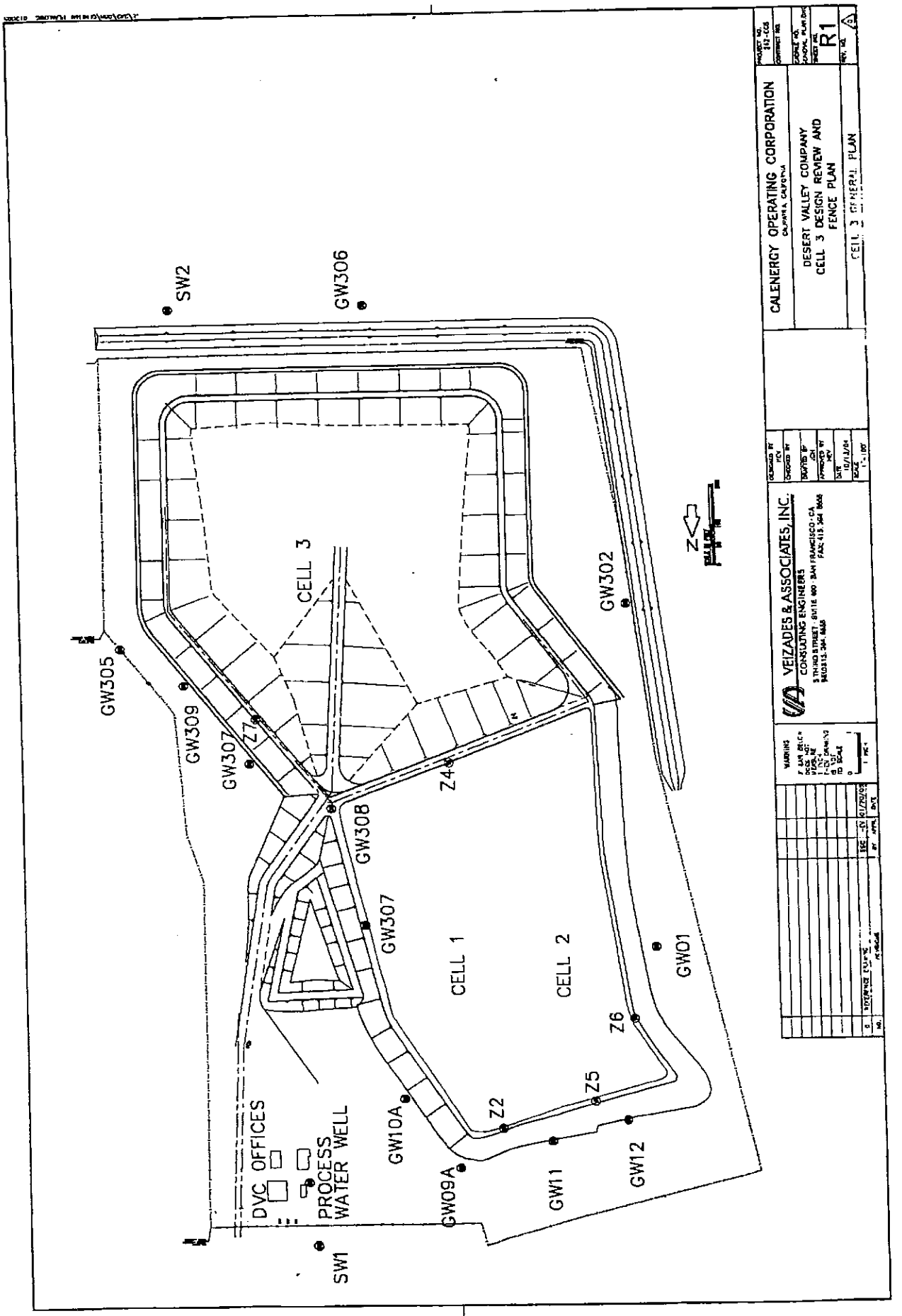
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM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CELL 1
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GW10A
GW09A
GW11
GW12
DVC OFFICES
PROCESS WATER WELL
SW1
N
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
CELL 3 GENERAL PLAN
R1
VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004764

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W307
Date Work Began 3/31/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	10	Brown silt w/ clay
10	15	Brown fat clay
15	30	Brown silt with clay
30	35	Brown fat clay
35	45	Brown sand fine grained
45	55	Brown fat clay
55	64	Brownn sand fine grain
64	65	Brown fat clay

TOTAL DEPTH OF BORING 65 (Feet)
TOTAL DEPTH OF COMPLETED WELL 64 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 59 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 1 (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * <1 (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	51	8	✓				PVC	2	SCH40	
51	65	8		✓			PVC	2	SCH40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE FILL (✓)	FILTER PACK (TYPE/SIZE) (✓)
0	51		✓	
51	65			✓ Mont.1C

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP

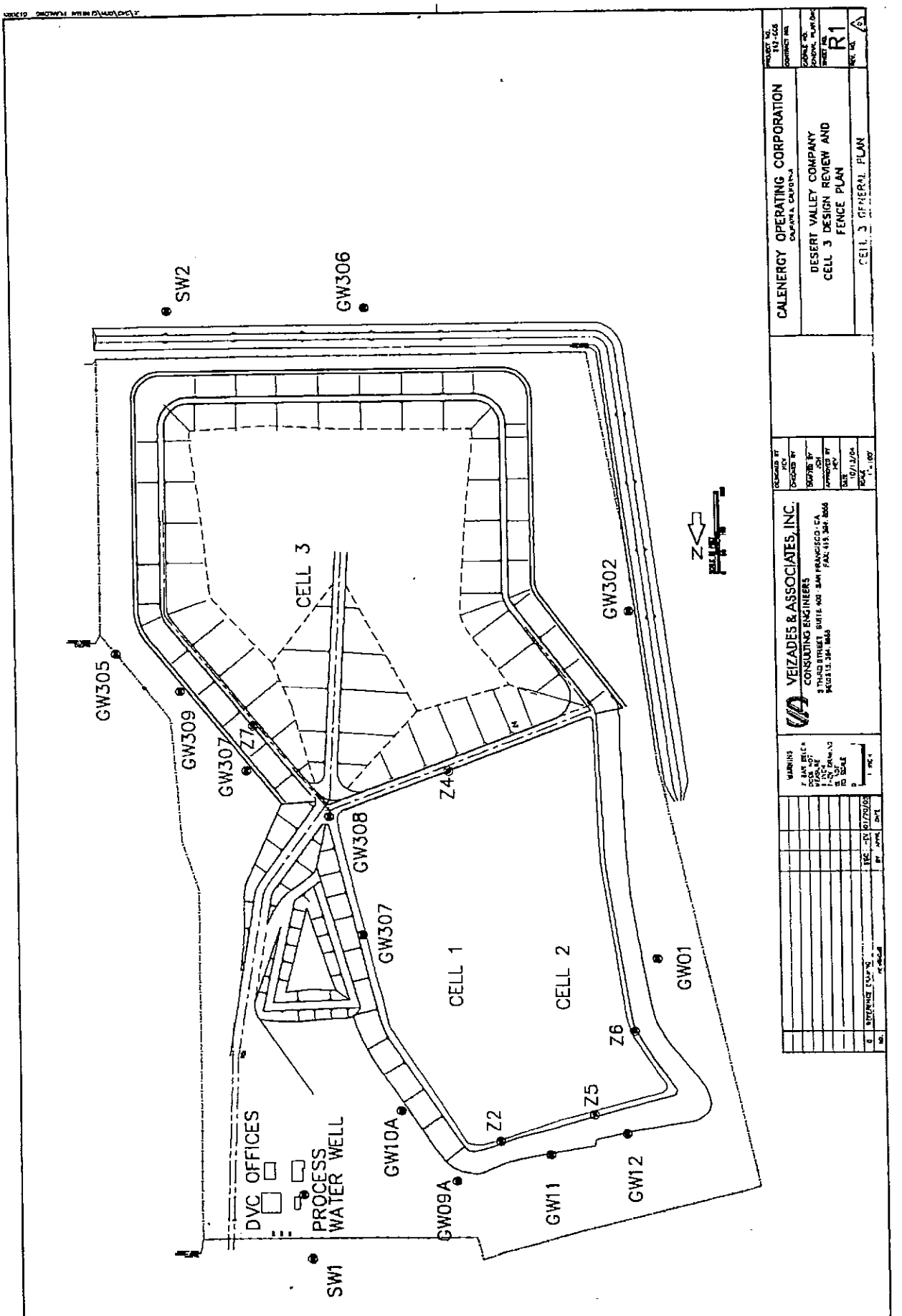
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM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GW10A
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GW11
GW12
SW1
DVC OFFICES
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N
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
CELL 3 GENERAL PLAN
R1
VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004765

DWR USE ONLY --- DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W308
Date Work Began 4/4/2005, Ended 4/7/2005
Local Permit Agency Imperial County Planning Build
Permit No. 042867 Permit Date 1/25/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 30	Brown clay
30 40	Brown silt
40 45	Brown sugar sand
45 50	Brown silt
50 55	Brown fat clay
55 60	Brown sugar sand w/ clay
60 70	Brown sugar sand
70 80	Brown fat clay
80 85	Brown sand, fine med. grade

TOTAL DEPTH OF BORING 85 (Feet)
TOTAL DEPTH OF COMPLETED WELL 84 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ___ DEG. ___ MIN. ___ SEC. ___ DEG. ___ MIN. ___ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ✓
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 75 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 75 (Ft.) & DATE MEASURED 4/7/2005
ESTIMATED YIELD * <1. (GPM) & TEST TYPE Bailer
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 74	8	✓				PVC	2	SCH 40	
74 84	8		✓			PVC	2	SCH 40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 71		✓		
71 84			✓	Mont.1C

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

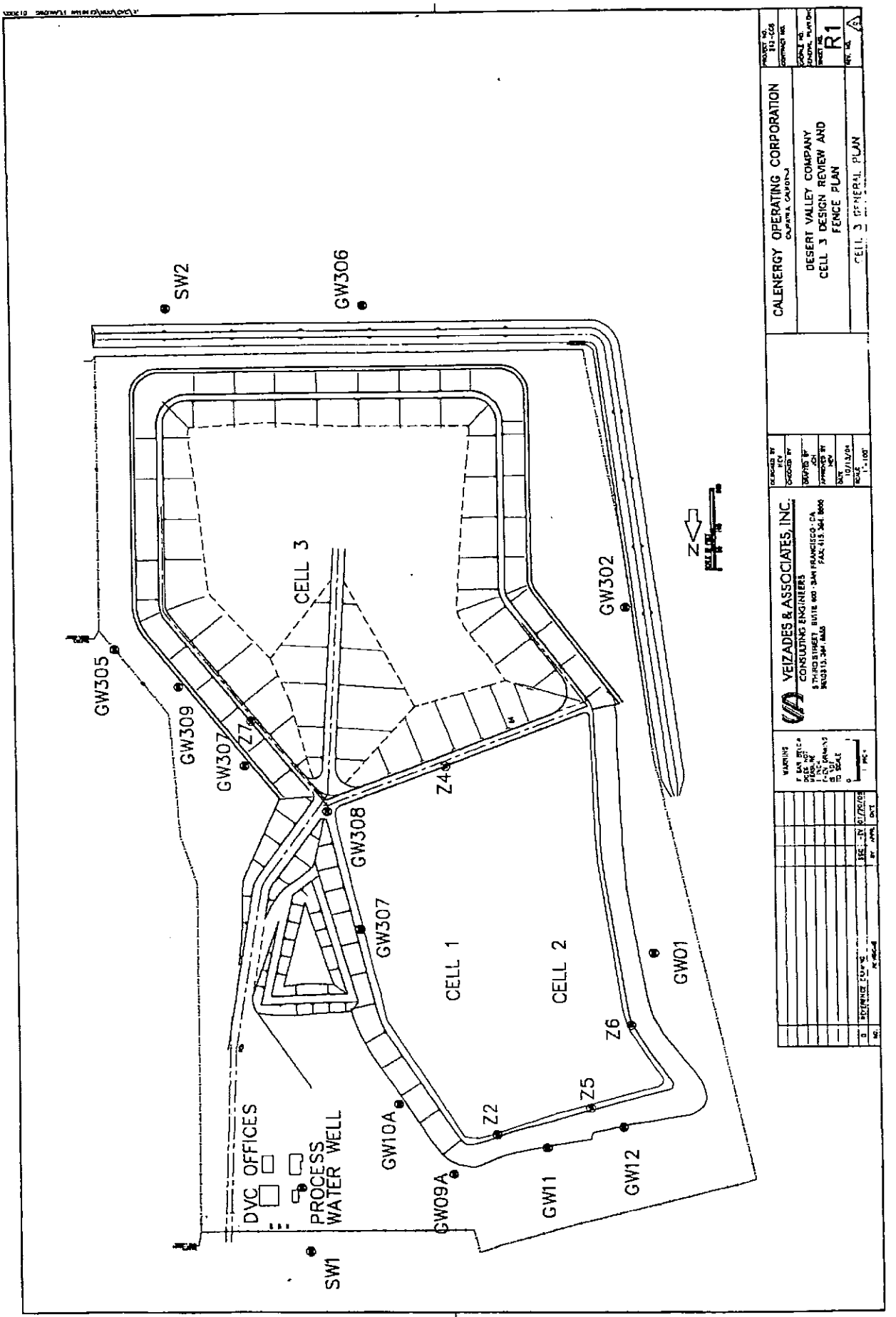
CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME WDC Exploration & Wells (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
ADDRESS CITY STATE ZIP
Signed [signature] 06/15/05
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED
283326 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM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PROCESS WATER WELL
N
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
CELL 3 GENERAL PLAN
R1
VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

ORIGINAL
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Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004766

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. W309
Date Work Began 3/31/2005, Ended 4/7/2005
Local Permit Agency Inperial County Planning Build
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0 15	Brown fat clay
15 20	Brown fine grained sand
20 25	Brown silt w/ clay
25 30	Brown fat clay
30 40	Brown sand fine grained
40 45	Brown silt clay
45 55	Gray sand fine grained
55 65	Brown sand, fine med. grain

TOTAL DEPTH OF BORING 65 (Feet)
TOTAL DEPTH OF COMPLETED WELL 65 (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
— Irrigation — Industrial
MONITORING ✓
TEST WELL —
CATHODIC PROTECTION —
HEAT EXCHANGE —
DIRECT PUSH —
INJECTION —
VAPOR EXTRACTION —
SPARGING —
REMEDIATION —
OTHER (SPECIFY) —

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 55 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL — (Ft.) & DATE MEASURED —
ESTIMATED YIELD * 1 (GPM) & TEST TYPE Bailer
TEST LENGTH — (Hrs.) TOTAL DRAWDOWN — (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 55	8	✓				PVC	2	SCH40	
55 65	8		✓			PVC	2	SCH40	.010

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 52		✓		
52 65			✓	Mont. 1C

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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NAME WDC Exploration & Wells
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
5566 Arrow Highway Montclair CA 91763
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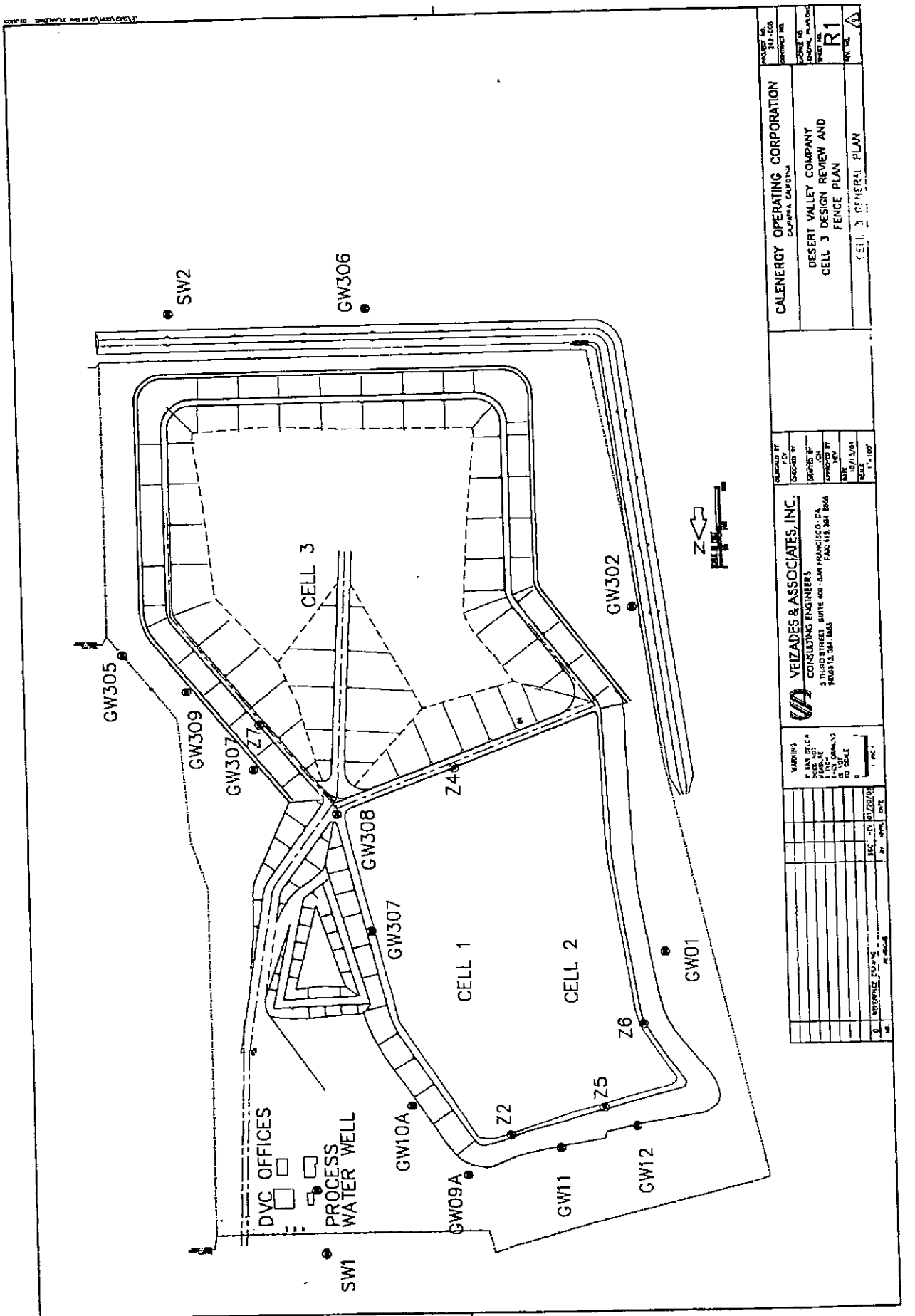
Signed [signature] 06/15/05 283326
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM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CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
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VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. E004767

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. Z-7
Date Work Began 3/31/2005, Ended 4/7/2005
Local Permit Agency Imperial County
Permit No. 042867 Permit Date 1/28/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ____ HORIZONTAL ____ ANGLE ____ (SPECIFY)
DRILLING METHOD HSA FLUID NONE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	30	Brofwn silty cl;ay (fill)
30	35	Brown silt
35	45	Brown silt & clay
45	50	Brown fat clay
50	65	Brown sugar sand
65	70	Brown fat clay

TOTAL DEPTH OF BORING 71 ½ (Feet)
TOTAL DEPTH OF COMPLETED WELL 71 ½ (Feet)

WELL OWNER

Name Desert Valley Company
Mailing Address 7030 Gentry Road
Calipatria CA 92233
CITY STATE ZIP

WELL LOCATION

Address 3301 W. Highway 86
City Brawley CA
County Imperial
APN Book 019 Page 100 Parcel 04-01
Township 12 S Range 11 E Section 33
Latitude ____ DEG. ____ MIN. ____ SEC. ____ DEG. ____ MIN. ____ SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
____ Deepen
____ Other (Specify)
____ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG"

PLANNED USES (✓)
WATER SUPPLY
____ Domestic ____ Public
____ Irrigation ____ Industrial
MONITORING ____
TEST WELL ____
CATHODIC PROTECTION ____
HEAT EXCHANGE ____
DIRECT PUSH ____
INJECTION ____
VAPOR EXTRACTION ____
SPARGING ____
REMEDIATION ____
OTHER (SPECIFY) ✓
Vadose probe

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ____ (FL) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ____ (FL) & DATE MEASURED ____
ESTIMATED YIELD * ____ (GPM) & TEST TYPE ____
TEST LENGTH ____ (Hrs.) TOTAL DRAWDOWN ____ (FL)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	70 ½	8	✓				STEEL	6		

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

____ Geologic Log
____ Well Construction Diagram
____ Geophysical Log(s)
____ Soil/Water Chemical Analysis
✓ Other LOCATION MAP

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

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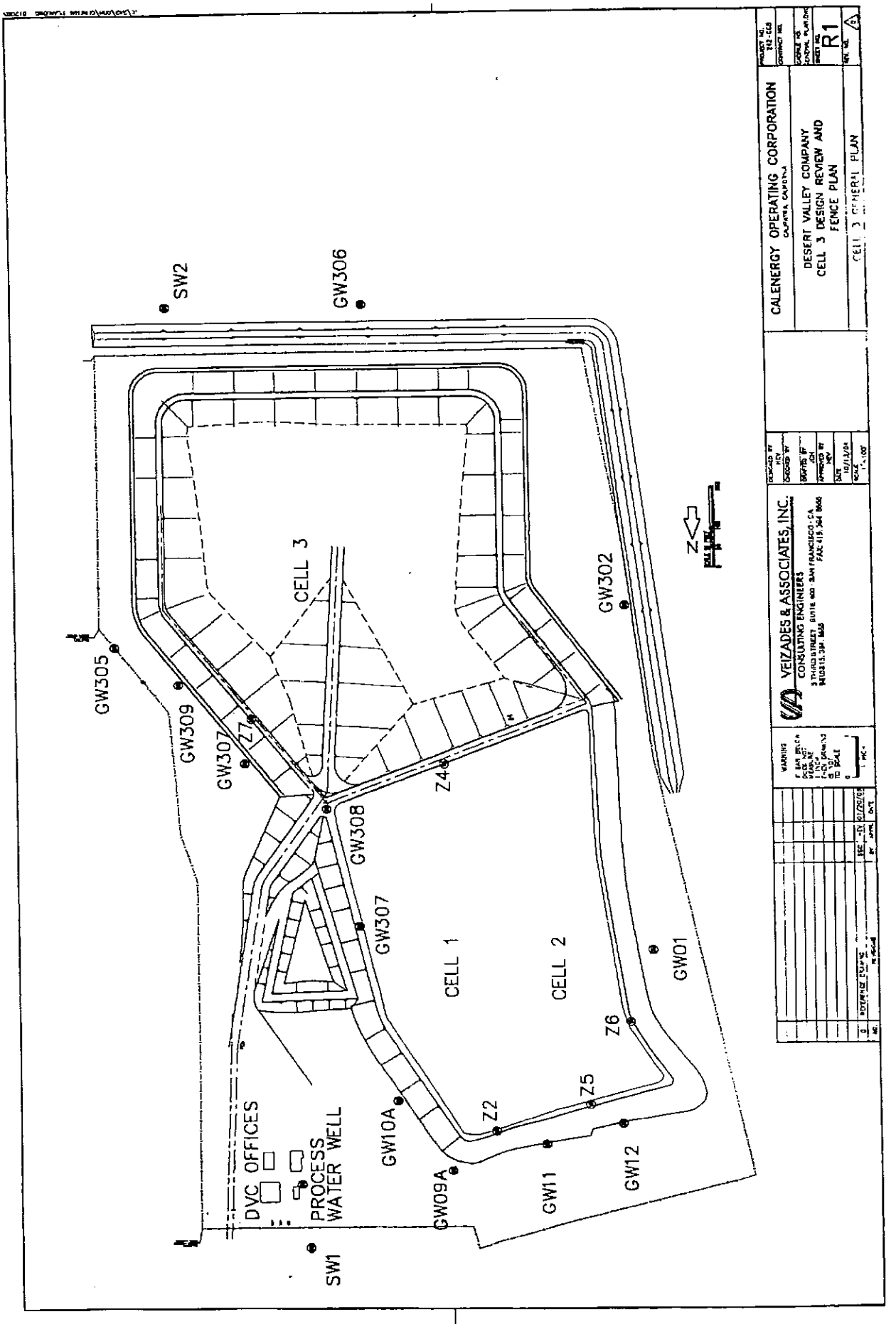
06/15/05 DATE SIGNED
283326 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM


SW2
GW306
GW305
GW309
GW307
Z7
Z4
GW308
GW302
CELL 3
GW307
CELL 1
CELL 2
GW01
Z6
Z5
Z2
GW10A
GW09A
GW11
GW12
DVC OFFICES
PROCESS WATER WELL
SW1
N
CALENERGY OPERATING CORPORATION
DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN
R1
VELIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS

1-2-08

INSPECTION RECORD

REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – 482-4236

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS			
	REINFORCING			
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* **DO NOT PROCEED!**

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING			
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* **DO NOT PROCEED!**

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* **DO NOT PROCEED!**

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (_____ amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			

EXPIRED			
FINALED	per Accela.	12-16-08	NHW

PERMITTED WORK: C DRILL 1 WATER WELL, 3 MONITORING WELLS & 1 VEDOSE WELL AND ABANDON 1 EXISTING MONITORING WELL.

OWNER: DESERT VALLEY COMPANY

CONTRACTOR: OWNER

LOCATION: 3301 W. HWY 86 WESTMORLAND

Date Issued: 1/28/05 PERMIT NO. 42867

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

IMPERIAL COUNTY – PLANNING/BUILDING DEPT., 939 MAIN ST, STE B-1, EL CENTRO, CA 92243

F:/word/inspcard

CORRECTION NOTICES

DATE	INSPECTOR	COMMENTS	R. – FEE

NOTES:

FEE COMPUTATION

QUANITY	ITEM	FEE
1	ELECTRICAL PERMIT	
1	MAIN SERVICE _____ AMP.	
	BREAKER OR OTHER CONTROL BOX	
	SWITCHES, LIGHTS, OUTLETS, ETC.	
1	MOTORS, TRANSFORMERS, ETC.	
	OTHER Pump	
	Sub. Total	$
	PLUMBING PERMIT	
	EACH FIXTURE OR TRAP	
	EACH SEWER CONNECTION	
	EACH WATER HEATER	
	GAS PIPING (1–TO-4 OUTLETS)	
	WATER PIPING (1-TO-4 OUTLETS	
	OTHER _____	
	Sub. Total	$
	MECHANICAL PERMIT	
	A / C WITH DUCTS (BTU _____)	
	VENTILATION	
	RANGE HOOD	
	FURNACE	
	OTHER_____	
	Sub. Total	$

11/24/05 Notified and CD

1/2005

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

- [x] BUILDING
- [ ] ELECTRICAL
- [ ] PLUMBING
- [ ] MECHANICAL
- [ ] GRADING
- [ ] DEMOLITION

- [ ] NEW RESIDENTIAL
- [ ] NEW COMMERCIAL
- [ ] NEW INDUSTRIAL
- [ ] NEW POOL
- [ ] NEW SIGN
- [ ] M. H. UTILITIES

- [ ] REMODEL RESIDENTIAL
- [ ] REMODEL COMMERCIAL
- [ ] REMODEL INDUSTRIAL
- [ ] _____
- [ ] _____
- [x] Water well - 600'

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1 PROPERTY OWNERS NAME: Desert Valley Company — PHONE NO.: (760) 348-4000

2 MAILING ADDRESS: 950 West Lindsey Road — ZIP CODE: 92233

3 PROJECT SITE ADDRESS: 3301 West Hwy 86, Westmoreland

4 ASSESSORS PARCEL NO.: 019-100-04 — LEGAL DESCRIPTION: SECT. 33 T12S R11E

5 DESCRIBE INTENDED USE: Ref: CUP #02-0003 (attached)

6 DESCRIBE (CLEARLY) THE PROPOSED WORK: Drill 500-600' deep 5" water well with 12"

7 (ADDITIONAL SPACE FOR LINE 6): surface casing to 40'; Three Monitoring Wells @ 70 ft & one Vadose Well @ 60 ft

8 ARCHITECT / ENGINEER: Bakkeman Consulting Inc. — LICENSE NO.: 940 — PHONE NO.: 949-240-2396

9 MAILING ADDRESS: PO Box 796 Dana Point, CA — ZIP CODE: 92629

10 CONTRACTORS NAME: CAL Energy / Desert Valley Company — LICENSE NO.: — PHONE NO.: (760) 348-4000

11 MAILING ADDRESS: 950 West Lindsey Road — ZIP CODE: 92233

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

— I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

✓ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are: Policy Number WA2-690-550801-014 Carrier Liberty Mutual Fire & Casualty

— I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: Date 11/30/04 Applicant: CalEnergy

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13 SIGNATURE OF OWNER: X

14 SIGNATURE OF CONTRACTOR: X

ZONE	AREA
S-2	10' well
OCCUPANCY GROUP B	200' Monitor well
CONSTRUCTION TYPE VN	
VALUATION 3795.-	

QTY		FEE
1	ELECTRICAL PERMIT	40.-
	MAIN SERVICE (AMP)	
1	BREAKER-CONTROL DEVICE	11.-
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
1	OTHER Pump	3.00
	OTHER	
	OTHER	
	Sub-Total	54.-
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE(S)	
	GAS LINE(S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

S. M. I.	.50
BUILDING PERMIT	97.25
PLAN CHECK	63.21
ELECTICAL PERMIT	54.-
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	75.00
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER 9%	44.10
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA

ELECTRICAL APP	
GAS APP	
FINALED / EXPIRED	
RECEIPT NO.	R#0500113
DATE ISSUED	1/28/05

APPROVALS REQUIRED

WORKERS COMP CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)	ENERGY CERT.	E. H. S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED	RESUBMITTED	A. P. C. D. / AG.	DATE
SPECIAL LAND USE PERMIT	CUP 02-0003	PLANNING	DATE RJC 1/21

PERMIT NO	RECEIVED BY:	DATE	APPROVED BY:	DATE
42867				

FEE $ 534.06

PERMIT

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

_____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

_____ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number_____ **Carrier**_____

_____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date:_____ **Applicant:**_____

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

I/We agree that by accepting this permit I/We agreed to comply with all laws pertaining to this construction, including the contractors license law, the building ordinance, workers compensation insurance, and any other law that governs construction.

SIGNATURE OF OWNER / Date	SIGNATURE OF CONTRACTOR / Date

Inspection requests may also be made via email.
The Inspection Request Form is located on our website:
www.imperialcounty.net/planning.

NOTICE:

This is your official PERMIT that authorizes you to perform the work described on the other side.

Please review the other side and make sure all information is correct.

Please remember that you are only permitted to perform the work authorized by this permit. If you change, add-to and/or alter the scope of work you may need to obtain additional permits.

If you have any questions please call the Department or ask your Inspector.

NOTE: It is your responsibility to request all inspections. DO NOT cover or conceal any work until it is approved by the Inspector and the field card is signed!

NOTE: Failure to follow Permit requirements, failure to have work inspected, and/or providing false information may result in your permit being revoked.
NOTE: A permit revoked due to an NSF check, or violations of conditions in the permit will result in a double fee.

Thank You,

Jurg Heuberger
Building Official

How to Request an Inspection:

1. **CALL 482-4236.** After the automated system answers, **PRESS 4277** on your phone, this will route your inspection request automatically.

2. State the following information after the sound-of-the-tone: (Speak slow and clear).
   a. permit number _____
   b. address of project _____
   c. date of inspection _____
   d. permit name _____
   e. your telephone number _____
   f. type of inspection req. _____

3. Only if a specific time is absolutely necessary, take the following steps:
   a. Leave your request on the answering system, and leave your phone #._____
   b. On the day of the inspection, call the Planning/ Building Department between 7:00-7:30 a.m., at 482-4236, and discuss your request with the Inspector.

NOTE: If you do not state your permit number, name and the address, no inspection will be done.
NOTE: Specific time inspection can not and will not be scheduled via the recording. You must talk to the Inspector between 7:00-7:30 a.m., on the day of the inspection!

Doc 11.doc

Permit #: 00000042807

STRUCTURAL PERMIT

Job Address:	3301 W HIGHWAY 86 CNTY	Status:	ISSUED
Parcel No:	019-100-04-01	Issued:	01/28/2005
Location:	WESTMORLAND 3301 W HWY 86	Expires:	07/28/2005
App Type:	OTHER		

OWNER DESERT VALLEY CO 01/20/2005 Phone: 3484000
ATTN LYNN JENSEN
950 W LINDSEY ROAD
CALIPATRIA CA 92233
License:

APPLICANT CALENERGY/DESERT VALLEY COMP 01/20/2005 Phone: 760.348.4000
950 W LINDSAY RD
CALIPATRIA CA
92233
License:

Description:

DRILL WATER WELL 500-600 DEEP 5" WATER WELL WITH 1

Valuation:

Occupancy	Type	Factor	Sq Feet	Valuation
	Totals...			$3,795.00*

PERMIT FEES

TYPE	AMOUNT	TYPE	AMOUNT
Valuation:	$97.25	Other Plan Ck:	$0.00
Other Building Fees:	$200.00	Plan Check:	$63.21
S.M.I.Fee:	$0.50	Addl Plan Ck:	$0.00
General Plan:	$0.00	Zoning Review:	$0.00
Legal Service Fees:	$0.00	Violation:	$0.00
Reinspections:	$0.00	Inspections:	$0.00

Total Permit Fees: $360.96

MITIGATION FEES

TYPE	FIRE QUANITY	AMOUNT	TYPE	SHERIFF QUANITY	AMOUNT
Residential			Residential		
SFR/MH:	0	$0.00	SFR/MH:	0	$0.00
Apartment Units:	0	$0.00	Apartment Units:	0	$0.00
Addl Sq Ft:	0	$0.00			
Comm/Ind (Sq. Ft.)					
Light Hazard:	0	$0.00	Comm/Ind (Sq Ft.):	0	$0.00
Low/Mod Hazard:	0	$0.00	Shade Park (Sq Ft.):	0	$0.00
High Hazard:	0	$0.00			
Shade Park (Sq Ft.)					
Light Hazard:	0	$0.00	Other Sheriff Fees:		$0.00
Low/Mod Hazard:	0	$0.00	Sheriff Admin Fee:		$0.00
High Hazard:	0	$0.00	Sheriff Violation:		$0.00
Other Fire Mitigation:		$0.00			
Fire Admin Fee:		$0.00			

Total Mitigation Fees: $0.00

Total Calculated Fees:	$360.96
Additional Fees:	$129.00
Total Permit Fees:	$534.06

RECEIPT

Copy Reprinted on 01-28-2005 at 09:57:19 01/28/2005

RECEIPT NUMBER: R0500113

APD #: 0000042867 TYPE: STRUCTURAL PERMIT
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-04-01
RECEIPT NOTATION:

TRANSACTION DATE: 01/28/2005 TOTAL PAYMENT: 534.06
TOTAL PAID FROM TRUST: .00
TOTAL PAID FROM CURRENCY: 534.06

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	1103	534.06
		TOTAL:	534.06

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
BUILDING PERMITS	1035001-413000	297.25
ELECTRICAL PERMITS	1035001-413000	54.00
PLAN CHECK FEES	7222000-301000	63.21
S.M.I. FEES	7210000-301000	.50
SURCHARGE	1035001-413000	44.10
ZONING FEES	1041001-414000	75.00
	TOTAL:	534.06

RECEIPT ISSUED BY: PATRICIA INITIALS: CD
ENTERED DATE: 01/28/2005 TIME: 09:57 AM

This is your original copy of the **receipt** for funds received by the Imperial County Planning/Building Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Jurg Heuberger, AICP
Planning Director/Building Official

CC: Auditor/Controller
Permit File

Permitrc.doc

SITE PLAN

PLANNING / BUILDING DEPARMENT
COUNTY OF IMPERIAL (760) 482-4236

READ INSTRUCTIONS ON THE BACK! USE PEN TO DRAW – DO NOT USE PENCIL!

DRAW SITE LAYOUT PLAN TO SCALE & COMPLETE ALL NUMBERED SPACES!

DRAW SITE LAYOUT PLAN TO SCALE & COMPLETE ALL NUMBERED SPACES!

1

Please See
Attached Map.

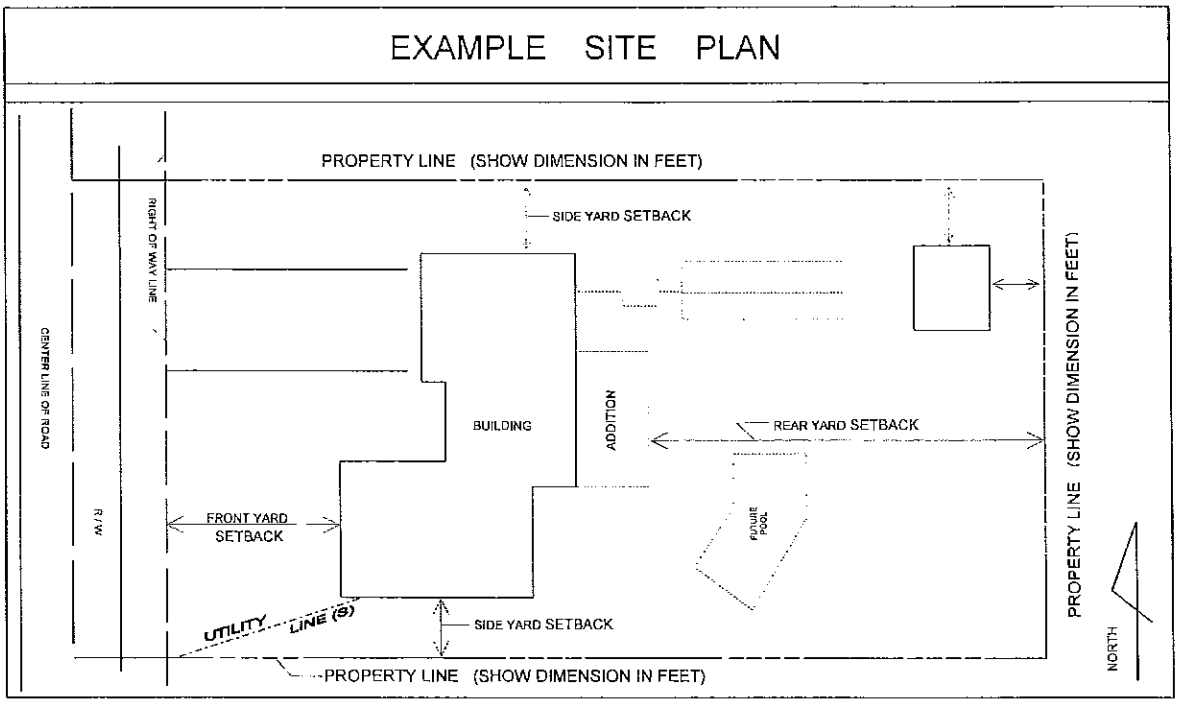
SCALE

NAME OF APPLICANT	APPLICANT PHONE NO	SIZE OF PARCEL
2 Desert Valley Company	3 (760) 348-4000	4

PROJECT SITE ADDRESS	ASSESSORS PARCEL NO
5 3301 West HWY 86, West Morland	6 019-100-04

E.H.S.	FIRE / O.E.S.	P.W.	ZONING
LAND USE PERMIT TYPE		RIGHT OF WAY FROM CENTER LINE OF ROAD	
SETBACK DISTANCES!	FRONT YARD SETBACK!	SIDE YARD SETBACK!	REAR YARD SETBACK!

EXAMPLE SITE PLAN



READ INSTRUCTIONS ON REQUIRED INFORMATION!

The following information and detail must be shown on the site Plan. Please read the information, view the example and prepare a site plan for your project to accurately and correctly depict the necessary information.

a. Show the property lines including their dimensions.

b. Show the location of all existing and/or proposed structures, both above and below ground.

c. Show the location of the utility lines (electrical, water, sewer, gas, phone, etc.). Show whether they are above or below ground.

d. Show the north orientation.

e. Show the scale of the drawing. (i.e. ¼" = 1'0" or $^1/_8$" = 1'0", etc.).

f. Show all dimensions of the structure(s).

g. Show all distanced from the property line(s) to the structures.

h. Show distances between structures.

i. Show the adjacent streets, and all entrances to the property from the street.

j. Provide 5 copes of the SITE PLAN along with the application.

k. Provide the information in all of the numbered spaces at the bottom of the form.

NOTE: You may submit a site plan in a larger format, or on a blue line or on another format, however it must include all the information shown above, and must be drawn on substantial paper with a non-erasable medium, i.e. not in pencil.

DESERT VALLEY COMPANY

7030 Gentry Road
Calipatria, California 92233

January 19, 2005

Imperial County
Planning & Building Department
939 Main Street, Suite B-1
El Centro, CA 92243-2856

Attn: Mr. Richard Cabanilla
Planner IV

Re: Monofill Project, Cell III Construction
Location: 3301 West HWY 86, West Moreland, CA 92227

Subject: Permit to drill one water well, three monitoring wells, one Vedose well and abandon one existing monitoring well

Dear Mr. Cabanilla:

DVC is pleased to submit this application to drill the above wells as part of the new Cell III construction project. Per our meeting on Friday, January 14, 2005, the following information and documents have been collected for your review.

- Copy of the landfill Conditional Use Permit
- Copy of the CalEnergy's Annual Report
- Permit Application
- Site plan showing locations of the proposed wells

The scope of work for this permit application is as follows:

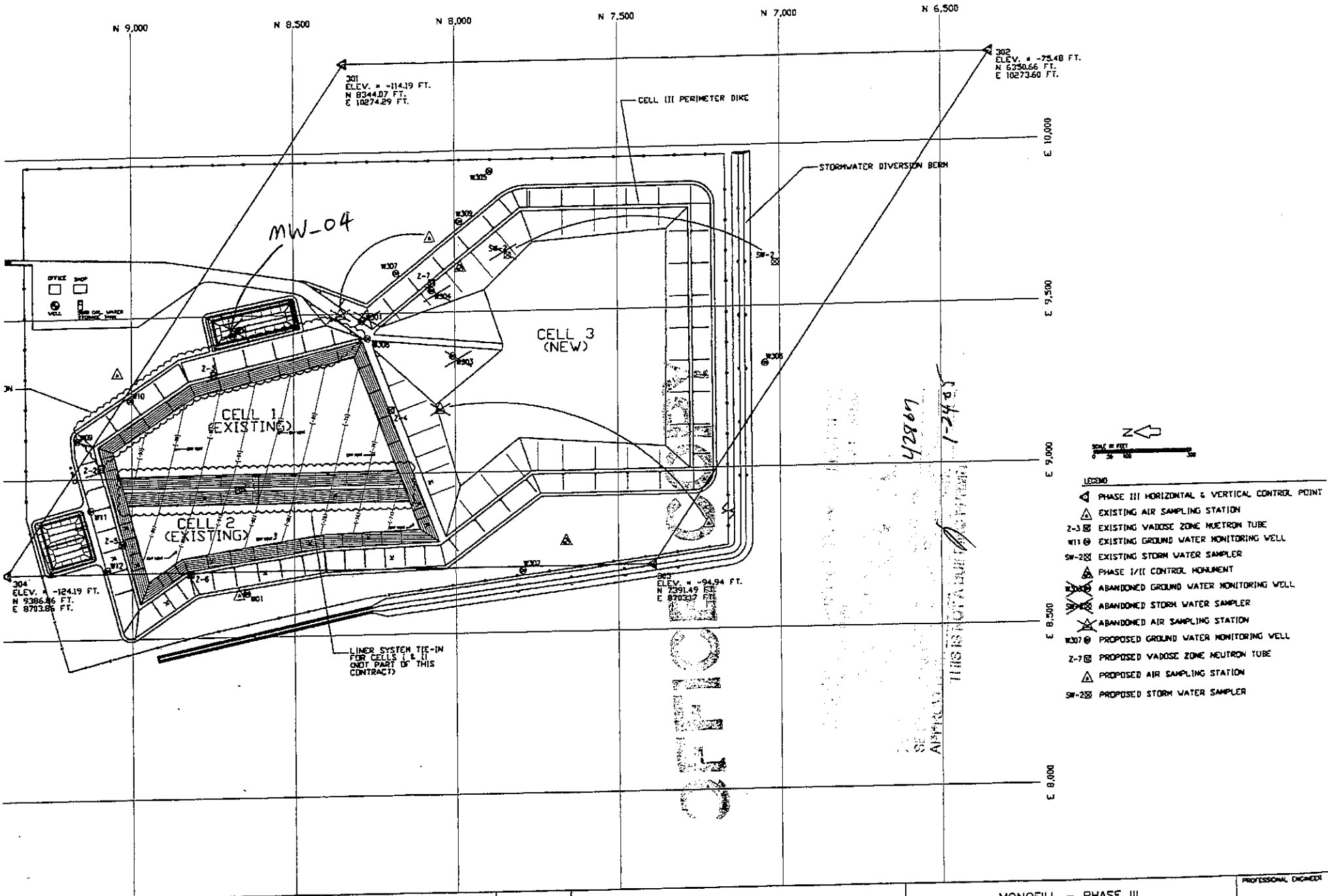
1. Drill a 10-inch water well, about 600 feet deep, with a 5-inch PVC and 12-inch surface casing to 40 feet.
2. Drill three 8-inch monitoring wells, about 70 feet deep, with a 2-inch PVC and 8- inch surface casing to 5 feet (W305, W307, and W309).
3. Drill one 6-inch vedose well (Z-7), about 75 feet deep, with 8-inch surface casing to 5 feet.
4. Abandon one existing 4-inch monitoring well, about 60 feet depth (MW-04).

The proposed water well will replace a water well that was recently abandoned as a result of Cell III construction.

Please feel free to contact me with any questions at (510) 301-0575.

Sincerely,

Sean Mahini, PE
Senior Civil Engineer



REVISIONS		
DESCRIPTION	DATE	APPROVED

DESIGN ENGINEER: RICHARD DAVIS, P.E.	DATE: 9/27/02
DESIGNED:	DATE:

McDowell & Associates
9730 James Savage Road

MONOFILL – PHASE III
DESERT VALLEY COMPANY
HORIZONTAL CONTROL 1

PROFESSIONAL ENGINEER

2003-004054

2703

RECORDING REQUESTED BY AND

When Recorded Return To:

Imperial County Planning/Building Department
939 Main Street
El Centro, California 92243

HOLD

RECORDED
OFFICIAL RECORDS
IMPERIAL COUNTY, CA
BOOK 2179 PAGE 57
2003 FEB 7 PM 1 14
DOLORES PROVENCIO
COUNTY RECORDER

TLS	87
RG	30
RF	28
MC	1
IX	1
TF	27
NL	
PY	
PR	

AGREEMENT FOR CONDITIONAL USE PERMIT (CUP) #02-0003
(Superseding Conditional Use Permit #1127-94)

FOR
A CLASS II SOLID WASTE MONOFILL FACILITY
(Desert Valley Company)

This Agreement is made and entered into on this 5th day of November, 2002, by and between Desert Valley Company, (hereinafter referred to as "Permittee"), and the County of Imperial, a political subdivision of the State of California, (hereinafter referred to as "County").

CONDITIONAL USE PERMIT (CUP) DESCRIPTION:

WHEREAS, pursuant to the application, for Conditional Use Permit #02-0003, which Supersedes Conditional Use Permit #1127-94, the 1990 Final Environmental Impact Report dated May1990, (SCH No. 89032206), together with Mitigated Negative Declaration for the 2002 Amendment the County of Imperial (County) hereby issues to Desert Valley Company. (Permittee), and Permittee hereby accepts, this Conditional Use Permit #02-0003 will be amend and supersede Conditional Use Permit #1127-94 for the development, operation, closure and post-closure of a California Class II non-hazardous solid waste landfill for Geothermal non-hazardous waste streams, in accordance with and subject to Title 14, Division 7, and Title 23 of the California Code of Regulations, as said code(s) are of this date, and subject to all of the terms and conditions specified herein; and

WHEREAS, Permittee is the owner, lessee or successor in interest in certain land in Imperial County known as Section 33, Township 12 South, Range 11 East, identified as Assessor's Parcel Number(s) 019-100-04-01.

WHEREAS, Conditional Use Permit #02-0003 (Initial Study 02-0003) was heard by the Imperial County Environmental Evaluation Committee and given a Mitigated Negative Declaration for the increase tonnage, was distributed for public review from July 11, 2002 to August 12, 2002. All public comments postmarked on or before 5:00 PM were considered and included in preparing the conditions to Conditional Use Permit #02-0003.

WHEREAS, Permittee has applied to the County for Conditional Use Permit #02-0003 (superceding CUP#1127-94).

WHEREAS, County, after a noticed public hearing, agreed to issue Conditional Use Permit #02-0003 to Permittee, and/or his or her successor in interest subject to the following conditions:

(G) GENERAL CONDITIONS:

The "GENERAL CONDITIONS" are shown by the letter "G". These conditions are conditions that are either routinely and commonly included in all Conditional Use permits as "standardized" conditions and/or are conditions that the Imperial County Planning Commission has established as a requirement on all CUP's for consistent application and enforcement. The Permittee is advised that the General Conditions are as applicable as the SITE SPECIFIC conditions!

G-1 ACQUISITION PERMITS/LICENSES AND COMPLIANCE WITH GENERAL LAWS:

Permittee shall obtain, comply with, and maintain all applicable County, State, and federal permits, licenses, and/or approvals, including, but not limited to those required by Imperial County Planning/Building Department, APCD, County Division of Environmental Health Services (EHS), and Public Works Department. Additionally, Permittee agrees to comply with all applicable laws, ordinances, and/or regulations promulgated by County, State, and Federal jurisdictions whether specified herein or not. Furthermore, Permittee shall submit a copy of such additional permit/license to the Planning Department within thirty (30) days of receipt.

G-2 PERMITS/MONITORING-RELATED FEES:

The Permittee shall pay any and all amounts, as determined by County, to defray all costs for monitoring, review of reports, field investigations, or other activities related to the compliance and enforcement of this permit, during its active life, closure as well as any Post Closure period.

G-3 REPORTS:

Permittee shall at a minimum be required to submit to the Planning Department, the following reports;

1. An "Annual Compliance Report," which shall be filed with the Planning Director and describes Permittee's efforts to comply with the CUP, and other permits, and shall be in a format determined by the Planning Director. The Annual Compliance Report shall also contain Certificates of Insurance as required by Section G-11, a current Site Development Plan, which will include a recent (a new updated version every third year) aerial photo (scaled at 1:200 or 1:400) of the site and changes in any Site Closure Plan. The annual Compliance Report shall be submitted no later than May 1st of each year, and shall cover the preceding 12 month period ending December 31 of each year.

2. The Permittee shall provide a quarterly report for all waste received. The report shall include the total tonnage, the type of waste(s), the origin of waste and copy of other information requested by the Planning Director. The quarterly report shall be submitted within 100 days of the end of the preceding quarter.

3. The County may also request, in writing, "Special Monitoring Reports" containing such documents and information from Permittee, and at such intervals and containing such information as the Planning Director, Health Officer, and/or Air Pollution Control Officer (individually or collectively) deem necessary for monitoring the Site. Special Reports shall be submitted by Permittee no later than the date specified by the written request.

4. The County may also require special report(s)/studies to be prepared by an outside consultant retained by the County, and the cost of such report to be paid by Permittee.

G-4 VIOLATIONS OF REPORTING REQUIREMENTS:

Failure by Permittee to timely submit any report pursuant to Section G-3 (1 & 2) shall be a violation of this permit, which may be enforced pursuant to Section G-17 or at the discretion of the Planning Commission. The county shall also as a penalty impose a double cost charge for the review of such reports.

G-5 NUISANCE PER SE/NUISANCE:

As between the County and the Permittee, any violation of this permit is a "nuisance per se". The County may enforce the terms and conditions of this permit in accordance with its Codified Ordinances and/or State law. The provision of this paragraph shall not apply to any claim of nuisance per se brought by a third party.

In addition, Permittee shall not be permitted to maintain a "nuisance", which is anything which: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or

property, and/or (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal, and/or (3) occurs during or as a result of the treatment, handling or disposal of any waste.

G-6 RESPONSIBLE AGENT:

All site operations shall be under the control of a responsible agent. The name of this agent and an alternate, along with their telephone number(s), so that either can be reached on a 24-hour basis, shall be provided to the County Planning Department, the County Department of Health Services, Division of Environmental Health Service, the Public Works Department, the Air Pollution Control District, and the Office of Emergency Services Coordinator. All offices shall be kept immediately apprised of any change in the responsible agent(s).

G-7 ENCROACHMENT PERMIT:

Encroachment permit(s) for access to the site via Highway 86 or any other County or State highway shall be secured from the appropriate agency, prior to any new construction or change in operations. Improvements to any such highway shall meet the respective agency's standards and/or requirements.

G-8 CONSTRUCTION STANDARDS:

All structures, facilities, buildings, dikes, and monofill(s) at the Site shall be constructed in accordance with County ordinance(s) and the Uniform Codes, as adopted by the County, for Seismic Zone 4, and be in compliance with State and federal regulations. Permits from all agencies (electric, plumbing, grading, among others) shall be secured as required by applicable law for all facilities prior to any construction being commenced.

G-9 ARCHAEOLOGY:

A Culture Resource Technical Report and Plan to protect significant artifacts on-site, or to remove them for preservation shall be maintained. The appropriate portions of the plan shall be implemented if at any time unusual specimens of stone, bone, or any other artifacts are encountered.

The 2002 Cultural Resources Investigation by URS Corporation, concluded that in order to mitigate the potential the north-south access road into the Monofill facility, the onsite operations complex should be located to the west side of the road would ensure that site CA-Imp-6146 would be avoided.

Further disturbances shall be halted until an archaeologist, approved by the County, is consulted. All mitigation measures required by the FEIR and recommended by the archaeologist shall by implemented prior to proceeding, and a Special Report shall be made to the County Planning Department and IVC Museum of all actions taken, as

appropriate. Mitigation shall be achieved through avoidance or through testing and data recovery specifically for sites CA-IMP-6141, CA-IMP-6145, and CA-IMP-6146.

G-10 TRAINING:

Permittee shall provide training to employees for all site operations as well as in handling emergency spills. Training shall be given annually, and shall be available to representatives of any enforcement agency that may require knowledge of specific training relating to spills, etc. An Employee Training Plan shall be available on-site, and on file with the Planning Department.

New employees will be oriented as to the presence of NORMS; its radiological properties, hazards, symptoms, and all other health and safety related implications. Documentation of this training shall be included in the Annual Report and will also be included in periodic safety meetings.

G-11 INSURANCE AND INDEMNITY:

(a) Permittee shall, for the life of the site and any post closure period maintain adequate "general", "automotive", and "property damage" liability insurance to protect person(s) or property from injury or damage caused by the operation(s) of the facilities and/or Site.

(b) The Permittee shall secure and maintain Workers Compensation Insurance as required by the State of California. The Permittee shall also secure liability insurance and such other insurance as may be required by the State and/or Federal Law. A Certificate of Insurance is to be provided to the Planning Department by the insurance carrier and said insurance and Certificate shall be kept current for the life of the project. Certificate(s) of Insurance shall be sent directly to the Planning Department by the insurance carrier and shall name the Department as a recipient of both renewal and cancellation notices. Failure to maintain required insurance shall result in the immediate revocation of this permit.

(c) All insurance policies required shall name the County as either an additional insured or an additional loss payee. Certificates of Insurance shall be provided to the County Planning Department annually in the Annual Compliance Report as defined in Section G-3, and such other times as may be requested.

(d) Notwithstanding the availability of any insurance coverage required herein, Permittee shall identify, defend, and save harmless the County, its Board of Supervisors, and all Officers, employees, and agents, (the "Indemnities) against any and all claims, actions, liabilities related to the County's issuance of the permit or the Permittee's monitoring of this permit, or arising out of negligence, misconduct, or action by Permittee, Corporate Officers, its agents, or employees, in operation at the site or facility, and/or transportation of any waste material to the site, except that Permittee shall not be obligated to indemnify and save harmless, "indemnities" against such claims or actions or liabilities arising out of such indemnities own acts of negligence, or from the non-negligent performance of Permittee of some action ordered or directed by the Indemnity. Prompt

notification of any such claim, suit, action or cause of action shall be given to Permittee. The County agrees to cooperate in assisting Permittee in opposing or defending any third party claim, suit, or cause of action, which is, tendered pursuant this paragraph. Choice of legal counsel to defend any such action shall be Permittee's subject to the approval of the County Board of supervisors, which approval shall not be unreasonably withheld.

G-12 PROVISION RUN WITH LAND/PROJECT:

The provision of this project are to run with the land/project and shall bind the current and future owner(s) successor(s) of interest, assignee(s) and/or transferee(s) of said project. Permittee shall not without prior notification to the Planning Department assign, sell, or transfer, or grant control of project or any right or privilege therein. The Permittee shall provide a minimum of 60 days written notice prior to such proposed transfer becoming effective. In the event that the new owner or assignee or transferee has a history of non-compliance with environmental laws or is not of substantial equivalent or superior financial capability and/or responsibility or is not willing to or has not agreed to in writing to abide by the terms or conditions of this permit, the Planning Department shall bring this matter to the Planning Commission for either revocation or modification to the permit.

G-13 ROUTES:

Permittee shall instruct all geothermal solid waste haulers of the recommended hauling routes within County and follow the identified routes to avoid urban areas. Trucks shall operate with headlights on at all times going to and from the site.

G-14 SEISMIC DETECTION:

Permittee shall establish and maintain a program satisfactory to the County Public Works Director for detecting ground disturbances, including new faulting or fault fractures. Upon approval by the Public Works Director, Permittee shall implement and carry out the approved plan or program.

G-15 APPEALS:

Any decision/determination by the Planning Director that is appealed by Permittee, shall be appealed to the Planning Commission. Any Planning Commission determination provided for in this permit is subject to appeal in the same manner as other determinations of Conditional Use Permit application are appealable.

G-16 APPROVAL OF PLANS, PROGRAMS OR INTERPRETATIONS:

(a) Whenever Permittee is required to prepare and submit, for County approval, a Site Procedures Plan, Seismic Plan, Archaeologist Plan, or where Permittee requests a minor change or interpretation pursuant to Section G-21 below, and the Hazardous Material Committee (HMC) fails to approve or disapprove of such plans or procedures or minor change within 60 days from the date they are submitted, the plans or procedures or minor change shall be deemed denied.

(b) If the HMC disapproves any such plan, procedures, or minor change, Permittee may request a hearing to be conducted before the Planning Commission. After receipt of the request, including payment of fees, and upon reasonable public notice, the Planning Commission shall conduct a hearing and make a written determination approving or disapproving the plan or procedure or minor change. Any action on a plan or procedure or minor change, must be reasonable and must be based upon specific, enumerated concerns about human health, safety, or the environment. The Planning Commission may request specific advise form technical advisory committee(s) and/or consultants. Failure of the Commission to act within the required time period shall constitute an adoption of any staff determination.

G-17 ENFORCEMENT AND TERMINATION:

(a) If the Planning Department finds and determines that the Permittee or successor-in-interest has not complied or cannot comply with the terms and conditions of the CUP, or the Planning Department determines that the permitted activities constitute a nuisance, the Planning Director shall provide Permittee with notice and a reasonable opportunity to comply with the enforcement or abatement order.

(b) If after receipt of the order (1) Permittee fails to comply, and/or (2) Permittee cannot comply with the conditions set forth in the CUP, then the matter shall be referred to the Planning Commission for permit modification, suspension, or termination, or to the appropriate prosecuting authority.

(c) If the Planning Commission determines to proceed with modification, suspension or termination of the CUP, the Planning Commission shall give at least thirty (30) days notice to Permittee, and such other public notice as required by law, of its intention to do so.

The notice shall contain:

1. The time and place of the hearing;

2. A statement as to the reasons why the Planning Commission proposes to modify, suspend, or terminate the CUP;

3. Any proposed modification to the CUP; and other information which the Planning Commission considers necessary or desirable to inform Permittee or the public of the nature of the hearing.

(d) Any action by the Planning Commission shall be documented by written findings. In the event the Planning Commission chooses to suspend or revoke the CUP, the Commission must specifically find that such revocation is necessary because prior governmental efforts to get Permittee to comply with the terms and conditions of the permit have failed and Permittee has failed to demonstrate to the Planning Commission's satisfaction the willingness or ability to comply with the terms and conditions of the Conditional Use Permit, or to abate a nuisance, or to prevent an immediate threat to the public health or safety.

(e) After the hearing concerning enforcement, modification or termination of the CUP, the Planning Commission shall make its determination within seventy-five (75) days, unless Permittee and the Planning Director agree by mutual written consent to extend the time for decision.

G-18 INDUSTRIAL HYGIENE/HEALTH HAZARDS:

If the County Health Officer determines that a significant health hazard exists to the public or employee, the County Health Officer may require appropriate measures and Permittee shall implement such measure to mitigate the health hazard, subject to the procedure set forth in Section G-17 (a) above, for enforcement or abatement orders and their enforcement. Notwithstanding the above, if the hazard to the public is determined to be imminent, such measures may be imposed immediately and may include temporary suspension of the subject operations. However, within 45 days of any such suspension of operations, the measures imposed by the County Health Officer must be submitted to the Planning Commission for review and approval. Nothing shall prohibit Permittee from requesting a special Planning Commission meeting, provided Permittee bears all costs.

G-19 ANNUAL CUP REVIEW:

Permittee shall assist the Planning Director to the extent requested in preparing an annual review/report of the Conditional Use Permit/project.

G-20 INVALID CONDITIONS:

If any section, subsection, sentence, clause, or phrase of the CUP is for any reason held to be invalid, by a Court of proper jurisdiction, the County may consider other similar conditions as it may deem necessary to address the negative impacts which were intended to be mitigated by any single condition which must be changed due to invalidity. If similar conditions cannot be imposed, then the Commission may seek revocation of this permit pursuant to the provisions of Section G-17 above.

G-21 MINOR CHANGES:

The HMC may approve minor changes to the design, construction, and/or operation of the facility which are generally procedural or technical. Minor changes shall be as determined by the Hazardous Material Committee and the decision of the HMC shall be final unless appealed to the Planning Commission, provided said minor changes do not conflict with other regulatory permits.

G-22 NOTICE OF REGULATORY ACTIVITIES:

Permittee shall provide to the Planning Department copies of all notices and/or submissions to any State, Federal, or local regulatory authority initiated by Permittee concerning or relating to operations under this permit, concurrently with submission to these authorities.

G-23 DEFINITIONS:

In the event of a dispute, the meaning(s) or the intent of any word(s) phrase(s) and/or conditions or sections herein shall be determined by the Planning Commission of the County of Imperial. Their determination shall be final unless an appeal is made to the Board of Supervisors within the required time. See Section D for defined definitions.

G-24 SPECIFICITY:

The issuance of this permit does not authorizes the Permittee to construct or operate this project in violation of any state, federal, local law nor beyond the specified boundaries of the project as shown the application/project description/site plan/permit, nor shall this permit allow any accessory or ancillary use not specified herein. This permit does not provide any prescriptive right or use to the Permittee for future additions or modifications to this project.

G-25 RECORDATION:

This permit shall not be effective until it is recorded at the Imperial County Recorders Office, and payment of the recordation fee shall be the responsibility of the Permittee. If the Permittee fails to pay the recordation fee within six (6) months of the approval date, this permit shall be deemed null and void.

G-26 CONDITION PRIORITY:

This project shall be constructed/operated as described in the Conditional Use Permit application, the Environmental Assessment, the project description, and as specified in these conditions. Where a conflict occurs, the Conditional Use Permit conditions shall govern and take precedence.

(End of "G" Section)

(S) SPECIFIC PROJECT CONDITIONS:

PROJECT DESCRIPTION

The amendment proposes to add an third Cell to the existing Monofill facility. CUP #1127-94 permitted the applicant to construct a Class II Monofill facility, limiting it to only accepting non-hazardous waste streams generated by the applicant's own Imperial County geothermal plants with no-out-of-county waste allowed. The existing facility is comprised of two Cells, Cell has reached capacity and has submitted final closure plans, Cell II, currently has enough capacity for less than two years of operations, therefore necessitating Conditional Use Permit #02-0003 (superseding CUP #1127-94) a need for a new Cell, (Cell III). This third Cell would be sized for approximately 1,200,000 cubic yards and is expected to extend the operations of DVC's Monofill by approximately 7.3 year.

S-1. MAXIMUM ANNUAL TONNAGE:

The maximum annual average daily tonnage will be 750 tons per day (est. 273,750 tons per year). The maximum permitted traffic may increase from the current level of 10 vehicles per day to 38 vehicles per day to handle the 750 tons per day. Any increase must be approved by the Planning Department.

S-2. HOURS AND DAYS OF OPERATION:

Operation at the site shall not exceed 6:00 AM to 6:00 PM, 12 hours per day, 7 days per week, except when prohibited by regulatory agencies.

S-3. REQUIRED WASTE ANALYSIS:

The Permittee shall prepare and submit to EHS, any changes to the Waste Handling Plan for their review and approval.

Pre-disposal and on-site analysis of wastes intended for disposal at the site shall be accomplished as set forth in the approved Waste/Storage Handling Plan. Pre-disposal and on-site procedures and analysis shall be readily available to all monitoring agencies.
A material tracking and shipping system shall be used for the hauling and disposal of all filter cake, mud sump, and other non-hazardous geothermal materials; this system shall be approved by the County Environmental Health Services Division prior to operation.

The generator, hauler, and dispenser of filter cake, mud sump, and other non-hazardous geothermal materials shall certify compliance with requirements for documenting the proper handling of all materials to be stored/disposed of at the site. Certification shall be made to the Environmental Health Services Division with notification to the Planning Department in writing.

S-4. VEHICLE/EQUIPMENT MAINTENANCE:

Permittee is authorized to perform vehicle/equipment maintenance directly related to equipment used for on-site operations. Any hazardous waste removed during maintenance shall be disposed of, as required by the latest Federal, State and County laws and/or regulations.

S-5. AIR QUALITY MONITORING:

Permittee shall install air quality monitoring systems of the type and at the locations as the APCD shall require to measure the amount of any air contaminant which is emitted from the site, or to ascertain the impact on ambient air.

Ambient Air Monitoring Plan as required by the Imperial County APCD for air monitoring requires that a radiological assessment be conducted each quarter. Appropriate action levels have been established for worker and public exposure in "California Radiation Protection Regulations" (California Code of Regulations, Title 17-30344). Title 17 establishes the following action levels for Ra226 and Ra228: worker exposure (Ra226 concentration of 5.00E-11 u ci/ml and Ra228 uCi/ml) and public exposure (Ra226 2.00E-12 Uci/ml and Ra228 1.00E-12 uCi/ml).

Radiological Monitoring Plan as required and enforced by the Environmental Health Services Division. Monitoring shall be conducted to ensure the expected minimal exposure/dose at and around the Monofill. It will consist of on site workers wearing film badge dosimeters which measure external radiation exposure. Workers shall not receive more than the occupational dose limit set by Title 17-30265 for whole body exposure of 1.25 REM per calendar quarter.

Installation of a weather station to record wind speed and direction.

Illumination of a light in the Monofill office whenever the wind speed exceeds 13 mph, signaling that all disposal operations must cease.

Daily use of Soil Seal or equivalent to minimize wind-blown particles.

Cessation of all earth moving activities whenever the wind speed exceeds 21 mph.

To document the effectiveness of the Wind Dispersal Prevention program, ambient air monitoring for total particulates shall be performed. This monitoring shall occur every six days on the same schedule that the Imperial County Air Pollution Control District performs its particulate sampling for the Imperial Valley.

The monitoring shall occur at three locations spaced along the perimeter of the Monofill. Locations to ensure that at least one monitor shall be upwind and one downwind of the Monofill shall be approved by APCD.

The monitoring program shall consist of High Volume Particulate Samplers that will collect total suspended particulates for a 24-hour period. The results of this monitoring shall be submitted to the Imperial County Air Pollution Control District on a monthly basis.

On a quarterly basis, the sample with the highest loading (greatest particulates) shall undergo radiological analysis. The sample shall be analyzed for Gross Alpha, Gross Beta, with a gamma spectroscopy performed. The results and evaluation as relates to health, safety and environment of this analysis shall be reported to the Imperial County Environmental Health Services Division and the Planning Department in the monthly report following receipt of the analytical results.

This ambient air monitoring is subject to approval by the APCD and the County of Imperial Environmental Health Services Division. Should APCD and/or the County of Imperial Environmental Health Services Division require additional mitigation, any new measures shall be incorporated into the Wind Dispersal Prevention Program.

S-6. SITE OPERATIONS:

The site shall be constructed and maintained in accordance with all approved CUP conditions, and building/structure code requirements. Permittee shall maintain a Site Operations Plan complying with all County, State, and Federal regulations. A copy of all proposed changes to the approved plan shall be forwarded to the HMC for review each time a change is proposed as required in Section G-22. Copies of any proposed changes in the plan shall be submitted tot he Planning Department. In the event of conflict between the plan and this CUP, the CUP governs.

The emergency response/contingency plan shall be maintained throughout the entire operation of the Monofill facility. The plan shall be developed to minimize hazards to human health and the environment from fires, explosions, or any sudden or non-sudden release of wastes or waste constituents to air, soil, or surface water at the Monofill facility. The plan shall be implemented whenever there is a real or suspected threat to human health or the environment.

(a) The Site Operations Plan shall contain a set of procedures and requirements which are directly related to the safety and health of employees and visitors to the site and concerning operations on-site and adjacent to the site. An Emergency Response Plan will be available on-site in case of emergency.

(b) In the event of a conflict between any regulatory plan or permit, the most stringent shall apply.

(c) DVC shall immediately notify OES, the Planning Department and Environmental Health Services Division (EHS) when an emergency occurs at the site.

S-7. SITE CLOSURE, FINANCIAL RESPONSIBILITY, AND POST-CLOSURE PLAN:

(a) Permittee shall maintain an applicable Site Closure Plan and a Post-Closure Plan, complying with all State and Federal laws and regulations. Said plan(s) shall contain detailed procedures for Closure and Post-Closure for the facility. A monitoring system, and a procedure for funding these plans for a minimum of 30 years subsequent to closure is required. Permittee shall advise the County of any changes pursuant to Section G-21, and include the status of any changes in the plan(s) in the Annual Compliance Report.

(b) Environmental Impairment Liability Insurance ("EIL"), including sudden/non-sudden pollution liability, transportation in vehicles and vessels, shall be maintained in compliance with State and Federal requirements or compliance schedules issued by those jurisdictions. A minimum of two million five hundred thousand dollars in a form acceptable to the County for Site Specific EIL coverage shall be maintained by Permittee. Permittee at its discretion or election may post such other financial assurance subject to acceptance by the Board of Supervisors.

S-8. DUST CONTROL:

The access road(s) shall be paved and shall be maintained in a dust-free manner and safe for vehicle access. Internal operations of the disposal site shall be maintained dust-free by water or other control measures as approved in the Site Operations Plan, including but not limited to, spraying the monofill materials at the end of each working day with a soil sealant polymer.

S-9. VEGETATION:

Any sensitive, rare or endangered vegetation found shall be appropriately relocated, if possible, to other areas prior to any construction, including dikes, and/or monofill(s) pursuant to appropriate state or federal requirements.

S-10. FLOOD WATERS:

Any water diversion dike(s), channel(s), and/or embankment(s) in Section 33, shall protect the site against a 100-year, 24 hour storm, and shall be designed by a Civil Engineer, reviewed, and approved by the Public Works Department.

S-11. LIGHTING:

Permittee is allowed to have security as well as operational lighting. Said lighting shall be shielded and direct to on site areas to minimize off site interference from unacceptable levels of light or glare.

Structures constructed on site shall be of earth tone coloration to minimize their potential visibility. If night lighting is required, directional lighting fixtures shall be used to reduce potential glare onto adjacent properties and to minimize night glare.

Although impacts to visual resources are not considered significant, the above mitigation measures have been provided. To ensure these measures are implemented properly during plan check, County staff shall inspect and approve a color sample of the structures to be constructed. A site visit shall be conducted by County staff to ensure the colors used match what was specified prior to the issuance of an occupancy permit. Potential glare impacts to adjacent properties shall be monitored through complaints made to the County. If complaints are received, the appropriate County regulatory agency shall conduct site visits to evaluate and develop measures that would remedy the problem.

S-12. WILDLIFE PROTECTION:

Effective measures shall be employed to prevent wildlife from entering any monofill(s). If mortality of birds and/or animals occurs, Permittee shall install mesh cover or other effective measures approved of by the California Department of Fish and Game to prevent entry by birds and/or animals, as applicable.

S-13. GROUNDWATER MONITORING/HYDROLOGIC DATA:

(a) In addition to the groundwater monitoring program described in any Site Operation Plan and/or required by RWQCB, quarterly monitoring reports shall be provided to the Planning Department and EHS/Health. Additional groundwater monitoring may be required by the County Health Officer upon a determination that there is cause, and shall be performed by Permittee. When any groundwater samples are to be taken, the County Health Officer and Planning Department shall be advised in advance so that a representative of that office and/or Planning Department may be present to verify procedures and to insure that a representative sample is taken. Test result(s) shall be submitted to both Departments within 10 days of receipt of lab results. Under no circumstances shall tests be submitted later than 180 days of obtaining samples. Any field perimeter tests shall be reported within 10 days.

(b) Data shall be included in the final project design will include (but not limited to) the following information:

- An evaluation of the water-bearing characteristics of the natural geologic materials, including determination of permeability, delineation of all groundwater zones, and the basic data used to determine the above.

- An evaluation of the in place permeability of soils immediately underlying the Class II waste management unit including presentation of the permeability data in tabular form, a map of the unit showing test locations where these permeability data were obtained, and an evaluation of the test procedures and rationale used to obtain these permeability data.

- An evaluation of the perennial direction(s) of groundwater movement within the uppermost groundwater zone within one mile of the waste management facility perimeter.

- Estimates of the height of the capillary fringe above the uppermost groundwater zone beneath and within one mile of the waste management facility perimeter, including an evaluation of all methods and the rationale used in their development.

- A map showing the location of all springs in the area proposed for the monofill and within one mile of its perimeter, as well as a tabulation of mineral quality and flow data for each spring.

- A water quality evaluation of the water know to exist under or within one mile of the monofill facility perimeter, including all data necessary to establish water quality protection standards.

- A tabulation of background water quality data for all applicable indicator parameters and waste constituents.

- Establishment of a water quality monitoring system pursuant to direction by RWQCB.

- An evaluation of runoff qualities and drainage patterns within the project site and vicinity, including an estimate of the PMP storm event.

- An evaluation of potential erosion impacts associated with the proposed project and the generation of appropriate mitigating measures. Such measures may include the use of protective facings, channelization of threatened drainages, or construction of energy dissipating or sedimentation facilities (e.g., detention basins).

S-14. RIGHT OF ENTRY:

The County reserves for itself and other enforcement, regulatory or monitoring agencies the right to enter the premises with the knowledge of Permittee and in accordance with Permittee's access procedures to make appropriate inspections and to determine if the conditions of this permit are being fulfilled. Permittee shall not deny or restrict access by enforcement agency personnel. Inspections may be at any time, day or night, and may include announced and unannounced inspections. Except for standard safety regulations and procedures, inspectors shall have unrestricted access to all portions of the site.

S-15. SITE WATER USAGE:

Permittee shall, if appropriate, secure any necessary future water rights from the IID. The Planning Director may grant extensions of time, not to exceed a total of one year, upon good cause shown by Permittee. No water for site usage after construction shall be taken from IID canals, laterals or reservoirs by pumpers, trucks or tankers. All water trucked on-site shall be stored in a dedicated 1,000 gallon or larger tank. A separate water well CUP has been issued for this project. Any future use of groundwater or IID water supplies and conveyance facilities shall receive prior approval from the appropriate responsible agency.

The Planning Department will be kept apprised of any requests made to IID for on-site water usage beyond that water trucked on-site and stored, and groundwater well water usage.

S-16. INJECTION WELL(S):

Injection well(s) of any type or any use are strictly prohibited on this site.

S-17. PRIVATE ACCESS ROAD/LEVEES:

The access road will avoid the culture resource site (IMP-6141/MON-5-4) by moving road 100' west, or as the Final Grading Plan approved by BLM and Department of Public Works dictates. The access road shall be paved, and maintained in good repair with adequate off-road drainage.

All roads constructed shall have a gravel surface for internal traffic on or off levees. All traffic on levee roads shall travel less than fifteen (15) miles per hours.

The truck traffic generated by the proposed development will have a significant impact on the access connection to SR 86. Therefore the applicant must maintain the pavement condition to the Department's standards during and at the conclusion of the operation of the Monofill;

The existing driveway connection to SR 86 must be improved to the Department's (Caltrans) standards as prescribed in the Highway Design Manual Section 205. Traffic control guidelines addressing short-term construction must also be submitted for our review;

Any work preformed within Caltran's right of way will require an encroachment permit. Road construction activities conducted on BLM land shall conform to all design specifications provided by that agency.

S-18. LIMITED USAGE:

The site shall only be used for the disposal/storage of waste generated by power plants and geothermal operations (all located in Imperial Valley) by wholly owned subsidiaries of Magma Power Company or by one of its affiliates. In the event that Magma Power Company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley monofill, Magma Power will, in writing, assign the right to use Desert Valley for such facility (retaining for MPC the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission of Imperial County.

S-19. RECYCLING PROHIBITED:

This Conditional Use Permit and the Zone Change/General Plan Amendment does not permit the recycling of any of the waste disposed/stored on-site, other than the removal of the filter cake material from the site, to another site for processing. In the event that recycling of the waste is proposed, an amendment of this Permit shall be necessary prior to any recycling activities occurring on-site.

S-20. MINERAL EXTRACTION ACTIVITIES:

This Conditional Use Permit does not allow any mineral extraction activities for any of the waste disposed/stored on-site, other than the removal for processing. In the event that mineral extraction is to be commenced, an amendment of this Permit or a new conditional Use Permit shall first be secured.

S-21. PROJECT DESIGN/CONSTRUCTION:

(a) Project design (with specific regard to geology/seismicity) shall be in conformance with requirements for Class II waste management units listed in Title 23 of the California Code of Regulation (Subchapter 15).

(b) All structures constructed on-site shall be of earth tone coloration to reduce visual impacts.

(c) Final project design shall comply with all California Code of Regulations. title 24, Uniform Building Code, and RWQCB and the County of Imperial standards regarding the nature, location, and construction of proposed facilities.

(d) All construction work shall be confined to the designated project area. Construction staging areas should coincide with the project area.

(e) All vehicles shall remain on roads. No off-road vehicle travel should be authorized without prior approval by BLM or CDFG.

(f) Access to the project area shall be controlled by gating.

(g) Access roads shall be paved to eliminate the amount of time the flat-tailed horned lizard spend on roads and potentially reduce lizard mortality.

(h) Screening shall be put in the fence around the project site to reduce flat-tailed horned lizards entering the landfill area and potentially reducing lizard mortality.

(i) Project design shall incorporate peak ground acceleration loading values of 0.60 g unless modified recommendation are provided by the geotechnical consultant.

(j) Final project design shall incorporate all measures deemed appropriate by the geotechnical engineer on the basis of existing and future site-specific investigations. Additional analysis of the project site should be conducted to evaluate potential impacts associated with repeated high ground acceleration, localized liquefaction potential, expansive and reactive soils, and wind generated erosion. Mitigation measures derived from these analyses may include the following types of requirements:

- Over-excavation of unsuitable base materials and replacement with approved and properly compacted structural fill.

- Use of moisture, chemicals, engineering, and/or drainage methods to control expansive behavior of underlying clay soil, if appropriate.

- Use of non-steel or coated (usually polyethylene encasement) steel conduits, sulfate resistant cement, or other protective material in areas of corrosive soils.

- Appropriate design of fill slopes associated with berms, storage/disposal facilities, building pads, etc., to minimize facilities, building pads, etc., to minimized potential seismically induced landsliding.

- This may include measures such as establishing maximum slope grades and the use of stabilizing materials or buttressing.

- Proper design of surface and subsurface drainage devices.

- Initiation of settlement monitoring if appropriate.

- Appropriate design, location, and construction of erosion control methods and devices.

- Scarification of all compacted areas to reduce erosion potential.

- Identification of appropriate wind erosion mitigation measures (if necessary) such as the use of chemical or physical stabilizers, appropriate operating schedules, etc.

S-22. EROSION:

The project shall reduce erosional impacts to extent possible through use of protective facing, channelizing of threatened drainages, or construction of energy dissipating or sedimentation facilities, e.g. detention basins.

The project applicant must receive discretionary approval from Caltrans prior to making any modifications to Caltran's flood control levee.

S-23. GROUNDWATER:

Any impact of groundwater associated with the project shall require approval from the Regional Water Quality Control Board (RWQCB).

A detailed hydrological analysis of the project site and vicinity shall be conducted by a qualified hydrologist. this investigation must be conducted pursuant to requirements in Title 23 of the California Code of Regulations (Subchapter 15). This investigation must be incorporated into the final project design and approved by RWQCB.

S-24. FUGITIVE EMISSIONS:

All fugitive dust emissions as well as emissions of solid constituents of the filter cake and mud sump material shall be reduced to a level of non-significance from an uncontrolled level as determined by APCD. In addition, Imperial County Air Pollution Control District (APCD) will require such mitigation measures deemed necessary through a Wind Dispersal Prevention Program to insure that the proposed project will not significantly impact the local and regional air quality.

S-25. BIOLOGICAL RESOURCES:

A survey has been completed to determine potential impacts to the FTHL (Flat Tailed Horned Lizard). The final grading plan should be reviewed by a qualified biologist to ensure that no significant impact to the FTHL will occur, and that impacts to the Salton Milkvetch are minimized to the extent possible.

The FTHL Management Plan will be available on-site and be utilized prior to site excavations or grading taking place. The loss of FTHL habitat will be compensated commensurate with appropriate state and federal requirements.

S-26. DIKES(S), AND/OR MONOFILL(S) CONSTRUCTION:

All dike(s), and/or monofill(s), shall be designed and constructed under the supervision of a civil engineer registered in the State of California. The supervising engineer shall certify that the work will maintain its integrity after being subjected to a maximum credible earthquake. Construction of any dike(s) and/or monofill(s) shall comply with all applicable County, State and Federal permitting requirements and shall be fully inspected by the County prior to being placed in use. The County may require each construction to be inspected by a third party consultant, at discretion of the Planning Director with the Permittee paying all costs of each such consultant.

S-27. LOCAL EQUITY PAYMENT(S):

The Permittee shall pay to the County Administration Office an annual fee in the amount of 20% of the combined gross total of all monitoring costs incurred by County monitoring departments. This fee shall be in addition to the required monitoring cost fees to be paid by Permittee.

(End of 'S' Section)

(C) PROHIBITED WASTES/ALLOWED WASTE:

P- (1) PROHIBITED WASTES

The following waste (s) shall not be accepted and/or delivered to the Site for disposal or storage:

(a) Radioactive wastes (except for NORM's associated with the Geothermal material approved for the site)

(b) Infectious wastes (including biological and chemical warfare agents)

(c) Water reactive wastes

(d) Air reactive wastes

(e) Strong oxidizers

(f) Compressed Gases

(g) Explosives

(h) PCB wastes (or any material containing any P.C.B.'s)

(i) Any waste designated as a hazardous waste by CCR, Title 22 and/or 23.

(j) Any waste that by State and/or Federal law is required to be disposed or treated at a Class I facility.

P- (2) ALLOWED WASTES

The following dry waste(s) shall be allowed to be stored and disposed on-site from plants and geothermal operations (all located in Imperial Valley) by wholly owned subsidiaries of Magma Power Company or by one of its affiliates:

(1) Those Drilling Muds Typical Analyses, Filter Cake Typical Analyses (Tables 1 and 2 of previous DVC Application), and soil contaminated with geothermal material which are non-hazardous.

(2) If upon analysis any load of drilling muds, cuttings, silica filter cake solids, and other geothermal materials are found to be "hazardous", it must be disposed of as required by the latest Federal, State, County laws and/or regulations.

(3) In the event that Magma Power Company sells substantially all interest in one of its facilities and that facility requires the continued use of the Desert Valley monofill, Magma Power will, in writing, assign the right to use Desert Valley for such facility

(retaining for MPC the right to use as to all other facilities) subject to the consideration of the Planning Director and approval by the Planning Commission of Imperial County.

(4) Non-Hazardous waste streams generated at the applicant's Mineral Recovery Facility and lime and amorphous sulfur waste from the power plants to the approved list of waste steams accepted at the Monofill under CUP# 1127-94.

(End of "C" Section)

(D) DEFINITION(s):

D-1 Adequate: shall mean satisfactory or acceptable to the Planning Commission.

D-2 C.E.Q.A.: CALIFORNIA ENVIRONMENTAL QUALITY ACT as found in the Public Resources Code 21000, et seq.

D-3 Considerable (Number of persons): shall mean as determined by the County Health Officer (usually meaning 3 or more people).

D-4 E.H.S.: Imperial County Department of Health Services, Division of Environmental Health Services.

D-5 Emergency Spills: a sudden accidental or unforeseen release of a material that results in environmental degradation.

D-6 Class II Waste Disposal Site: shall mean that portion of the northeast quarter of Section 33, Township 12 South, Range 11 East, being approximately 160 acres gross and does not include any other land owned, leased or otherwise controlled by DVC.

D-7 H.M.C.: shall mean the Imperial County Hazardous Materials Committee which consists of the Public Works Director, the Planning Director, the Health Officer, the Agricultural Commissioner and the Emergency Services Coordinator.

D-8 Lead Agency: as defined in CEQA - 1986 edition, in this case shall mean the Planning Department.

D-9 Reasonable: shall mean satisfactory or acceptable to the Planning Commission.

D-10 Regulations: shall mean administrative rules which implement duly enacted legislation/laws.

D-11 Storage: means the retention of non-hazardous materials within the Class II facility, i/e. monofill(s).

D-12 Class II: is a designation of a waste facility type under CCR Title 23 and shall be limited to the definition in effect at time of issuance of this CUP.

D-13 Norm: Naturally occurring radioactive material.

D-14 Emergency: "Emergency" shall mean an actual or threatened unauthorized release of materials which could cause exposure to the public or site workers.

D-15 Dry Waste: Meeting the "paint filter" test.

(End of "D" Section)

(E) MONITORING PROGRAM (Interagency Environmental compliance Program):

The Planning Department is the primary agency for the issuance/monitoring of the CUP and shall monitor the site and the CUP conditions, as required and as such will at a minimum, but not limited to, perform the following activities:

(1) be the coordinating entity between Desert Valley Company (DVC) and County Departments involved in the control and monitoring of the site.

(2) provide routine status reports to the Board of Supervisors, Planning commission and all affected County Departments, as appropriate.

(3) shall review all written monthly reports from monitoring agencies or as requested with full backup data, of any changes, violations or any other activities pertaining to this CUP.

(4) shall be staff to the HMC, with other staff as required.

(5) shall monitor the CUP site by means of inspection of the Site, which may occur at any time of day or night - both announced and unannounced, independently or jointly with other monitoring agencies.

(6) shall review all data submitted by and to DVC, by and to other agencies or departments.

(7) shall examine the site, and any reports or documents on file at the site or other DVC offices, and will keep a photographic and written record of on-going operations, as necessary.

(8) shall review and analyze all Federal, State, and County laws and regulations pertaining to solid waste regulations, and shall review same with all County Departments, as appropriate.

(9) shall, with EHS, meet and confer with any special consultants involved in the preparation of studies, reports, or analysis of the site.

(10) may attend meetings/hearings held by other regulatory agencies or departments as necessary.

(11) may attend seminars, workshops, or other educational meetings to keep abreast of related laws activities.

(12) shall perform such other monitoring activities as directed by the Planning Director, Planning Commission, or the Board of Supervisors.

(13) shall review all reports, documents, plans, and/or procedures submitted or required to be submitted by DVC to the County, or other agencies, if requested, including an annual compliance report assessment to determine compliance with the CUP and/or Agreement.

(14) At least every year or as otherwise directed by the Planning Commission, the Planning Director shall review Permittee's compliance with the conditions of the CUP, and may make a report of the finding to the Planning Commission. This report may also contain information concerning new technology, new regulations, monitoring results, or other pertinent information that the Planning Director deems necessary.

(15) Monitoring is estimated to be approximately five to six (5-6) hours per week for the first year; see estimated cost for monitoring below.

Appendix "B" attached hereto also constitutes the "Monitoring Program" as required for this Project. Therefore for more details on the monitoring procedures and requirements for this Project, refer to Exhibit "B" attached.

Appendix "B" shall be part of the Conditional Use Permit and shall have the same force and effect as the Conditional Use Permit.

Planning/Building Department Monitoring Program
For
Desert Valley Company CUP

Salaries & Benefits (est. 5-6 Hours/Week)

PLANNER IV	51251.00 / year x 13% =	6,662.63
Retirement	10142.00 / year x 13% =	1,318.53
Insurance	6025.00 / year x 13% =	783.25
Re. Benefit		88.61
Social Security		96.61
Ins. Workmans Comp.		117.93
Ins. Unemployment		21.99
Ins. Dental/Vision		132.21
Overtime		783.53
Net Total		10,005.29
CLERK III	23358.00 / year x 7% =	1,635.06
Retirement	4623.00 / year x 7% =	323.58
Insurance	3423.00 / year x 7% =	239.61
Re. Benefit		21.75
Social Security		23.71
Ins. Workmans Comp.		28.94
Ins. Unemployment		5.40
Ins. Dental/Vision		47.88
Overtime		248.53
Net Total		2,574.45
TOTAL SALARY & BENEFITS		12,579.73
SERVICES & SUPPLIES		
Communiticans		864.24
Insurance Liability		1,085.76
Maintenance Euipment		390.00
Office Expense		3,511.56
Professional & Special Services		780.00
Travel In County		1,063.92
Travel Out of County		1,716.00
Net Total		9,411.48
NET TOTAL		21,991.21
Overhead/Supervisors		3,518.59

Note: This is the estimated annual cost for the first full monitoring year. Upon completion of one full year monitoring, the Planning/Building Department shall prepare an analysis of actual cost incurred and adjust the estimated cost for the following year. The Department shall notify the Permittee of the Actual/projected cost. If actual costs are les than estimated above Permittee shall only be responsible for actual costs.

(W) WATER WELL: CONDITIONAL USE PERMIT #02-0003 (Superseding CUP#1127-94) FOR A WATER WELL FOR DESERT VALLEY COMPANY CLASS II FACILITY.

Note: There are no changes, other than by reference to CUP#02-0003, to the original conditions for the water well as found in CUP#1127-94. All conditions are applicable for the existing active water well.

WATER WELL CONDITIONS:

The use of the four (4") inch diameter water well shall be for non-potable use only, i.e. for dust control and sanitary purposes. The anticipated flow is estimated to be two (2) gallons per minute by Permittee.

Site Specific Conditions:

S-1: The water shall be used for on-site use(s) only as discussed above, and as may be allowed under CUP #02-0003.

S-2: The groundwater from the well shall not be sold, exported, or transported off-site.

S-3: This Permit limits the amount of water to be utilized on-site from the well to approximately 3.5 acre-feet per year based on the estimated flow by Permittee of two gallons per minute.

S-4: A flow meter is to be installed and the Permittee shall submit well driller's logs to the Public Works and Planning Department, to the satisfaction of the Planning Department within ninety (90) days of drilling completion.

S-5: The Permittee shall file an annual report on the water used during the previous year to the Planning and Public Works Department. This report shall coincide or may be part of the Annual Report under CUP #02-0003.

S-6: The water well shall be drilled by a California licensed water well drilling contractor and the name and Contractor's licensed numbers must be submitted to the Planning Department prior to the well being drilled.

S-7: If the well is found to be potable under California Standards, the same conditions shall apply.

S-8: If the County determines that the use of the well is creating an adverse impact to the groundwater basin, the County may order the Permittee to cease use of the well or limit the use of the well as deemed appropriate.

S-9: Water well shall be located within the property limits specified under CUP #02-0003.

S-10: Compliance with General Conditions:

This permit shall also include compliance with the following "General Conditions" as shown in CUP #02-0003 (Superseding CUP #1127-94), and the Permittee agrees to be bound by same; G-1, G-2, G-3, G-4, G-5, G-6, G-9, G-13, G-16, G-18, G-20, G-21, G-22, G-23, G-24, G-25, G-26, G-27.

NOW THEREFORE, County hereby issues Conditional Use Permit 02-003 (Superseding CUP#1127-94) and Permittee hereby accepts such permit upon the terms and conditions set forth herein.

IN WITNESS THEREOF, the parties hereto have executed this Agreement the day and year first written.

Permittee

By Raymond Kellner

Dated 1-21-2003

COUNTY OF IMPERIAL, a political subdivision of the STATE OF CALIFORNIA

By: _____
Jurg Heuberger, AICP, CEP, Planning Director

Dated 2/5/03

STATE OF CALIFORNIA
COUNTY OF Imperial } S.S.

On January 21, 2003 before me, Cathy Kay Kilgore a Notary Public in and for said County and State, personally appeared Raymond Kellner, personally known to me ~~(or proved to me on the basis of satisfactory evidence~~) to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he~~/she/they~~ executed the same in his~~/her/their~~ authorized capacity~~(ies)~~, and that by his~~/her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Signature Cathy Kay Kilgore

CATHY KAY KILGORE
COMM. # 1282831
NOTARY PUBLIC-CALIFORNIA
IMPERIAL COUNTY
COMM. EXP. NOV. 24, 2004

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document Agreement for Conditional Use Permit (CUP) #02-00
Number of Pages 28 Date of Document August 28, 2002
Signer(s) Other Than Named Above N/A

STATE OF CALIFORNIA
COUNTY OF IMPERIAL } S.S.

On FEBRUARY 5, 2003 before me, PATRICTA A. VALENZUELA a Notary Public in and for said County and State, personally appeared JURG HEUBERGER, personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Signature Patricia A. Valenzuela

ATTENTION NOTARY: Although the information requested below is OPTIONAL, it could prevent fraudulent attachment of this certificate to unauthorized document.

Title or Type of Document Conditional Use Permit
Number of Pages 28 Date of Document NOV 5, 2002
Signer(s) Other Than Named Above

PATRICIA A. VALENZUELA
Commission # 1282215
Notary Public - California
Imperial County
My Comm. Expires Oct 28, 2004

JM/G:APN/019/100/04CUP02-0003Agreement

6.5.1.2

DEC - 9 2002

PLANNING/BUILDING DEPARTMENT

IMPERIAL COUNTY

PLANNING / BUILDING INSPECTION / PLANNING COMMISSION / A.L.U.C.

JURG HEUBERGER, AICP,CEP
PLANNING/BUILDING DIRECTOR

NOTIFICATION OF ACTION

DATE OF DECISION: November 5, 2002

DECISION MADE BY:

_____ BY THE PLANNING COMMISSION
__X__ BY THE BOARD OF SUPERVISORS
_____ BY THE PLANNING DIRECTOR

APPLICANT:

Desert Valley Company
7030 Gentry Road
Calipatria, CA 92233

ENGINEER/ARCHITECT:

RTP Environmental Associates Inc.
7752 Fay Avenue, Suite C
La Jolla, CA 92037

PROJECT TYPE: **Conditional Use Permit # 02-0003 & Zone Change # 02-0001**

Dear Applicant/Engineer/Architect:

On 11 / 05 / 02 the ____ Imperial County Planning Commission, the _X_ Board of Supervisors, the __ Planning Director, through the public hearing process took the following action on your project.

(NOTICE: All Planning Director and Planning Commission actions have a ten (10) day appeal period during which time the decision may be appealed to the Board, and no further permitting of any type may be allowed by the Department)

X APPROVED THE PROJECT:

The ____ Planning Commission, ___ the Planning Director, the _X__ Board of Supervisors, approved your project subject to all the conditions discussed with you during the hearing process. (A copy of the CONDITIONS are attached hereto).

_____ DENIED THE PROJECT:

You may have the right to appeal the decision of the Planning Director to the Planning Commission. You may have the right to appeal the decision of the Planning Commission to the Board of Supervisors. If you wish to file an appeal with the Clerk of the Board, which must include the payment of the appeals fee ($400.00) within ten (10) days from the date, shown above. If no appeal is filed within ten (10) days, all rights to further administrative relief are waived.

PLEASE READ AND FOLLOW THE INSTRUCTIONS BELOW:

Your Conditional Use Permit (#02-0003) is approved subject to the terms and conditions specified in the permit, a copy of the conditions are attached hereto. You are requested to submit a fee in the amount of $84.00 for the CUP to be recorded. Please make the check payable to the Imperial County Recorder and submit it to the Imperial County Planning/Building Department. In addition, a check in the amount of $5.00 made payable to the Imperial County Planning/Building should be submitted for the document to be notarized. As the Permittee you must sign, have the document notarized and returned to our Department for further processing. (Note: The CUP does not become effective until it is recorded).

In addition to the recording fee, the following additional amounts are required for your project. These amounts are determined by the findings of the project. Your project requires:

_____ a Negative Declaration, the fee is $1,275.00 ($1250 for Negative Declaration and $25.00 documentary handling fee); or,

_____ an Environmental Impact Report (EIR), the fee is $875.00 ($850 for the EIR and $25.00 documentary handling fee); or,

__XX__ a "De Minimus" finding was determined or your project was exempt from CEQA, the fee is $25.00.

These fees are to be made payable to the Imperial County Clerk Department. Please note that these fees are in addition to the recording fee, and these fees should be submitted to the Imperial County Planning/Building Department as soon as possible for further processing of your CUP.

LEGAL RIGHT
PLEASE READ THE FOLLOWING STATEMENT - CAREFULLY:

"The time within which judicial review of this decision must be sought is governed by the Code of Civil Procedure 1094.6, which has been made applicable to the County of Imperial and any Commission, Board, including the Imperial County Board of Supervisors, the Planning Commission, agency, officer, or agent of the County by resolution. Any petition or other paper seeking judicial review must be filed in the appropriate court no later than ninety (90) days following the date on which this decision becomes final; however, if within ten (10) days after the decision becomes final, a request for the record of the proceedings is filed and the required deposit in the amount sufficient to cover the estimated cost of preparation of such record is timely deposited, the time within which such petition may be filed in court is extended to no later than the thirty (30) days following the date on which the record is either personally delivered or mailed to the party or his attorney of record, if he/she has one. A written request for the preparation of the record of the proceedings shall be filed with Jurg Heuberger, Planning Director, County of Imperial, 939 Main Street, El Centro, California, 92243. For purposes of this notice, the decision becomes final upon the expiration of the period during which an appeal may be sought; provided that if an appeal is sought, the decision is final for purposes of this notice on the date the appeal is denied."

If you have any questions, please feel free to call this Department at (760) 482-4236.

Sincerely,

JURG HEUBERGER
Planning Director

ATTACHMENT(S): CUP Agreement
JH/CA/GJ/019-100-04NOTICE OF ACTION

4-29-04

April 29, 2004

Mr. Jurg Heuberger
Imperial County Planning & Building Department
939 West Main Street
El Centro, California 92243

RE: Annual Report for the Desert Valley Monofill CUP 02-0003
(Formally 1127-94)

Dear Mr. Heuberger:

Attached is the 2003 Annual Report as required under Condition G-3 of the referenced permit.

You may contact me at (760) 348-4000 if you have any questions.

Sincerely,

Douglas Y. Hale
Environmental Technical Support Manager

Cc: Jeff Lamoure-I.C. Environmental Health Services
Tim Jones-I.C. Department of Public Works
Fred Nippins-I.C. Office of Emergency Services
Michelle Ochs- CRWQCB
Mary Dempsy w/o attachments
Steve Larsen
Dave Angulo
Cathy Woollums
DVC 6.3.1.3

DESERT VALLEY COMPANY

2003 ANNUAL REPORT

to

Mr. Jurg Heuberger, Director of

Imperial County Planning Department

General Condition G 3.1

CUP 02-0003
(Formally CUP 1127-94)

2003 Summary:

From January 1 to December 31, 2003 the Desert Valley Monofill was in operation to receive geothermal filter cake, drilling muds and cuttings and soils contaminated with geothermal materials from specified facilities in Imperial County.

Capacity:

Desert Valley started operation on May 1, 1991. During the first year of operation, Desert Valley was permitted to receive specified material at a maximum rate of 250-tons/day average. Thereafter, the maximum dropped to 150 tons/day. On January 24, 1996, the Integrated Waste Management Board concurred in the issuance of a revised Solid Waste Facility permit allowing for the hauling capacity of 180 tons/day. On February 1, 1996 Imperial County Environmental Health Services issued the permit. On June 17, 2003, the Integrated Waste Management Board approved an increase in the allowed daily tonnage to 750 tons/day. The maximum permitted tonnage is calculated as follows:

	Days	Tons/day	Tons
Jan. 1 - Dec. 31	365	750	273,750

For 2003, Desert Valley received 70,292 tons. This equates to 192 tons/day.

Volume:

In 1995, Desert Valley projected that cell 1 would reach its volume capacity in mid 1997. This projection was based on conversion factors for compaction of the wastes and the assumption that the cell was exactly 300,000 cubic yards. In the forth quarter of 1996, a survey was conducted to establish the remaining capacity of Cell 1. Using this survey to calculate the remaining volume and compaction factors based on drive tube samples to estimate the volume used, we now estimate volumes of Cell 1 and Cell 2 to be 527,000 cubic yards. This volume, while falling short of the original permitted 600,000 cubic yard capacity, but slightly more (2.5%) than the revised 514,000 cubic yard capacity in the permits was calculated. Based on our survey and the capacity volume in Cell 2, the facility volumes are as follows:

Cell 1	313,000 cubic yards
Cell 2	214,000 cubic yards
Total:	527,000 cubic yards

As of December 31, 2003, Cell 1 was calculated to be 98% full and Cell 2 was calculated to be 82% full. The following information will summarize our findings regarding the cell fill rate as it relates to available capacity.

As of December 31, 2003, the available capacity in Cell 1 and Cell 2 was calculated to be 55,695 tons. The tie-in of the median between the two cells provides additional calculated capacity of 34,021 tons, resulting in a total capacity volume of 89,716 tons as of December 31, 2003.

It is projected that the tie-in will be constructed and ready to receive volume by August 1, 2004. It is further projected that the construction of Cell 3 will be completed by February 1, 2005.

Maintenance and Repair:

There were no major repairs or maintenance activities to report in 2003.

General Conditions Update:

G-1 Acquisitions of Permits/Licenses and Compliance with General Laws

Permitting

During 2003, Desert Valley did amend the Conditional Use Permit (CUP). The permit was amended to allow a zoning change and the construction of Cell III. The CUP was presented before the Environmental Evaluation Committee, Imperial County Planning Department, and the County Board of Supervisors. All three boards passed the amended CUP and it was recorded on February 7, 2003.

To the best of my knowledge, Desert Valley has complied with, and maintained all applicable County, State and Federal permits, licenses and/or approvals, including, but not limited to those required by Imperial County Planning/Building Department, APCD, CRWQCB, County Division of Environmental Health Services (EHS), and Public Works Department for the year 2003 with the following exceptions.

1) Desert Valley received two NOV's from the Air Pollution Control District on January 13, 2003 for failure to report film badge radiological exposure reports and analytical results for radionuclides collected in the first and second quarters of 2001.
2) On August 15, 2003, Desert Valley received Red Tag #6746 as a result of Desert Valley's contractor, Reliance Construction, failing to obtain the appropriate permits before beginning construction of the new administrative buildings required to facilitate construction of Cell 3. On December 8, 2003 a permit was issued per said Red Tag.

3) In April of 2003, Reliance Construction began the foundation work for the new administrative buildings needed in preparation for the construction of Cell 3. As a part of this work Reliance Construction placed about 100,000 cubic yards of soil in a desert wash on the DVC site without a permit or approval. Desert Valley did not anticipate or endorse this soil placement. Desert Valley disclosed this fact to the CRWQCB and U.S. Army Corps of Engineers and will remediate by removing the soil from the desert wash in 2004 and restoring the natural contours.

Additionally, to the best of my knowledge, Desert Valley has complied with all applicable laws, ordinances, and/or regulations promulgated by County, State and Federal jurisdictions whether or not specified in the CUP for the year 2003.

Desert Valley has submitted to the Planning Department any additional permit(s)/license(s) that had not already been submitted directly via another County, State, or Federal entity.

G-2 Permit/Monitoring Related Fees

Desert Valley has paid all of the Imperial County Planning/Building fees submitted. While the Imperial County Environmental Health Department assessed a late penalty for failure to pay actual 2003 and projected 2004 fees, fees were paid upon receipt of an invoice and the late payment was waived by the Imperial County Board of Supervisors on March 30, 2004

G-3 Reports

Annual Reports – The annual report is contained herein. An aerial photograph of the NE quarter of section 33 is required every 3 years. An aerial photo was submitted in 2000 for the 1999 annual report. An updated aerial photograph was submitted in the 2002 report.

Desert Valley also submits an annual report to the Regional Water Quality Control Board. A copy of which was provided to the Imperial County Planning Department on January 30, 2004

Quarterly Reports - The Regional Water Quality Control Board amended Desert Valley's WDR on September 3, 2003 and now requires quarterly reports. These reports include:

-LCRS monitoring
-LDS monitoring
-Vadose zone monitoring
-Ground water well monitoring

-Summary of waste hauled on a monthly basis

Quarterly Reports- Desert Valley also prepares quarterly reports for the Imperial County Air Pollution Control District. This report includes:

- Types of waste
- Tonnage for each type
- Radiation badge monitoring
- Air station monitoring
- Air filter radionuclide analysis

Monthly Reports - Desert Valley submits a monthly report to the Imperial County Environmental Service. The report includes:

-Daily tonnage of materials received in that month
-Number of waste delivery vehicles entering the facility

The monthly reports contain the information required under G-3.2 and are sent to Imperial County Planning/Building Department. To prevent redundancy of reports, this information is not resubmitted.

Special Outside Reports - No special reports have been requested.

G-4 Violations of Reporting Requirements

Desert Valley did not receive any violations of reporting requirements during 2003.

G-5 Nuisance per se/Nuisance

Desert Valley is not aware of any permit violations. Furthermore, to the best of my knowledge, Desert Valley does not maintain a "nuisance" as described in this section of the CUP.

G-6 Responsible Agent

For 2003, the responsible agent for Desert Valley was Ray Kellner (760) 348-4039 or (760) 604-2506. The alternate agent was Steve Larsen (760) 348-4221 or (760) 604-0041.

G-7 Encroachment Permit

Cal-Trans: An encroachment permit was obtained and maintained during the construction of the Desert Valley Road and Highway 86 construction. In 1992,

Desert Valley received a permit for the construction of a left-hand turn lane. The construction of the left-hand turn lane was completed on March 16, 1992. No new permits were applied for during 2003.

BLM: Desert Valley obtained a right-of-way permit for the construction of Desert Valley Road. However, this permit did not allow for the installation of phone or power transmission lines. In 1992, BLM issued a right-of-way permit for the construction of power/telephone poles. In June of 1992, Imperial Irrigation District connected power to the Desert Valley facility.

IID: Desert Valley obtained a right-of-way permit to pass under the IID transmission lines.

G-8 Construction Standards

All structures, facilities, buildings, dikes and monofills at the site are constructed in accordance with County Ordinance(s) and uniform codes, as adopted by the County, for seismic zone 4, and in compliance with State and Federal regulations. Permits from agencies for the construction of Cell 1&2 and administrative buildings were obtained prior to construction. On August 15, 2003, Desert Valley received Red Tag #6746 as a result of Desert Valley's contractor, Reliance Construction, failing to obtain the appropriate permits before beginning construction of the new administrative buildings required to facilitate construction of Cell 3. On December 8, 2003 a permit was issued per said Red Tag.

G-9 Archaeology

A Cultural Resources Technical Report has been made and filed with the Imperial County Planning Department. Mitigation is achieved by avoidance. Desert Valley allows off road vehicular traffic only as required to conduct surveys of the property.

G-10 Training

Desert Valley has conducted training in 2003 on a weekly, monthly and annual basis. This covers numerous topics including:

- Material Safety Data Sheets
- Respiratory Protection
- Confined Space Entry
- Lock Out/Tag Out Procedures
- Business plan emergency spill response

- Formal annual site-specific training (including handling annual spills)
- Formal site-specific contractor training

No new employees were added to Desert Valley's staff in 2003.

G-11 Insurance and Indemnity

(a) General, Automotive and Property Damage Liability Insurance – Copies of Desert Valley's coverage are included in Attachment A.

(b) Workman's Compensation Insurance - A Certificate is sent directly to the Planning Department. A copy of Desert Valley's Certificate is in Attachment A.

(c) All insurance policies required here under sections **(a)** and **(b)** name the County of Imperial as an additional insured.

G-12 Provision to run with Land/Project

Desert Valley has not sold, transferred nor granted control of project or any right or privilege to another party. However, in early 1995, the parent company, Magma Power Company, was purchased and now exists as a wholly owned subsidiary of CalEnergy Company, Inc.

G-13 Routes

Trucks hauling between the six locations operated by CalEnergy Operating Company (Magma Operating Company, Red Hill Geothermal) and Desert Valley are confined to the designated route in Attachment B.

G-14 Seismic Detection

The Imperial County Public Works Department approved the installation of a Kinemetrics Accelerograph model SSA2. This unit was installed and has been continuously in operation since the first quarter of 1992. The unit was triggered twice on June 28, 1992 in response to seismic activity located in Yucca Valley, CA and three times on February 7, 1994. On June 26, 1998, the unit was triggered and measured a ground acceleration of 0.069g. This event documents the maximum acceleration ever recorded at Desert Valley. The facility is designed to withstand 0.6-g acceleration when empty. Berms are supported from the inside by landfilled materials and make the facility more resistant.

In 2003, the unit was triggered once on October 24, 2003 measuring a ground acceleration of 0.035g.

G-15 Appeals

The Permittee has appealed no decisions/determinations by the Planning Director in 2003.

G-16 Approvals of Plans, Programs or Interpretations

(a) To the best of my knowledge, all plans prepared and submitted for County approval have been or will be approved.

(b) Desert Valley did not submit an application to amend the CUP in 2003.

G-17 Enforcement and Termination

(a) No notices from the Planning Director have been provided to Desert Valley.

(b)(c)(d)(e) Not applicable in 2003.

G-18 Industrial Hygiene/Health Standards

The County Health Officer has not required any measures beyond Desert Valley's current industrial hygiene program in 2003.

G-19 Annual CUP Review

Desert Valley is willing to assist the Planning Director in preparing an annual review/report of the conditional use permit/project if requested to do so.

G-20 Invalid Conditions

No section, subsection, sentence, clause, or phrase of this CUP has been reviewed by any court during 2003.

G-21 Minor Changes

No minor changes have been submitted since the initial approval of plans.

G-22 Notice of Regulatory Activity

Desert Valley routinely submits to the Planning Department copies of notices and/or submissions to any State, Federal or Local regulatory authority initiated by Desert Valley.

G-23 Definitions

No disputes as to the meaning or intent of word(s), phrase(s), and/or conditions or sections in the CUP have occurred during 2003.

G-24 Specificity

The Desert Valley operation has not received any violations in 2003 other than the Red Tag and two APCD NOV's discussed in G-8 nor has it operated beyond the boundaries of the project as described.

G-25 Recordation

The Desert Valley CUP was originally issued on August 13, 1990. Recordation of the permit took place shortly after. The permit was revised in 1994 and on July 27, 1994, the conditional use permit was completed. The permit was recorded on September 26, 1994. A revised CUP 02-0003 was recorded on February 7, 2003.

G-26 Condition Priority

The Desert Valley Monofill was constructed and was operated during 2003 as described in the Conditional Use Permit application, Environmental Assessment, the project description and as specified in the conditional use permit conditions.

Site Specific Conditions Update:

S-1 Maximum Annual Tonnage

The maximum permitted tonnage is calculated as follows:

	Days	Tons/day	Tons
Jan. 1 - Dec. 31	365	750	273,750

For 2003, Desert Valley received 70,292 tons. This equates to 192 tons/day. The maximum permitted vehicles of 38 per day was not exceeded in 2003.

S-2 Hours and Days of Operation

Desert Valley typically operates from 6:00 a.m. to 2:30 p.m., 5 days per week. On occasion, longer hours and weekends may be scheduled but always within the 6:00 a.m. to 6:00 p.m. permitted operating window.

S-3 Required Waste Analysis

On March 18, 1991, a revised Material Storage and Handling Plan was submitted to the Planning Department for review and approval. The plan as written is still valid and calls for an annual analysis of filter cake from each plant. These analyses are included in Attachment C.

Certifications of Compliance with documentation procedures were updated in May of 1994 and provided to the Environmental Health Services from the Hauler and Generators. A certification from the dispenser (sub-contractor of hauler) was not provided because sub-contractor trucks have not been used.

S-4 Vehicle/Equipment Maintenance

Hazardous waste generated on site due to equipment maintenance is stored and disposed of in accordance to the latest Federal, State and County laws and/or regulations. Should hazardous waste be generated, it will be disposed of under Desert Valley's Hazardous Waste Generator number: CAL000057678.

S-5 Air Quality Monitoring

Airborne Particulate Monitoring - During the 1991 construction phase, Desert Valley installed four air-monitoring stations (only three were required). Locations for the stations were selected with the help of the Imperial County APCD. These air stations operate every six days for 24 hours on the EPA air-monitoring schedule.

Quarterly, one set (2 filters) are selected from one of the sampling days for Radiological analysis and every other quarter metal analysis are performed.

Results of Metal Analysis conducted in 2003 are included in Attachment D. For those metals that do have air standards, all values are well below the standard without blank or background correction.

The results for radiological analysis in 2003 are also included in Attachment D. All measured values are well below the public exposure limits without blank or background corrections.

Film Badge Radiological Dosimeter Monitoring - Desert Valley also conducts employee radiological Dosimeter monitoring and sends the results to agencies via the quarterly air monitoring report. The results in summary for 2003 are:

All doses are well below the NRC limit of 1250 mRem per calendar quarter (10 CFR 20.1201(a) (1) (i)).

All doses are below the whole body level of 125 mRem per calendar quarter at which personnel monitoring is required (10 CFR 20.1502(a) (1)).

All doses are below the whole body dose of 100 mRem per year allowed in uncontrolled areas (10 CFR 20.1301(a) (1)).

Wind Dispersal Program - Desert Valley installed and maintains a weather station at Desert Valley. The purpose of the station is to gauge and document weather data that affects the Desert Valley operations. Audible warning alarms as well as a light give indication when the wind speed is at the 13-mph disposal limit.

At the end of each day, an acrylic polymer solution (soil seal) is applied to the disposed material. The Imperial County Environmental Health Services as part of an "Alternate Cover" program conducted weekly inspections for the Integrated Waste Management Board. The alternate cover program has been deemed a success and has been permanently included in the solid waste permit.

S-6 Site Operations

Desert Valley is constructed and maintained in accordance with all approved CUP conditions and building/structure code requirements.

Desert Valley did prepare a site operation plan and emergency response/contingency plans that were submitted and approved during 1991. A review of these plans is undertaken on a periodic basis to ensure they are accurate and viable. These plans are kept on site and revisions will be submitted to agencies as they are made.

S-7 Site Closure, Financial Responsibility and Post Closure Plan

(a) Closure - Post Closure Plan - Desert Valley submitted its closure - post closure plan to the California Integrated Waste Management Board. These plans were adopted by resolution on February 22, 1991 as resolution 91-08. Financial assurance for this plan is in the form of an irrevocable letter of credit for $1,600,000 to the Integrated Waste Management Board. This amount is revised annually based on a factor provided by the Integrated Waste Management Board.

Desert Valley has produced the final closure/post-closure for cell 1 and revised closure/post-closure plan for cell 2. As part of this process, a civil engineer must calculate the cost estimate. Due to the decreased size of cell 2, the total financial assurance with 30 years of monitoring was estimated to be $1,499,179 as of December 1, 1995. Desert Valley has submitted a revised closure plan to agencies for a single closure of both cells. As part of this revision, the closure cost estimate was recalculated and the required closure/postclosure fund totals to $1,715,000.00. Desert Valley has adjusted their closure and postclosure bonds accordingly for 2003. Desert Valley does not plan to begin closure until Cell 3 is constructed.

(b) Environmental Impairment Liability Insurance

Transportation - Magma Operating Company owns and operates the trucks that transport materials to be disposed of at Desert Valley. In 2003, these trucks were covered by special "EIL" insurance.

Site Specific Coverage - Desert Valley originally maintained an irrevocable letter of credit for $1,000,000 to Imperial County Planning Department. In 1992, Desert Valley was required to obtain financial Liability Insurance with environmental impairment coverage that was acceptable to the California Integrated Waste Management Board. The California Integrated Waste Management Board required coverage in the amount of $1,000,000 per occurrence, $2,000,000 annual aggregate. Unfortunately, the Integrated Waste Management Board did not recognize the letter of credit used with Imperial County as a valid coverage mechanism.

When the Conditional Use Permit was modified in 1994, this condition was changed to $2,500,000 in a form acceptable to the Board of Supervisors. Desert Valley has obtained site-specific insurance for the $2,500,000. In 1996, Desert Valley formally requested the Planning Department to release the redundant letter of credit and an insurance policy naming Imperial County as an additional insured and now satisfies this condition. A copy of the EIL site insurance certificate can be found in Attachment A.

S-8 Dust Control

Desert Valley constructed and maintains a paved road from Highway 86 to the facility. As soon as practical after a rainstorm, if any dirt has covered the road at washes, it is removed and the road swept clean.

Areas around the Monofill are wetted by means of a water truck and occasionally soil sealant is applied to mitigate dusting.

Newly disposed of materials are sprayed with a soil sealant polymer that produces a crust in the same day they are received. Occasionally, all exposed material inside the cell is sprayed with soil sealant as well.

S-9 Vegetation

Since the start up of Desert Valley operations, minimal vehicular travel has occurred in the surrounding desert. Travel in the desert has only occurred during surveys and for the most part, the equipment stayed on pre-existing roads. Therefore, relocation of rare or endangered vegetation has not been required.

S-10 Flood Waters

Desert Valley maintains a 100-year - 24 hour flood embankment. Storms that occurred during this winter have not impacted the embankment.

S-11 Lighting

Desert Valley does not operate at night so night lights have not been installed. At this time, night operation does not seem necessary.

Earth tone colors have been used as required by the CUP.

S-12 Wildlife Protection

There has been no noticeable mortality of birds or animals in the vicinity of Desert Valley.

S-13 Groundwater Monitoring/Hydrologic Data

(a) The quarterly and annual reports to the Regional Water Quality Control Board are copied to the Imperial County Planning and Environmental Health. The County Health offices have not requested any additional groundwater monitoring in 2003.

(b) Project design data has been submitted to meet requirements of this section in the Report of Waste Discharge to the Regional Water Quality Control Board. This report was submitted to Regional Board in July of 1989. Copies of this report have been sent to the Planning Department as well as other agencies. In 1999, two ground water wells were plugged and abandoned for the construction of Cell 2. A report proposing the installation of two new ground water wells and two new vadose zone monitoring tubes was submitted to the Regional Water Quality Control Board. The Regional Board staff concurred with the monitoring additions and the wells were installed.

S-14 Right of Entry

Desert Valley recognizes the County's right to enter premises and has appreciated the input received during inspections.

S-15 Site Water Usage

Desert Valley operates a water well for on site use under CUP 02-0003 (formally CUP 1127-94). Desert Valley exceeded the 3.5acre-ft. limit in 2003. See Condition S-3 of the attached Water Well CUP.

S-16 Injection Well(s)

Desert Valley has not constructed nor operated any injection wells.

S-17 Private Access Road/Levees

The access road, as built, avoids cultural resource site IMP-6141/MON-5-4. This road is paved and in good repair.

Most of Desert Valley's internal traffic is on paved roads. Infrequently traveled roadways have a gravel surface.

Desert Valley maintained an encroachment permit with Cal-Trans for activities within that agency's right-of-way. In 1992, Desert Valley received a Cal-Trans permit for the construction of a left-hand turn lane on Highway 86. This left-hand turn lane was completed in 1992. No new permits were applied for during 2003.

S-18 Limited Usage

Desert Valley only disposed/stored materials for the Power Plants, owned/operated by Vulcan Power Company and Cal Energy Operating Co. (formerly Magma Operating Company and Red Hill Geothermal, Inc.). All generating facilities are located in Imperial County.

S-19 Recycling Prohibited

No recycling occurred at Desert Valley in 2003.

S-20 Mineral Extraction Activities

No mineral extraction activities took place at Desert Valley during 2003.

S-21 Project Design/Construction

(a) Desert Valley was built in conformance with the requirements for Class II waste management units in Title 23 of the California code of Regulations.

(b) All structures have earth tone coloration.

(c) Desert Valley was built to conform to Title 24, Uniform Building Code, RWQCB and County of Imperial Standards regarding the nature, location, and construction of facility.

(d) Construction work and staging areas were limited to the designated project area.

(e) Vehicles remained on designated roads.

(f) Gating was installed to control access.

(g) Access road is paved.

(h) Screening was installed in the facility fence.

(i) Facility design incorporated peak ground acceleration loading values of 0.60 g.

(j) Final project design incorporated all measures deemed appropriate by the geotechnical engineer.

S-22 Erosion

The project is located in a naturally protected area. Only a minimal berm on the south and west sides was necessary.

Prior approval was received from Cal-Trans before building the Desert Valley access road over Cal-Trans flood control levee.

Desert Valley obtained an encroachment permit and built Desert Valley road to Cal-Trans approved prints.

S-23 Groundwater

The final project design was approved by RWQCB.

S-24 Fugitive Emissions

Desert Valley has submitted a wind dispersal program to APCD. To date, no modification to the plan has been requested by APCD.

S-25 Biological Resources

As determined in Desert Valley's EIR, the projects impact on the flat-tailed horned lizard is "insignificant due to the relatively low abundance index".

However, Desert Valley still trains their personnel on the flat-tailed horned lizard so they can minimize impacts to the habitat. The loss of habitat for the Salton Milkvetch due to the Monofill construction was not significant.

Mitigation - No significant biological impacts were identified for the Desert Valley project. Therefore, no specific mitigation measures have been developed. However, recommendations are made to curtail or reduce the potential for indirect effects to species degradation of surrounding natural habitat:

All vehicles remain on roads. No off road vehicle travel is authorized without prior approval.

Gating controls access to the project area.

Access roads are paved to eliminate the amount of time the flat-tailed horned lizards spend on roads and potentially reduce lizard mortality.

Screening was put in the fence around the project site to reduce flat-tailed horned lizard entering the landfill area and potentially affecting lizard mortality.

All work is confined to the designated project area.

S-26 Dike(s) and/or Monofill(s) Construction

The Monofill was designed and constructed by Dow Engineering Company. Chuck Oliver was responsible for the overall design and is a California Certified Engineer. Project management and quality assurance is described in the completion report. A copy of this report has been provided to the Planning Department.

S-27 Local Equity Payment(s)

At the time of this report, Desert Valley has not yet received an invoice from the County Administrative Office.

Prohibited and Allowed Wastes:

P-1 Prohibited Wastes

During 2003, Desert Valley did not accept for disposal or receive for disposal any of the following wastes:

(a) Radioactive wastes (except for NORM's associated with the geothermal material approved for the site)

(b) Infectious wastes (including biological and chemical warfare agents)

(c) Water reactive wastes

(d) Air reactive wastes

(e) Strong oxidizers

(f) Compressed gases

(g) Explosives

(h) PCB wastes (or any material containing and PCB's)

(i) Any waste designated as a hazardous waste by CCR, Title 22 and/or 23

(j) Any waste that by State and/or Federal law is required to be disposed or treated at Class I facility.

P-2 Allowed Wastes

During 2003, Desert Valley disposed of wastes from plants owned or operated by Vulcan Power Company and/or CalEnergy Operating Company (formally Magma Operating Company / Red Hill Geothermal, Inc.).

The disposed wastes were non-hazardous drilling muds and cuttings, non-hazardous soil contaminated with geothermal materials and non-hazardous filter cake.

CUP 02-0003 (Formally CUP 1127-94)
Desert Valley Water Well

Summary:

Desert Valley maintains a non-potable water well which was put into service at Desert Valley during 1992. This well provides water to the office building and for the soil stabilizer applied to the waste. Mr. Joe Hickey of Red Hill Geothermal submitted driller's logs in June of 1991. A copy of this report has previously been provided to the Planning Department.

Conditional Use Permit 02-0003 included water well conditions for a relocated water well necessary due to the construction of Cell 3. This water well was not installed in 2003.

In Desert Valley's efforts and requirements to minimize particulate emissions, the 3.5acre-ft. per year limit was exceeded in 2003. This occurred in large part due to the additional 22% (70,293 tons in 2003 vs. 54,795 tons in 2002) of material disposed in 2003. Well water usage was up 23% correspondingly (4.3acre-ft. in 2003 vs. 3.3acre-ft. in 2002).

Desert Valley will seek an amendment to their permits to reflect the need to increase the allowed water well usage limit to meet their dust control requirements of their predicted disposal tonnage.

Site Specific Conditions:

Desert Valley is in compliance with the following conditions:

S-1 The water well will be used for building water and dust control in and outside the Monofill cell.

S-2 No water will be sold, exported or transported off-site.

S-3 CUP limits well water use to 3.5 acre-ft. per year. In 2003, Desert Valley used 4.3 acre-feet of water. In Desert Valley's efforts and requirements to minimize particulate emissions, this 3.5 acre-ft. per year limit was exceeded in 2003. This occurred in large part due to the additional 22% of material disposed in 2003. Desert Valley will seek an amendment to their permits to reflect the need to increase the allowed usage limit.

S-4 A flow meter has been installed on the well and the driller's logs were submitted in June of 1991. In 1997, both the well pump and water meter were replaced.

S-5 This report satisfies the annual report requirement.

S-6 The water well was drilled by the California licensed Contractor Welch & Howell. The Contractors license number was submitted to the Planning Department by phone and confirmed by a letter dated May 9, 1991.

S-7 The well has not been tested for potability.

S-8 No action has been taken by the County in 2003 to limit or stop use of this well.

S-9 The water well is located within the property limits specified under CUP 02-0003 (formally CUP 1127-94).

S-10 The water well complies with the applicable portions of the following general conditions in CUP 02-0003: G-1, G-2, G-3, G-4, G-5, G-6, G-9, G-12, G-16, G-18, G-20, G-21, G-22, G-23, G-24, G-25, G-26, and G-27.

ATTACHMENT A

G-11(a)	**Workers Compensation Certificate**
G-11(b)	**General Automotive and Property Liability Certificate**
S-7(b)	**Facility Pollution Liability Certificate**

ACORD. CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY) 04/26/04

PRODUCER
Aon Risk Services, Inc. of Nebraska
Insurance Services CA License #0671006
11213 Davenport
Suite 201
Omaha NE 68154 USA

PHONE: (402) 697-1400 FAX: (402) 697-0017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

INSURER A: Liberty Mutual Fire Ins Co
INSURER B:
INSURER C:
INSURER D:
INSURER E:

INSURED
CalEnergy Operaitng Company
Attn: Mr. Jason Wentworth
666 Grand Avenue
P. O. Box 657
Des Moines IA 50303 USA

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE(MM/DD/YY)	POLICY EXPIRATION DATE(MM/DD/YY)	LIMITS	
	GENERAL LIABILITY ☐ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC				EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON OWNED AUTOS	AS2-691-550801-034 Business Auto Coverage	04/01/04	04/01/05	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$1,000,000
	GARAGE LIABILITY ☐ ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	
	EXCESS LIABILITY ☐ OCCUR ☐ CLAIMS MADE ☐ DEDUCTIBLE ☐ RETENTION				EACH OCCURRENCE AGGREGATE	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WA2-691-550801-014 Worker's Compensation	04/01/04	04/01/05	☐ WC STATU-TORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE-POLICY LIMIT E.L. DISEASE-EA EMPLOYEE	$1,000,000 $1,000,000 $1,000,000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS
Evidence of Insurance for the Desert Valley Company Annual Report.

CERTIFICATE HOLDER

Imperial County
Planning Department
939 Main Street
El Centro CA 92273 USA

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Holder Identifier :
Certificate No : 570009485468

APR-26-2004 11:50 P.03

ACORD. CERTIFICATE OF LIABILITY INSURANCE DATE (MM/DD/YY) 04/28/04

PRODUCER
Aon Risk Services, Inc. of Nebraska
Insurance Services CA License #0871006
11213 Davenport
Suite 201
Omaha NE 68154 USA

PHONE (402) 697-1400 FAX (402) 697-0017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
MidAmerican Energy Holdings Co
c/o CalEnergy Operating Company
7030 Gentry Road
Calipatria CA 92233 USA

COMPANIES AFFORDING COVERAGE

COMPANY A: Steadfast Insurance Company
COMPANY B:
COMPANY C:
COMPANY D:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				BODILY INJURY OCC	
	☐ COMPREHENSIVE FORM				BODILY INJURY AGG	
	☐ PREMISES / OPERATIONS				PROPERTY DAMAGE OCC	
	☐ UNDERGROUND EXPLOSION & COLLAPSE HAZARD				PROPERTY DAMAGE AGG	
	☐ PRODUCTS / COMPLETED OPER				BI & PD COMBINED OCC	
	☐ CONTRACTUAL				BI & PD COMBINED AGG	
	☐ INDEPENDENT CONTRACTORS				PERSONAL INJURY AGG	
	☐ BROAD FORM PROPERTY DAMAGE					
	☐ PERSONAL INJURY					
	AUTOMOBILE LIABILITY				BODILY INJURY (Per Person)	
	☐ ANY AUTO				BODILY INJURY (Per Accident)	
	☐ ALL OWNED AUTOS (Private Pass)				PROPERTY DAMAGE	
	☐ ALL OWNED AUTOS (Other Than Private Passenger)				BODILY INJURY & PROPERTY DAMAGE COMBINED	
	☐ HIRED AUTOS					
	☐ NON-OWNED AUTOS					
	☐ GARAGE LIABILITY					
	EXCESS LIABILITY				EACH OCCURRENCE	
	☐ UMBRELLA FORM				AGGREGATE	
	☐ OTHER THAN UMBRELLA FORM					
	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				☐ WC STATUTORY ☐ OTH ER	
	THE PROPRIETOR / PARTNERS / EXECUTIVE OFFICERS ARE: ☐ INCL ☐ EXCL				E.L. EACH ACCIDENT	
					E.L. DISEASE-POLICY LIMIT	
					E.L. DISEASE-EA EMPLOYEE	
A	OTHER ☒ Polluta/Env Imp	PLC 2252797 06 POLLUTION LIABILIT	08/28/03	08/28/04	Aggregate Limit	$2,500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS
Covered Location: Desert Valley Company, 3301 W. Highway 86, Brawley, California. Facility No. 13-AA-0022. Certificate holder is named as an Additional Insured with respect to the covered location only.

CERTIFICATE HOLDER

Imperial County Planning Department
939 Main Street
El Centro CA 92243 USA

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

ACORD 25-S (7/97)

Holder Identifier: Pollution 01-02

Certificate No: 570009488176

Attachment to ACORD Certificate for MidAmerican Energy Holdings Co

The terms conditions and provisions noted below are hereby attached to the captioned certificate as additional description of the coverage afforded by the insurer(s). This attachment does not contain all terms, conditions, coverages or exclusions contained in the policy

INSURED

MidAmerican Energy Holdings Co
c/o CalEnergy Operating Company
7030 Gentry Road
Calipatria CA 92233 USA

COMPANIES AFFORDING COVERAGES
COMPANY
COMPANY
COMPANY
COMPANY

ADDITIONAL POLICIES If a policy below does not include limit information, refer to the corresponding policy on theACORD certificate form for policy limits.

Co Ltr	Type of Insurance	Policy Number	Policy Eff. Date	Policy Expir. Date	Limits	
A	OTHER [X] Pollutn/Env	PLC 2252797 00 POLLUTION LIABILITY	08/28/03	08/28/04	Per Claim Limit	$2,500,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Certificate No : 570009488176

ACORD. 04/26/04

PRODUCER
Aon Risk Services, Inc. of Nebraska
Insurance Services CA License #0871006
11213 Davenport
Suite 201
Omaha NE 68154 USA

PHONE-(402) 697-1400 FAX- (402) 697-0017

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COMPANIES AFFORDING COVERAGE

COMPANY A: Underwriters At Lloyds London

COMPANY B:

COMPANY C:

COMPANY D:

INSURED
CalEnergy Operating Company
Attn: Mr. Jason Wentworth
666 Grand Avenue
P. O. Box 657
Des Moines IA 50303 USA

Holder Identifier:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	COVERED PROPERTY	LIMITS
A	X PROPERTY CAUSES OF LOSS BASIC BROAD SPECIAL EARTHQUAKE FLOOD	ARS-3817 & ARS-3819 (US) Energy Property - Certifi	10/01/03	10/01/05	BUILDING PERSONAL PROPERTY BUSINESS INCOME w/o Extra Expense EXTRA EXPENSE BLANKET BUILDING BLANKET PERS PROP BLANKET BLDG & PP X Loss Limit X Deductible	$200,000,000 $5,000,000
	INLAND MARINE TYPE OF POLICY CAUSES OF LOSS NAMED PERILS OTHER					
	CRIME TYPE OF POLICY					
	BOILER & MACHINERY					
	OTHER					

Certificate Number: 570009488117

LOCATION OF PREMISES / DESCRIPTION OF PROPERTY

Evidence of Insurance for the Desert Valley Company Annual Report

SPECIAL CONDITIONS / OTHER COVERAGES

Imperial County
Planning Department
El Centro CA 92243 USA

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Form B (Additional Insured)

Certificate Number: No. **72232**

ASSOCIATED ELECTRIC & GAS INSURANCE SERVICES LIMITED
Hamilton, Bermuda

CERTIFICATE OF INSURANCE
(Excess Liability)

This Certificate is furnished to the Certificate Holder named below as a matter of information only. Neither this Certificate nor the issuance hereof modifies the policy of insurance identified below (the "Policy") in any manner. The Policy terms are solely as stated in the Policy or in any endorsement thereto. Any amendment, change or extension of the Policy can only be effected by a specific endorsement issued by the Company and attached to the Policy.

The undersigned hereby certifies that the Policy has been issued by Associated Electric & Gas Insurance Services Limited (the "Company") to the Named Insured identified below for the coverage described and for the policy period specified.

Notwithstanding any requirements, terms or conditions of any contract or other document with respect to which this Certificate may be issued or to which it may pertain, the insurance afforded by the Policy is subject to all of the terms of the Policy.

NAME OF INSURED: MidAmerican Energy Holdings Company
PRINCIPAL ADDRESS: 666 Grand Avenue
P.O. Box 657
Des Moines, IA 50303-0657

POLICY NUMBER: XO720A1A03

POLICY PERIOD: From: August 28, 2003
To: August 28, 2004

RETROACTIVE DATE: April 30, 1998 - MidAmerican Energy Holdings Company, subsidiaries, partnerships, affiliates and other related entities.

DESCRIPTION OF COVERAGE: Claims-First-Made Excess Liability Policy covering claims for Bodily Injury, Property Damage, Personal Injury and Products Completed Operations arising from the operations described below.

LIMIT OF LIABILITY: **$5,000,000** per occurrence. (Excess of $2,000,000 Self-Insured Retention-General Liability & $1,000,000 Self-Insured Retention-Automobile Liability)

ADDITIONAL INSURED: The Certificate Holder is an additional insured under the Policy but only (i) to such extent and for such Limits of Liability (subject always to the terms and Limits of Liability of the Policy) as the Named Insured has agreed to provide insurance for the Certificate Holder under the following contract: RE: Desert Valley Company "MONOFILL" CUP #1127-84 and (ii) with respect to the following operations: Certificate Holder is named as an additional insured but only as respects to the operations of the named insured. Named insured includes Magma Power Company, Inc.

Should the Policy be cancelled, assigned or changed in a manner that is materially adverse to the Insured(s) under the Policy, the undersigned will endeavor to give 30 days advance written notice thereof to the Certificate Holder, but failure to give such notice will impose no obligation or liability of any kind upon the Company, the undersigned or any agent or representative of either.

ISSUED TO: **Imperial County**
Attn: Kent Hector, Planning Department
939 Main Street
El Centro, CA 92243

DATE: **8/26/2003**

AEGIS INSURANCE SERVICES, INC.

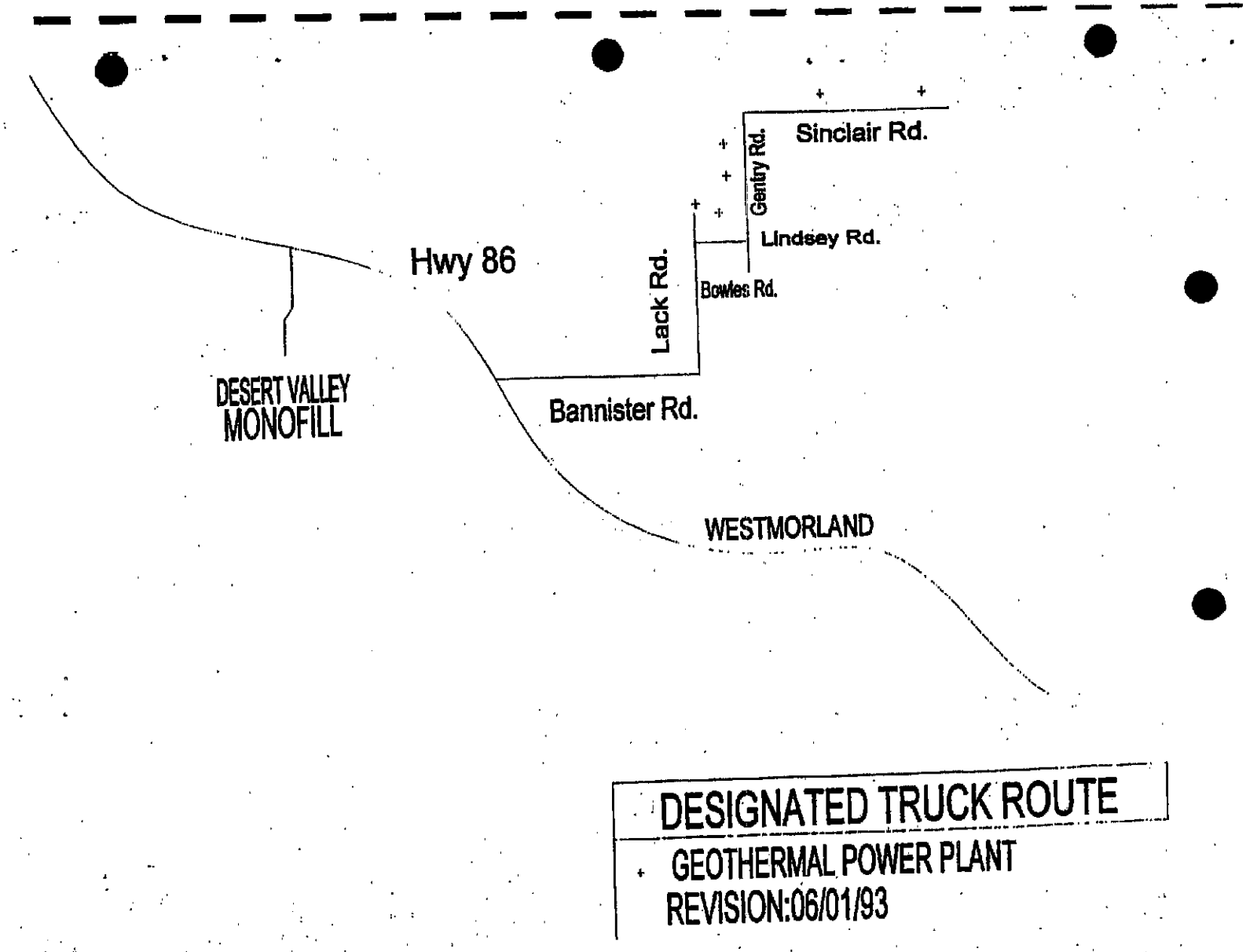
BY: Sandra A. Johnson

At Jersey City, New Jersey

N:\CLIENT\MidAmerican\Aegis & Acord Certs\FORM_BMaster 03-04.doc

ATTACHMENT B

G13 Designated Truck Routes


Sinclair Rd.
Gentry Rd.
Lindsey Rd.
Bowles Rd.
Lack Rd.
Hwy 86
DESERT VALLEY
MONOFILL
Bannister Rd.
WESTMORLAND
DESIGNATED TRUCK ROUTE
GEOTHERMAL POWER PLANT
REVISION:06/01/93

ATTACHMENT C

S-3 Required Waste Analysis: Annual Filter Cakes from Specified Geothermal Power Plants.

- **Elmore Power Plant**
- **Leathers Power Plant**
- **Region 1 (Units 1-5)**
- **Region 2 (Vulcan Power Plant & Del Ranch Power Plant)**

EBERLINE SERVICES

November 18, 2003

Ms. Sandra Millican
CalEnergy Company, Inc.
7030 Gentry Road,
Calipatria, CA 92233

Ref: P.O. No. I-42739
Eberline Services R3-10-114-8162

Dear Ms. Millican:

Attached are results from the analyses of four filter cake samples received at Eberline Services on October 21, 2003. The sample was analyzed per the accompanying chain of custody document (gross alpha/gross beta, and gamma nuclides). The parenthetical G after a nuclide indicates that the result was obtained by gamma spectroscopy. A "U" in the results column indicates that the nuclide was not detected greater than the indicated minimum detectable activity (MDA). No problems were encountered during the processing of the samples.

If you have any questions concerning the attached data please call me.

Sincerely,

Melissa Mannion
Senior Program Manager

MCM/njv

Attachment: Report/COC

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services

ANALYSIS RESULTS

SDG 8162 | Client CALIF ENERGY
Work Order R310114-01 | Contract I-42739
Received Date 10/21/03 | Matrix SOLID

Client Sample ID	Lab Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA
ELMORE P.A.F. COMPOSITE	8162-001	10/14/03	11/10/03	GrossAlpha	4.27 ± 3.1	pCi/g	3.37
			11/10/03	Gross Beta	5.96 ± 3.5	pCi/g	5.23
			11/03/03	K40 (G)	4.11 ± 0.45	pCi/g	0.260
			11/03/03	Mn54 (G)	U	pCi/g	0.024
			11/03/03	Co57 (G)	U	pCi/g	0.014
			11/03/03	Co60 (G)	U	pCi/g	0.032
			11/03/03	Ba133 (G)	U	pCi/g	0.023
			11/03/03	Cs134 (G)	U	pCi/g	0.032
			11/03/03	Cs137 (G)	U	pCi/g	0.026
			11/03/03	Tl208 (G)	U	pCi/g	0.035
			11/03/03	Pb210 (G)	U	pCi/g	1.05
			11/03/03	Bi212 (G)	U	pCi/g	0.188
			11/03/03	Pb212 (G)	0.072 ± 0.029	pCi/g	0.029
			11/03/03	Bi214 (G)	0.173 ± 0.047	pCi/g	0.049
			11/03/03	Pb214 (G)	0.202 ± 0.047	pCi/g	0.051
			11/03/03	Ra226 (G)	U	pCi/g	0.562
			11/03/03	Ac228 (G)	U	pCi/g	0.140
			11/03/03	Th234 (G)	U	pCi/g	0.689
			11/03/03	U235 (G)	U	pCi/g	0.117
LEATHERS P.A.F. COMPOSIT	8162-002	10/14/03	11/10/03	GrossAlpha	3.27 ± 2.7	pCi/g	2.98
			11/10/03	Gross Beta	7.17 ± 3.6	pCi/g	5.37
			11/03/03	K40 (G)	U	pCi/g	1.59
			11/03/03	Mn54 (G)	U	pCi/g	0.048
			11/03/03	Co57 (G)	U	pCi/g	0.026
			11/03/03	Co60 (G)	U	pCi/g	0.055
			11/03/03	Ba133 (G)	U	pCi/g	0.043
			11/03/03	Cs134 (G)	U	pCi/g	0.059
			11/03/03	Cs137 (G)	0.123 ± 0.079	pCi/g	0.071
			11/03/03	Tl208 (G)	U	pCi/g	0.051
			11/03/03	Pb210 (G)	U	pCi/g	1.50
			11/03/03	Bi212 (G)	U	pCi/g	0.375
			11/03/03	Pb212 (G)	U	pCi/g	0.074
			11/03/03	Bi214 (G)	U	pCi/g	0.120
			11/03/03	Pb214 (G)	U	pCi/g	0.107
			11/03/03	Ra226 (G)	U	pCi/g	1.10
			11/03/03	Ac228 (G)	U	pCi/g	0.240
			11/03/03	Th234 (G)	U	pCi/g	0.728
			11/03/03	U235 (G)	U	pCi/g	0.242

Certified by _____
Report Date 11/18/03
Page 1

Eberline Services

ANALYSIS RESULTS

SDG 8162 Client CALIF ENERGY
Work Order R310114-01 Contract 1-42739
Received Date 10/21/03 Matrix SOLID

Client Sample ID	Lab Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA
REGION 1 A.F. COMPOSITE	8162-003	10/14/03	11/10/03	GrossAlpha	7.22 ± 3.0	pCi/g	2.25
			11/10/03	Gross Beta	5.93 ± 3.9	pCi/g	5.94
			11/03/03	K40 (G)	2.10 ± 1.2	pCi/g	0.912
			11/03/03	Mn54 (G)	U	pCi/g	0.089
			11/03/03	Co57 (G)	U	pCi/g	0.051
			11/03/03	Co60 (G)	U	pCi/g	0.080
			11/03/03	Ba133 (G)	U	pCi/g	0.094
			11/03/03	Cs134 (G)	U	pCi/g	0.293
			11/03/03	Cs137 (G)	U	pCi/g	0.079
			11/03/03	Tl208 (G)	0.135 ± 0.092	pCi/g	0.102
			11/03/03	Pb210 (G)	U	pCi/g	12.1
			11/03/03	Bi212 (G)	U	pCi/g	0.670
			11/03/03	Pb212 (G)	0.395 ± 0.087	pCi/g	0.107
			11/03/03	Bi214 (G)	4.42 ± 0.25	pCi/g	0.191
			11/03/03	Pb214 (G)	4.71 ± 0.22	pCi/g	0.178
			11/03/03	Ra226 (G)	4.43 ± 1.1	pCi/g	1.36
			11/03/03	Ac228 (G)	U	pCi/g	0.705
			11/03/03	Th234 (G)	U	pCi/g	2.43
			11/03/03	U235 (G)	U	pCi/g	0.446
REGION 2 A.F. COMPOSITE	8162-004	10/14/03	11/15/03	GrossAlpha	53.4 ± 7.4	pCi/g	2.88
			11/15/03	Gross Beta	34.8 ± 5.4	pCi/g	6.02
			11/03/03	K40 (G)	3.47 ± 1.0	pCi/g	0.959
			11/03/03	Mn54 (G)	U	pCi/g	0.240
			11/03/03	Co57 (G)	U	pCi/g	0.049
			11/03/03	Co60 (G)	U	pCi/g	0.082
			11/03/03	Ba133 (G)	U	pCi/g	0.084
			11/03/03	Cs134 (G)	U	pCi/g	0.614
			11/03/03	Cs137 (G)	U	pCi/g	0.088
			11/03/03	Tl208 (G)	0.395 ± 0.078	pCi/g	0.088
			11/03/03	Pb210 (G)	U	pCi/g	3.50
			11/03/03	Bi212 (G)	1.21 ± 0.57	pCi/g	0.699
			11/03/03	Pb212 (G)	0.897 ± 0.084	pCi/g	0.106
			11/03/03	Bi214 (G)	11.8 ± 0.24	pCi/g	0.169
			11/03/03	Pb214 (G)	13.8 ± 0.24	pCi/g	0.177
			11/03/03	Ra226 (G)	12.1 ± 1.2	pCi/g	1.47
			11/03/03	Ac228 (G)	U	pCi/g	0.825
			11/03/03	Th234 (G)	U	pCi/g	2.02
			11/03/03	U235 (G)	U	pCi/g	0.445

Certified by
Report Date 11/18/03
Page 2

Eberline Services

QC RESULTS

SDG 8162
Work Order R310114-01
Received Date 10/21/03

Client CALIF ENERGY
Contract 1-42739
Matrix SOLID

Lab Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
LCS						
8162-005	GrossAlpha	9.93 ± 1.1	pCi/Smpl	10.5	0.226	95% recovery
	Gross Beta	11.8 ± 0.81	pCi/Smpl	12.5	0.556	94% recovery
	Co60 (G)	264 ± 14	pCi/Smpl	270	5.76	98% recovery
	Cs137 (G)	279 ± 13	pCi/Smpl	276	9.04	101% recovery
BLANK						
8162-006	GrossAlpha	-0.042 ± 0.15	pCi/Smpl	NA	0.304	<MDA
	Gross Beta	0.181 ± 0.38	pCi/Smpl	NA	0.630	<MDA
	K40 (G)	U	pCi/Smpl	NA	228	<MDA
	Mn54 (G)	U	pCi/Smpl	NA	5.96	<MDA
	Co57 (G)	U	pCi/Smpl	NA	3.72	<MDA
	Co60 (G)	U	pCi/Smpl	NA	7.80	<MDA
	Ba133 (G)	U	pCi/Smpl	NA	6.49	<MDA
	Cs134 (G)	U	pCi/Smpl	NA	8.87	<MDA
	Cs137 (G)	U	pCi/Smpl	NA	7.61	<MDA
	Tl208 (G)	U	pCi/Smpl	NA	7.93	<MDA
	Pb210 (G)	U	pCi/Smpl	NA	196	<MDA
	Bi212 (G)	U	pCi/Smpl	NA	52.3	<MDA
	Pb212 (G)	U	pCi/Smpl	NA	10.9	<MDA
	Bi214 (G)	U	pCi/Smpl	NA	17.4	<MDA
	Pb214 (G)	U	pCi/Smpl	NA	14.7	<MDA
	Ra226 (G)	U	pCi/Smpl	NA	99.5	<MDA
	Ac228 (G)	U	pCi/Smpl	NA	35.3	<MDA
	Th234 (G)	U	pCi/Smpl	NA	97.6	<MDA
	U235 (G)	U	pCi/Smpl	NA	36.3	<MDA

Certified by
Report Date 11/18/03
Page 3

EBERLINE
ANALYTICAL SERVICES
2030 WRIGHT AVENUE
P.O.BOX 4040
RICHMOND, California 94804-0040

8167

CHAIN OF CUSTODY RECORD

Lab #s: _____ Invoice No. _____

Project No.	Project Name / Location
Req.# 29772 P.O.# 42739	CalEnergy Annual Filtercake

Samplers: (signature) Salvador Paz

Description	Sampled Date	Sampled Time	Gross Alpha	Gross Beta	Gamma Scan	Number of Containers	Condition of Sample: Sealed	Chilled	Preserved	Remarks
Elmore Plant Annual Filtercake Composite	10/14/03		✓	✓	✓	2	✓			Regular Turnaround
Leathers Plant Annual Filtercake Composite	10/14/03		✓	✓	✓	2	✓			Regular Turnaround
Region 1 Annual Filtercake Composite	10/14/03		✓	✓	✓	2	✓			Regular Turnaround
Region 2 Annual Filtercake Composite	10/14/03		✓	✓	✓	2	✓			Regular Turnaround

Relinquished By:	Date/Time	Received By:	Relinquished By:	Date/Time	Received By:
Sandra Millican	10/15/03 12:30	10-16-03 1000			
Relinquished By:	Date/Time	Received By:	Received For Lab By:	Date / Time	

EBERLINE SERVICES

RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: CAL ENERGY Date/Time received 10-21-03 1000

CoC No. 29772

Container I.D. No. Requested TAT (Days) 30 P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [ ]	No [ ]	N/A [✓]
2.	Custody seals on shipping container dated & signed?	Yes [ ]	No [ ]	N/A [✓]
3.	Custody seals on sample containers intact?	Yes [ ]	No [ ]	N/A [✓]
4.	Custody seals on sample containers dated & signed?	Yes [ ]	No [ ]	N/A [✓]
5.	Packing material is:	Wet [ ]	Dry [✓]	
6.	Number of samples in shipping container: 4			
7.	Number of containers per sample: 2	(Or see CoC ____)		
8.	Samples are in correct container	Yes [✓]	No [ ]	
9.	Paperwork agrees with samples?	Yes [✓]	No [ ]	
10.	Samples have: Tape [✓] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]			
11.	Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]			
12.	Samples are: Preserved [ ] Not preserved [✓] pH ____ Preservative ____			
13.	Describe any anomalies: ____			
14.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____			
15.	Received by [signature] Date: 10-21-03 Time: 1000			

Customer Sample No.	cpm	mR/hr	wipe
ELMORE	240		
LEATHERS			
REGION 1			
REGION 2	↓		

Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

Beta/Gamma Meter Ser. No. 100482 Calibration date 6-24-03

Form SCP-01.2, 06-04-03

"over 50 years of quality nuclear services"

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

Ordered By
Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone (760)348-4000
Attn Sandra Millican

Number of Pages 16
Date Received 10/17/2003
Date Reported 11/06/2003

Job Number	Ordered	Client
19824	10/17/2003	CEM

Project ID:
Project Name: Annual Filtercake

Enclosed are the results of analyses on 4 samples analyzed as specified on attached chain of custody.

Wendy Lu
Organics Supervisor

Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
2520 N. San Fernando Road, LA, CA 90065 Tel: (323) 223-9700 • Fax: (323) 223-9500

Page ____ Of ____ 19824

COC# № 20433 GLOBAL ID _____ ELECTRONIC REPORT: ☐ EDF ☐ EDD ASL JOB# 19819

CHAIN OF CUSTODY RECORD

38

Company: CalEnergy Operating Corporation	Project Name: Annual Filtercake	Report To: Sandra Millican	ANALYSIS REQUESTED
Address: 7030 Gentry Rd.	Site Address:	Address: 7030 Gentry Rd Calipatria, CA 92233	
Calipatria, CA 92233		Invoice To: CalEnergy	
Telephone: (760) 348-4294 Fax: (760) 348-4222	Project ID:	Address: 7030 Gentry Rd	
Special Instruction:		Calipatria, CA 92233	
Req # 29776	Project Manager: Larry Murray	P.O.#: I-42738	

CAM 17 Total; CAM 17 Soluble; GC/MS 8260; Total Fluoride; Soluble Fluoride; Reactivity; Corrosivity; Ignitability; Fish Bioassay; TCLP

ITEM	LAB USE ONLY Lab ID	SAMPLE DESCRIPTION Sample ID	Date	Time	Containers #	Container Type	Matrix	Preservation	Remarks
1	~~11:7744~~ (117713)	Elmore Plant Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite
2	~~117745~~ (117714)	Leathers Plant Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite
3	~~117746~~ (117715)	Region 1 Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite
4	~~117747~~ (117716)	Region 2 Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite

Collected By: Salvador Paz	Date 10/14/03	Time 14:00	Relinquished By:	Date	Time
Relinquished By: Sandra Millican	Date 10/15/03	Time 12:30	Received For Laboratory: VICTOR ASL	Date 10,17,03	Time 4:40
Condition of Sample:					TAT ☐ Normal ☐ Rush

White Report, Yellow Laboratory, Pink Client

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 2
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: HCN, Test Method to Determine HCN Released from Waste

Batch No:

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Date Extracted		10/22/2003	10/22/2003	10/22/2003	10/22/2003
Preparation Method					
Date Analyzed		10/22/2003	10/22/2003	10/22/2003	10/22/2003
Matrix		Solid	Solid	Solid	Solid
Units		mg/Kg	mg/Kg	mg/Kg	mg/Kg
Detection Limit Multiplier		1	1	1	1
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
Conventionals					
Reactive Cyanide	0.25	ND	ND	ND	ND

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
Conventionals		
Reactive Cyanide	105	80-120

AMERICAN SCIENTIFIC LABORATORIES. LLC
Environmental Testing Services
2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 3
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 300, Soluble Fluoride by Ion Chromatography

Batch No:

Our Lab I.D.		117744	117745	117746	117747	
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2	
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003	
Date Extracted		10/30/2003	10/30/2003	10/30/2003	10/30/2003	
Preparation Method						
Date Analyzed		10/30/2003	10/30/2003	10/30/2003	10/30/2003	
Matrix		Solid	Solid	Solid	Solid	
Units		mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Detection Limit Multiplier		1	1	1	1	
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**	
Conventionals						
Fluoride	1.00	ND	ND	39.8	1.53	

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
Conventionals		
Fluoride	80	80-120

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 4
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 300, Total Fluoride by Ion Chromatography

Batch No:

Our Lab I.D.		117744	117745	117746	117747	
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2	
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003	
Date Extracted		10/30/2003	10/30/2003	10/30/2003	10/30/2003	
Preparation Method						
Date Analyzed		10/30/2003	10/30/2003	10/30/2003	10/30/2003	
Matrix		Solid	Solid	Solid	Solid	
Units		mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Detection Limit Multiplier		1	1	1	1	
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**	
Conventionals						
Fluoride	5.00	ND	ND	48.7	9.49	

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit					
Conventionals							
Fluoride	80	80-120					

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
3520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 5
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 6010B/7470A, STLC Title 22 Metals

Batch No:

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Date Extracted		10/20/2003	10/20/2003	10/20/2003	10/20/2003
Preparation Method					
Date Analyzed		10/22/2003	10/22/2003	10/22/2003	10/22/2003
Matrix		Solid	Solid	Solid	Solid
Units		mg/L	mg/L	mg/L	mg/L
Detection Limit Multiplier		1	1	1	1
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
AA Metals					
Mercury (soluble)	0.02	ND	ND	ND	ND
ICP Metals					
Antimony (soluble)	1.5	1.80	1.91	ND	ND
Arsenic (soluble)	0.50	2.47	2.96	1.99	1.00
Barium (soluble)	1.0	3.00	3.03	15.4	21.5
Beryllium (soluble)	0.08	ND	0.10	ND	ND
Cadmium (soluble)	0.10	ND	ND	ND	ND
Chromium (soluble)	0.50	ND	ND	ND	ND
Cobalt (soluble)	0.80	ND	ND	ND	ND
Copper (soluble)	0.25	1.54	1.14	0.85	1.16
Lead (Soluble)	0.50	1.46	1.15	1.04	1.60
Molybdenum (soluble)	0.35	ND	ND	ND	ND
Nickel (soluble)	0.20	ND	ND	ND	ND
Selenium (soluble)	0.25	ND	ND	ND	ND
Silver (soluble)	0.50	ND	ND	ND	ND
Thallium (soluble)	0.70	ND	ND	ND	ND
Vanadium (soluble)	0.20	0.28	0.26	0.29	0.24
Zinc (soluble)	0.25	10.2	9.03	4.57	7.87

QUALITY CONTROL REPORT

Batch No:

	LCS	LCS/LCSD						
Analytes	% REC	% Limit						

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ANALYTICAL RESULTS

Page: 6
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 6010B/7470A, STLC Title 22 Metals

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
AA Metals		
Mercury (soluble)	89	80-120
ICP Metals		
Antimony (soluble)	89	80-120
Arsenic (soluble)	100	80-120
Barium (soluble)	89	80-120
Beryllium (soluble)	95	80-120
Cadmium (soluble)	96	80-120
Chromium (soluble)	92	80-120
Cobalt (soluble)	101	80-120
Copper (soluble)	95	80-120
Lead (Soluble)	95	80-120
Molybdenum (soluble)	94	80-120
Nickel (soluble)	104	80-120
Selenium (soluble)	102	80-120
Silver (soluble)	92	80-120
Thallium (soluble)	99	80-120
Vanadium (soluble)	91	80-120
Zinc (soluble)	97	80-120

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ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 7
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 6010B/7470A, TCLP 8 Metals

Batch No:

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Date Extracted		10/20/2003	10/20/2003	10/20/2003	10/20/2003
Preparation Method					
Date Analyzed		10/21/2003	10/21/2003	10/21/2003	10/21/2003
Matrix		Solid	Solid	Solid	Solid
Units		mg/L	mg/L	mg/L	mg/L
Detection Limit Multiplier		1	1	1	1
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
AA Metals					
Mercury	0.02	ND	ND	ND	ND
ICP Metals					
Arsenic	0.50	0.71	0.80	ND	ND
Barium	1.0	1.39	1.42	3.67	5.32
Cadmium	0.10	ND	ND	ND	ND
Chromium	0.50	ND	ND	ND	ND
Lead	0.50	ND	ND	ND	ND
Selenium	0.25	ND	ND	ND	ND
Silver	0.50	ND	ND	ND	ND

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
AA Metals		
Mercury	104	80-120
ICP Metals		
Arsenic	97	80-120
Barium	90	80-120
Cadmium	95	80-120
Chromium	90	80-120
Lead	94	80-120
Selenium	99	80-120

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ANALYTICAL RESULTS

Page: 8
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 6010B/7470A, TCLP 8 Metals

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
ICP Metals		
Silver	97	80-120

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ANALYTICAL RESULTS

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Telephone: (760)348-4000
Attn: Sandra Millican

Page: 9
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 6010B/7471A, CCR Title 22 Metals

Batch No:

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Date Extracted		10/21/2003	10/21/2003	10/21/2003	10/21/2003
Preparation Method					
Date Analyzed		10/21/2003	10/21/2003	10/21/2003	10/21/2003
Matrix		Solid	Solid	Solid	Solid
Units		mg/Kg	mg/Kg	mg/Kg	mg/Kg
Detection Limit Multiplier		1	1	1	1
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
AA Metals					
Mercury	0.20	ND	ND	ND	ND
ICP Metals					
Antimony	0.50	68.0	84.3	18.8	21.4
Arsenic	0.25	356	370	70.1	47.9
Barium	0.50	51.5	47.6	1840	2790
Beryllium	0.50	24.2	36.9	1.19	1.22
Cadmium	0.50	8.66	8.97	ND	ND
Chromium	0.50	ND	ND	ND	ND
Cobalt	0.50	1.84	ND	0.65	1.07
Copper	0.50	64.4	34.8	11.8	21.8
Lead	0.25	25.5	19.7	12.2	20.0
Molybdenum	0.50	ND	ND	ND	ND
Nickel	0.50	14.3	13.8	0.97	1.24
Selenium	0.50	ND	ND	ND	ND
Silver	0.50	20.7	38.6	41.7	45.5
Thallium	0.50	ND	ND	ND	ND
Vanadium	0.50	ND	ND	1.10	1.03
Zinc	0.50	159	142	60.1	86.4

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit				

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ANALYTICAL RESULTS

Page: 10
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CRM

Method: 6010B/7471A, CCR Title 22 Metals

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit
AA Metals		
Mercury	84	80-120
ICP Metals		
Antimony	91	80-120
Arsenic	90	80-120
Barium	87	80-120
Beryllium	90	80-120
Cadmium	84	80-120
Chromium	86	80-120
Cobalt	86	80-120
Copper	90	80-120
Lead	84	80-120
Molybdenum	87	80-120
Nickel	85	80-120
Selenium	88	80-120
Silver	94	80-120
Thallium	88	80-120
Vanadium	94	80-120
Zinc	89	80-120

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ANALYTICAL RESULTS

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Attn: Sandra Millican

Page: 11
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 8260B, Volatile Organic Compounds

Batch No: 102103-1A

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Date Extracted		10/21/2003	10/21/2003	10/21/2003	10/21/2003
Preparation Method					
Date Analyzed		10/21/2003	10/21/2003	10/21/2003	10/21/2003
Matrix		Solid	Solid	Solid	Solid
Units		ug/kg	ug/kg	ug/kg	ug/kg
Detection Limit Multiplier		1	1	1	1
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
Acetone	50.0	ND	ND	ND	ND
Benzene	2.00	ND	ND	ND	ND
Bromobenzene (Phenyl bromide)	10.00	ND	ND	ND	ND
Bromochloromethane (Chlorobromomethane)	10.00	ND	ND	ND	ND
Bromodichloromethane (Dichlorobromomethane)	10.00	ND	ND	ND	ND
Bromoform (Tribromomethane)	50.00	ND	ND	ND	ND
Bromomethane (Methyl bromide)	30.00	ND	ND	ND	ND
2-Butanone (MEK, Methyl ethyl ketone)	50.00	ND	ND	ND	ND
n-Butylbenzene	10.00	ND	ND	ND	ND
sec-Butylbenzene	10.00	ND	ND	ND	ND
tert-Butylbenzene	10.00	ND	ND	ND	ND
Carbon disulfide	10.00	ND	ND	ND	ND
Carbon tetrachloride (Tetrachloromethane)	10.00	ND	ND	ND	ND
Chlorobenzene	10.00	ND	ND	ND	ND
Chloroethane	30.00	ND	ND	ND	ND
2-Chloroethyl vinyl ether	50.00	ND	ND	ND	ND
Chloroform (Trichloromethane)	10.00	ND	ND	ND	ND
Chloromethane (Methyl chloride)	30.00	ND	ND	ND	ND
4-Chlorotoluene (p-Chlorotoluene)	10.00	ND	ND	ND	ND
2-Chlorotoluene (o-Chlorotoluene)	10.00	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	50.00	ND	ND	ND	ND
Dibromochloromethane	10.00	ND	ND	ND	ND
1,2-Dibromoethane (EDB, Ethylene dibromide)	10.00	ND	ND	ND	ND
Dibromomethane	10.00	ND	ND	ND	ND
1,2-Dichlorobenzene (o-Dichlorobenzene)	10.00	ND	ND	ND	ND
1,3-Dichlorobenzene (m-Dichlorobenzene)	10.00	ND	ND	ND	ND

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ANALYTICAL RESULTS

Page: 12
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 8260B, Volatile Organic Compounds

Batch No: 102103-1A

Our Lab I.D.		117744	117745	117746	117747
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**
1,4-Dichlorobenzene (p-Dichlorobenzene)	10.00	ND	ND	ND	ND
Dichlorodifluoromethane	30.00	ND	ND	ND	ND
1,1-Dichloroethane	10.00	ND	ND	ND	ND
1,2-Dichloroethane	10.00	ND	ND	ND	ND
1,1-Dichloroethene (1,1-Dichloroethylene)	10.00	ND	ND	ND	ND
cis-1,2-Dichloroethene	10.00	ND	ND	ND	ND
trans-1,2-Dichloroethene	10.00	ND	ND	ND	ND
1,2-Dichloropropane	10.00	ND	ND	ND	ND
1,3-Dichloropropane	10.00	ND	ND	ND	ND
2,2-Dichloropropane	10.00	ND	ND	ND	ND
1,1-Dichloropropene	10.00	ND	ND	ND	ND
cis-1,3-Dichloropropene	10.00	ND	ND	ND	ND
trans-1,3-Dichloropropene	10.00	ND	ND	ND	ND
Ethylbenzene	2.00	ND	ND	ND	ND
Hexachlorobutadiene (1,3-Hexachlorobutadiene)	30.00	ND	ND	ND	ND
2-Hexanone	50.00	ND	ND	ND	ND
Isopropylbenzene	10.00	ND	ND	ND	ND
p-Isopropyltoluene (4-Isopropyltoluene)	10.00	ND	ND	ND	ND
MTBE	5.00	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK, Methyl isobutyl ketone)	50.00	ND	ND	ND	ND
Methylene chloride (Dichloromethane, DCM)	50.00	ND	ND	ND	ND
Naphthalene	10.00	ND	ND	ND	ND
n-Propylbenzene	10.00	ND	ND	ND	ND
Styrene	10.00	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	10.00	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	10.00	ND	ND	ND	ND
Tetrachloroethene (Tetrachloroethylene)	10.00	ND	ND	ND	ND
Toluene (Methyl benzene)	2.00	ND	ND	ND	ND
1,2,3-Trichlorobenzene	10.00	ND	ND	ND	ND
1,2,4-Trichlorobenzene	10.00	ND	ND	ND	ND
1,1,1-Trichloroethane	10.00	ND	ND	ND	ND
1,1,2-Trichloroethane	10.00	ND	ND	ND	ND
Trichloroethene (TCE)	10.00	ND	ND	ND	ND
Trichlorofluoromethane	10.00	ND	ND	ND	ND
1,2,3-Trichloropropane	10.00	ND	ND	ND	ND
1,2,4-Trimethylbenzene	10.00	ND	ND	ND	ND
1,3,5-Trimethylbenzene	10.00	ND	ND	ND	ND
Vinyl acetate	50.0	ND	ND	ND	ND
Vinyl chloride (Chloroethene)	30.00	ND	ND	ND	ND
o-Xylene	2.00	ND	ND	ND	ND
m- & p-Xylenes	4.00	ND	ND	ND	ND

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ANALYTICAL RESULTS

Page: 13
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 8260B, Volatile Organic Compounds

Our Lab I.D.		117744	117745	117746	117747	
Surrogates	Con.Limit	% Rec.	% Rec.	% Rec.	% Rec.	
Surrogate Percent Recovery						
Bromofluorobenzene	70-120	96	102	99	99	
Dibromofluoromethane	70-120	106	105	109	103	
Toluene-d8	70-120	89	98	98	98	

QUALITY CONTROL REPORT

Batch No: 102103-1A

Analytes	MS % REC	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit					
Benzene	101	112	10.3	75-120	15					
Chlorobenzene	88	96	8.7	75-120	15					
1,1-Dichloroethene (1,1-Dichloroethylene)	90	96	6.5	75-120	15					
MTBE	97	84	14.4	75-120	15					
Toluene (Methyl benzene)	101	114	12.1	75-120	15					
Trichloroethene (TCE)	88	100	12.8	75-120	15					

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ANALYTICAL RESULTS

Ordered By

Cal Energy Operating Corporation
7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 14
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 9045C, Soil and Waste pH

Batch No:

Our Lab I.D.		117744	117745	117746	117747	
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2	
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003	
Date Extracted		10/20/2003	10/20/2003	10/20/2003	10/20/2003	
Preparation Method						
Date Analyzed		10/20/2003	10/20/2003	10/20/2003	10/20/2003	
Matrix		Solid	Solid	Solid	Solid	
Units		pH Units	pH Units	pH Units	pH Units	
Detection Limit Multiplier		1	1	1	1	
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**	
Conventionals						
pH	1.00	6.22	6.09	4.00	5.06	

QUALITY CONTROL REPORT

Batch No:

Analytes	LCS % REC	LCS/LCSD % Limit					
Conventionals							
pH	100	80-120					

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ANALYTICAL RESULTS

Ordered By

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7030 Gentry Road
Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 15
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: H2S, Test Method to Determine H2S Released from Wastes

Batch No:

Our Lab I.D.		117744	117745	117746	117747	
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2	
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003	
Date Extracted		10/22/2003	10/22/2003	10/22/2003	10/22/2003	
Preparation Method						
Date Analyzed		10/22/2003	10/22/2003	10/22/2003	10/22/2003	
Matrix		Solid	Solid	Solid	Solid	
Units		mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Detection Limit Multiplier		1	1	1	1	
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**	
Conventionals						
Reactive Sulfide	0.50	ND	ND	ND	ND	

QUALITY CONTROL REPORT

Batch No:

	LCS	LCS/LCSD							
Analytes	% REC	% Limit							
Conventionals									
Reactive Sulfide	105	80-120							

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ANALYTICAL RESULTS

Ordered By

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Calipatria, CA 92233-

Telephone: (760)348-4000
Attn: Sandra Millican

Page: 16
Project ID:
Project Name: Annual Filtercake

Job Number	Order Date	Client
19824	10/17/2003	CEM

Method: 1010, Flashpoint

Our Lab I.D.		117744	117745	117746	117747	
Sample ID		Elmore Plant	Leathers Plant	Region 1	Region 2	
Date Sampled		10/14/2003	10/14/2003	10/14/2003	10/14/2003	
Date Extracted		10/23/2003	10/23/2003	10/23/2003	10/23/2003	
Preparation Method						
Date Analyzed		10/23/2003	10/23/2003	10/23/2003	10/23/2003	
Matrix		Solid	Solid	Solid	Solid	
Units		degree F	degree F	degree F	degree F	
Detection Limit Multiplier		1	1	1	1	
Analytes	**PQL**	**Results**	**Results**	**Results**	**Results**	
Conventionals						
Flashpoint	70	>200	>200	>200	>200	

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	American Scientific Laborato	Date:	10/20/03
SAMPLE I.D.:	#117713	LAB #	ASL1003.215

WATER QUALITY

DILUTION WATER Reconst. Fresh				AERATION: Single Bubble Air			
CONTROL HARDNESS				CONTROL ALKALINITY			
Beg:	42 mg/l	End:	48 mg/l	Beg:	37 mg/l	End:	39 mg/l
SAMPLE HARDNESS				SAMPLE ALKALINITY			
Beg:	54 mg/l	End:	60 mg/l	Beg:	38 mg/l	End:	38 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	09/17/03
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	41 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL			24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	10/22/03			10/23/03				10/24/03				10/25/03				10/26/03			
TIME:	1110			1155				1400				1300				1200			
CONC.	Dis. Oxy.	Temp. dg.C	pH	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.2	20.2	7.4	7.8	19.6	7.4	0	7.5	19.6	7.3	0	7.3	19.5	7.3	0	7.2	19.6	7.3	0
400 mg/l	8.2	20.1	7.3	6.6	19.3	7.0	0	7.3	19.1	7.1	0	6.5	19.3	7.1	0	6.5	19.4	7.1	0
400 mg/l	8.0	20.0	7.3	7.4	19.2	7.1	0	7.2	19.0	7.1	0	6.5	19.3	7.1	0	6.5	19.4	7.2	0
750 mg/l	8.1	20.0	7.3	7.1	19.1	7.1	0	6.8	19.1	7.1	0	6.6	19.3	7.1	0	6.5	19.4	7.2	0
750 mg/l	8.1	20.0	7.3	7.1	19.2	7.1	0	7.0	19.2	7.1	0	6.7	19.3	7.1	0	6.6	19.4	7.1	0

FINAL DATA

TOTAL MORTALITIES	
0 (Con.)	0
400 mg/l	0
400 mg/l	0
750 mg/l	0
750 mg/l	0

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Michael Machuzak, Chief Biologist

Date 10.29.03

TOXICITY TESTING • OCEANOGRAPHIC RESEARCH

October 28, 2003

Mr. Molky Brar
American Scientific Laboratories, LLC
2520 N. San Fernando Road
Los Angeles, CA 90065

Dear Mr. Brar:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	American Scientific Laboratories, LLC
SAMPLE I.D.:	#117714
DATE RECEIVED:	10/20/03
ABC LAB. NO.:	ASL1003.216

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 =	>750	mg/l
STATUS =	Pass	

Respectfully yours,

Thomas (Tim) Mikel
Laboratory Director

29 NORTH OLIVE STREET, VENTURA, CA 93001 • (805) 643-5621

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	American Scientific Laborato	Date:	10/20/03
SAMPLE I.D.:	#117714	LAB #	ASL1003.216

WATER QUALITY

DILUTION WATER Reconst. Fresh				AERATION: Single Bubble Air			
CONTROL HARDNESS				CONTROL ALKALINITY			
Beg:	42 mg/l	End:	48 mg/l	Beg:	37 mg/l	End:	39 mg/l
SAMPLE HARDNESS				SAMPLE ALKALINITY			
Beg:	56 mg/l	End:	60 mg/l	Beg:	39 mg/l	End:	40 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE RECD:	09/17/03
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	41 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL			24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	10/22/03			10/23/03				10/24/03				10/25/03				10/26/03			
TIME:	1110			1155				1400				1300				1200			
CONC.	Dis. Oxy.	Temp. dg.C	pH	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.2	20.2	7.4	7.8	19.6	7.4	0	7.5	19.6	7.3	0	7.3	19.5	7.3	0	7.2	19.6	7.3	0
400 mg/l	8.0	20.0	7.4	7.1	19.3	7.1	0	7.1	19.2	7.2	0	7.1	19.2	7.2	0	6.9	19.4	7.2	0
400 mg/l	7.9	20.0	7.4	7.3	19.2	7.2	0	7.2	19.1	7.2	0	7.1	19.2	7.2	0	7.0	19.3	7.2	0
750 mg/l	7.9	20.1	7.4	7.9	19.3	7.2	0	7.6	19.2	7.2	0	7.1	19.2	7.2	0	7.2	19.3	7.2	0
750 mg/l	7.9	20.1	7.4	7.3	19.5	7.2	0	7.5	19.2	7.2	0	7.2	19.3	7.2	0	7.1	19.4	7.2	0

FINAL DATA

TOTAL MORTALITIES	
0 (Con.)	0
400 mg/l	0
400 mg/l	0
750 mg/l	0
750 mg/l	0

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Michael Machuzak, Chief Biologist Date 10.29.03

TOXICITY TESTING • OCEANOGRAPHIC RESEARCH

October 28, 2003

Mr. Molky Brar
American Scientific Laboratories, LLC
2520 N. San Fernando Road
Los Angeles, CA 90065

Dear Mr. Brar:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	American Scientific Laboratories, LLC
SAMPLE I.D.:	#117715
DATE RECEIVED:	10/20/03
ABC LAB. NO.:	ASL1003.217

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 =	>750	mg/l
STATUS =	Pass	

Respectfully yours,

Thomas (Tim) Mikel
Laboratory Director

29 NORTH OLIVE STREET, VENTURA, CA 93001 • (805) 643-5621

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	American Scientific Laborato	Date:	10/20/03
SAMPLE I.D.:	#117715	LAB #	ASL1003.217

WATER QUALITY

DILUTION WATER Reconst. Fresh				AERATION: Single Bubble Air			
CONTROL HARDNESS				CONTROL ALKALINITY			
Beg:	42 mg/l	End:	48 mg/l	Beg:	37 mg/l	End:	39 mg/l
SAMPLE HARDNESS				SAMPLE ALKALINITY			
Beg:	52 mg/l	End:	57 mg/l	Beg:	35 mg/l	End:	38 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE RECD:	09/17/03
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	41 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL			24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	10/22/03			10/23/03				10/24/03				10/25/03				10/26/03			
TIME:	1110			1155				1400				1300				1200			
CONC.	Dis. Oxy.	Temp. dg.C	pH	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.2	20.2	7.4	7.8	19.6	7.4	0	7.5	19.6	7.3	0	7.3	19.5	7.3	0	7.2	19.6	7.3	0
400 mg/l	7.8	20.1	7.3	7.4	19.3	7.3	0	7.3	19.1	7.2	0	7.4	19.1	7.2	0	7.1	19.2	7.2	0
400 mg/l	7.9	20.0	7.3	7.7	19.2	7.3	0	7.8	19.0	7.2	0	7.4	19.1	7.2	0	7.1	19.2	7.2	0
750 mg/l	7.8	20.0	7.3	7.8	19.3	7.3	0	7.8	19.1	7.2	0	7.3	19.1	7.2	0	7.1	19.2	7.2	0
750 mg/l	7.8	20.0	7.2	7.4	19.4	7.3	0	7.5	19.2	7.2	0	7.3	19.1	7.2	0	7.2	19.3	7.2	0

FINAL DATA

TOTAL MORTALITIES	
0 (Con.)	0
400 mg/l	0
400 mg/l	0
750 mg/l	0
750 mg/l	0

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Michael Machuzak, Chief Biologist

Date 10.29.03

TOXICITY TESTING • OCEANOGRAPHIC RESEARCH

October 28, 2003

Mr. Molky Brar
American Scientific Laboratories, LLC
2520 N. San Fernando Road
Los Angeles, CA 90065

Dear Mr. Brar:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	American Scientific Laboratories, LLC
SAMPLE I.D.:	#117716
DATE RECEIVED:	10/20/03
ABC LAB. NO.:	ASL1003.218

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Thomas(Tim) Mikel
Laboratory Director

29 NORTH OLIVE STREET, VENTURA, CA 93001 • (805) 643-5621

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC.
29 North Olive Street
Ventura, CA 93001
(805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	American Scientific Laborato	Date:	10/20/03
SAMPLE I.D.:	#117716	LAB #	ASL1003.218

WATER QUALITY

DILUTION WATER Reconst. Fresh		AERATION: Single Bubble Air	
CONTROL HARDNESS		CONTROL ALKALINITY	
Beg: 42 mg/l	End: 48 mg/l	Beg: 37 mg/l	End: 39 mg/l
SAMPLE HARDNESS		SAMPLE ALKALINITY	
Beg: 53 mg/l	End: 61 mg/l	Beg: 35 mg/l	End: 38 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	09/17/03
COMMON NAME:	Fathead Minnow	AVERAGE LNTH:	41 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

	INITIAL			24 HOURS				48 HOURS				72 HOURS				96 HOURS			
DATE:	10/22/03			10/23/03				10/24/03				10/25/03				10/26/03			
TIME:	1110			1155				1400				1300				1200			
CONC.	Dis. Oxy.	Temp. dg.C	pH	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.2	20.2	7.4	7.8	19.6	7.4	0	7.5	19.6	7.3	0	7.3	19.5	7.3	0	7.2	19.6	7.3	0
400 mg/l	7.8	20.1	7.3	7.4	19.3	7.3	1	7.2	19.2	7.1	0	7.0	19.2	7.1	0	6.9	19.2	7.1	0
400 mg/l	7.7	20.1	7.3	6.9	19.3	7.2	0	7.0	19.2	7.1	0	7.0	19.2	7.1	0	6.8	19.3	7.1	0
750 mg/l	7.6	20.0	7.2	7.0	19.3	7.1	0	7.1	19.2	7.1	0	7.1	19.2	7.1	0	6.9	19.3	7.1	0
750 mg/l	7.8	20.0	7.3	6.6	19.4	7.1	1	7.3	19.2	7.1	0	7.1	19.3	7.1	0	7.0	19.3	7.1	0

FINAL DATA

TOTAL MORTALITIES	
0 (Con.)	0
400 mg/l	1
400 mg/l	0
750 mg/l	0
750 mg/l	1

FINAL RESULTS

96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test

Michael Machuzak, Chief Biologist Date 10.29.03

AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services
2520 N. San Fernando Road, LA, CA 90065 Tel: (323) 223-9700 • Fax: (323) 223-9500

Page ____ Of ____ 19824

COC# № 20433 GLOBAL ID _____ ELECTRONIC REPORT: ☐ EDF ☐ EDD ASL JOB# (19819)

CHAIN OF CUSTODY RECORD

Company: CalEnergy Operating Corporation	Report To: Sandra Millican
Address: 7030 Gentry Rd.	Project Name: Annual Filtercake
Calipatria, CA 92233	Site Address:
Telephone: (760) 348-4294	Invoice To: CalEnergy
Fax: (760) 348-4272	Address: 7030 Gentry Rd
Special Instruction:	Project ID:
Req # 29776	Project Manager: Larry Murray
	Calipatria, CA 92233
	P.O.#: I-42738

ANALYSIS REQUESTED: CAM 17 Total; CAM 17 Soluble; GC/MS 8260; Total Fluoride; Soluble Fluoride; Reactivity; Corrosivity; Ignitability; Fish Bioassay; TCLP

ITEM	LAB USE ONLY Lab ID	SAMPLE DESCRIPTION Sample ID	Date	Time	Container(s) #	Type	Matrix	Preservation	Remarks
~~1~~	~~117744~~								
1	(117713)	Elmore Plant Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite
~~2~~	~~117745~~								
2	(117714)	Leathers Plant Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite
~~3~~	~~117746~~								
3	(117715)	Region 1 Annual Filtercake	10/14/03		3	2 oz glass jar		None	Composite
~~4~~	~~117747~~								
4	(117716)	Region 2 Annual Filtercake	10/14/03		3	2oz glass jar		None	Composite

Collected By: Salvador Paz Date 10/14/03 Time 14:00

Relinquished By: Sandra Millican Date 10/15/03 Time 12:30

Condition of Sample:

Relinquished By: Date Time

Received For Laboratory VIATOR ASL Date 10/17/03 Time 4:40

TAT ☐ Normal

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TOXICITY TESTING • OCEANOGRAPHIC RESEARCH

October 28, 2003

Mr. Molky Brar
American Scientific Laboratories, LLC
2520 N. San Fernando Road
Los Angeles, CA 90065

Dear Mr. Brar:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT:	American Scientific Laboratories, LLC
SAMPLE I.D.:	#117713
DATE RECEIVED:	10/20/03
ABC LAB. NO.:	ASL1003.215

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,

Thomas (Tim) Mikel
Laboratory Director

29 NORTH OLIVE STREET, VENTURA, CA 93001 • (805) 643-5621

ATTACHMENT D

S-5 Air Quality Monitoring: Metals
Air Quality Monitoring Radionuclides

Desert Valley Company: High Volume Air Data For Metals 2003

Date	STATION No.	Description	Total flow in m^3	Arsenic ug/1" strip of filter	Cadmium ug/1" strip of filter	Copper ug/1" strip of filter	Lead ug/1" strip of filter	Zinc ug/1" strip of filter	Arsenic ug/m^3	Cadmium ug/m^3	Copper ug/m^3	Lead ug/m^3	Zinc ug/m^3
21-Apr-03	1	Impacted	2042.25	15	3.6	270	36	260	0.08676	0.014102	1.05766	0.14102	1.01848
21-Apr-03	3	Background	2059.44	19	7.7	1000	58	450	0.07381	0.029911	3.88454	0.2253	1.74804
21-Apr-03		Blank		<0.25	<0.25	<0.50	0.75	26					

Desert Valley Company: High Volume Air Data For Metals 2003

Date	STATION No.	Description	Total flow in m^3	Arsenic ug/1" strip of filter	Cadmium ug/1" strip of filter	Copper ug/1" strip of filter	Lead ug/1" strip of filter	Zinc ug/1" strip of filter	Arsenic ug/m^3	Cadmium ug/m^3	Copper ug/m^3	Lead ug/m^3	Zinc ug/m^3
18-Aug-03	1	Impacted	1999.74	0.48	<0.25	65	1.2	16	0.00186	ND	0.220	0.0048	0.06401
18-Aug-03	3	Background	2059.58	0.79	<0.25	19	1.7	25	0.00307	ND	0.07384	0.00661	0.09716
18-Aug-03		Blank		<0.25	<0.25	<0.50	<0.15	62					

Desert Valley Company: High Volume Air Data For Metals 2003

Date	STATION No.	Description	Total flow in m^3	Arsenic ug/1" strip of filter	Cadmium ug/1" strip of filter	Copper ug/1" strip of filter	Lead ug/1" strip of filter	Zinc ug/1" strip of filter	Arsenic ug/m^3	Cadmium ug/m^3	Copper ug/m^3	Lead ug/m^3	Zinc ug/m^3
30-Oct-03	3	Impacted	1785.27	1.2	<0.25	29	4.0	23	0.00538	ND	0.130	0.01792	0.10307
30-Oct-03	1	Background	2043.10	1.8	<0.25	29	5.7	35	0.00705	ND	0.11355	0.02232	0.13706
30-Oct-03		Blank		<0.25	<0.25	<0.50	<0.15	3.6					

Desert Valley Company: High Volume Air Data For Radionuclides 1st Quarter 2003

Date	STATION #	Description	Total flow in m^3	Radium 226 pCi/3" Strip of Filter	Radium 228 pCi/3" Strip of Filter	Radium 226 pCi/m^3	Radium 228 pCi/m^3
28-Mar-03	4	Impacted	1889.81	<0.080	<1.79	n/a	n/a
28-Mar-03	2	Background	2093.90	<0.048	<1.95	n/a	n/a
		Blank		<0.056	<1.81		

n/a Not applicable because the concentration is below the Minimum Detectable Activity (MDA)

Desert Valley Company: High Volume Air Data For Radionuclides 2nd Quarter 2003

Date	STATION #	Description	Total flow in m^3	Radium 226 pCi/3" Strip of Filter	Radium 228 pCi/3" Strip of Filter	Radium 226 pCi/m^3	Radium 228 pCi/m^3
21-Apr-03	1	Impacted	2042.25	0.703	<2.12	0.0009	n/a
21-Apr-03	3	Background	2089.44	0.541	<2.20	0.0007	n/a
		Blank		<0.031	<1.06		

n/a Not applicable because the concentration is below the Minimum Detectable Activity (MDA)

Desert Valley Company: High Volume Air Data For Radionuclides 3rd Quarter 2003

Date	STATION #	Description	Total flow in m^3	Radium 226 pCi/3" Strip of Filter	Radium 228 pCi/3" Strip of Filter	Radium 226 pCi/m^3	Radium 228 pCi/m^3
19-Aug-03	1	Impacted	1999.74	1.18 ± 0.39	<1.91	0.0016	n/a
19-Aug-03	3	Background	2058.56	0.867 ± 0.40	<1.84	0.0011	n/a
		Blank		<0.456	<1.97		

n/a Not applicable because the concentration is below the Minimum Detectable Activity (MDA)

Desert Valley Company: High Volume Air Data For Radionuclides 4th Quarter 2003

Date	STATION #	Description	Total flow in m^3	Radium 226 pCi/3" Strip of Filter	Radium 228 pCi/3" Strip of Filter	Radium 226 pCi/m^3	Radium 228 pCi/m^3
30-Oct-03	3	Impacted	1755.27	1.56 ± 0.51	4.07 ± 1.1	0.0027	0.0061
30-Oct-03	1	Background	2043.10	1.86 ± 0.49	2.73 ± 0.85	0.0021	0.0035
		Blank		<0.460	<2.08		

2/24/05

INSPECTION RECORD

*REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – **482-4236***

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS			
	REINFORCING			
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING			
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			

EXPIRED			
FINALED	per Accela:	12-16-08	NHW

PERMITTED WORK: C DRILL 60 TO 70 FT MONITORING WELL WITH 8" CASING GW10A

OWNER: DESERT VALLEY COMPANY

CONTRACTOR: OWNER

LOCATION: 3301 W HWY 86 westMORLAND

Date Issued: 2/24/05 PERMIT NO. 42953

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

IMPERIAL COUNTY – PLANNING/BUILDING DEPT., 939 MAIN ST, STE B-1, EL CENTRO, CA 92243

F:/word/inspcard

CORRECTION NOTICES

DATE	INSPECTOR	COMMENTS	R. – FEE

NOTES:

FEE COMPUTATION

QUANITY	ITEM	FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE _____ AMP.	
	BREAKER OR OTHER CONTROL BOX	
	SWITCHES, LIGHTS, OUTLETS, ETC.	
	MOTORS, TRANSFORMERS, ETC.	
	OTHER _____	
	Sub. Total	$_____
	PLUMBING PERMIT	
	EACH FIXTURE OR TRAP	
	EACH SEWER CONNECTION	
	EACH WATER HEATER	
	GAS PIPING (1–TO-4 OUTLETS)	
	WATER PIPING (1-TO-4 OUTLETS	
	OTHER _____	
	Sub. Total	$_____
	MECHANICAL PERMIT	
	A / C WITH DUCTS (BTU _____)	
	VENTILATION	
	RANGE HOOD	
	FURNACE	
	OTHER_____	
	Sub. Total	$_____

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

☐ BUILDING	☐ NEW RESIDENTIAL	☐ REMODEL RESIDENTIAL	
☐ ELECTRICAL	☐ NEW COMMERCIAL	☐ REMODEL COMMERCIAL	
☐ PLUMBING	☐ NEW INDUSTRIAL	☐ REMODEL INDUSTRIAL	
☐ MECHANICAL	☐ NEW POOL	☐ _____	
☐ GRADING	☐ NEW SIGN	☐ _____	
☐ DEMOLITION	☐ M. H. UTILITIES	☒ Monitoring Well	

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1	PROPERTY OWNERS NAME: Desert Valley Company	PHONE NO.: 760-348-4000	
2	MAILING ADDRESS: 950 West Lindsey Road	ZIP CODE: 92233	
3	PROJECT SITE ADDRESS: 3301 West Hwy 86, West Moreland		
4	ASSESSORS PARCEL NO.: 019-100-04	LEGAL DESCRIPTION: Sect. 33 T12S R11E	
5	DESCRIBE INTENDED USE: Ref: CUP #02-0003		
6	DESCRIBE (CLEARLY) THE PROPOSED WORK: Drill 60' To 70' deep monitoring well with 8" Casing		
7	(ADDITIONAL SPACE FOR LINE 6): GW10A		
8	ARCHITECT / ENGINEER: Balderman Consulting Inc.	LICENSE NO.: 940	PHONE NO.: 949-240-2396
9	MAILING ADDRESS: P.O. Box 796 Dana Point, CA		ZIP CODE: 92629
10	CONTRACTORS NAME: Cal Energy / Desert Valley Company	LICENSE NO.:	PHONE NO.: 760-348-4000
11	MAILING ADDRESS: 950 West Lindsey Road		ZIP CODE: 92233

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

___ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

✓ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number WA2-690-550801-014 Carrier Liberty Mutual Fire & Casualty

___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: Date: 2/18/05 Applicant: Cal Energy

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13 SIGNATURE OF OWNER: D'Hadley	14 SIGNATURE OF CONTRACTOR: D'Hadley

ZONE	AREA
OCCUPANCY GROUP	
CONSTRUCTION TYPE	
VALUATION	

QTY		FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE (AMP)	
	BREAKER-CONTROL DEVICE	
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
	OTHER	
	OTHER	
	OTHER	
	Sub-Total	
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE(S)	
	GAS LINE(S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

S. M. I.	
BUILDING PERMIT	200.-
PLAN CHECK	
ELECTICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	75 -
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER 9%	24.75
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA		APPROVALS REQUIRED			
ELECTRICAL APP		WORKERS COMP. CERT		PUBLIC WORKS	DATE
GAS APP		SCHOOL FEE(S)	ENERGY CERT.	E. H. S. / HEALTH	DATE
FINALED / EXPIRED				FIRE / D.E.S.	DATE
RECEIPT NO.	R#0500231	REJECTED	RESUBMITTED	A. P. C. D. / AG.	DATE
DATE ISSUED	2/24/05	SPECIAL LAND USE PERMIT		PLANNING	DATE

PERMIT NO.	RECEIVED BY: DATE	APPROVED BY: DATE	FEE $
42953	2-22-05	2-24-05	299.75

WHITE-OFFICE MASTER / RESIDENCE / PC: ICAN / PINK-ASSESSOR / YELLOW-PLAN FILE

PLANNING / BUILDING DEPARTMENT FORM 1084 BP

PERMIT

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

____ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number_____ **Carrier**_____

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date:_____ **Applicant:**_____

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

I/We agree that by accepting this permit I/We agreed to comply with all laws pertaining to this construction, including the contractors license law, the building ordinance, workers compensation insurance, and any other law that governs construction.

SIGNATURE OF OWNER / Date	SIGNATURE OF CONTRACTOR / Date

Inspection requests may also be made via email.
The Inspection Request Form is located on our website:
www.imperialcounty.net/planning.

NOTICE:

This is your official PERMIT that authorizes you to perform the work described on the other side.

Please review the other side and make sure all information is correct.

Please remember that you are only permitted to perform the work authorized by this permit. If you change, add-to and/or alter the scope of work you may need to obtain additional permits.

If you have any questions please call the Department or ask your Inspector.

NOTE: It is your responsibility to request all inspections. DO NOT cover or conceal any work until it is approved by the Inspector and the field card is signed!

NOTE: Failure to follow Permit requirements, failure to have work inspected, and/or providing false information may result in your permit being revoked.
NOTE: A permit revoked due to an NSF check, or violations of conditions in the permit will result in a double fee.

Thank You,

Jurg Heuberger
Building Official

How to Request an Inspection:

1. **CALL 482-4236.** After the automated system answers, **PRESS 4277** on your phone, this will route your inspection request automatically.

2. State the following information after the sound-of-the-tone: (Speak slow and clear).
   a. permit number _____
   b. address of project _____
   c. date of inspection _____
   d. permit name _____
   e. your telephone number _____
   f. type of inspection req. _____

3. Only if a specific time is absolutely necessary, take the following steps:
   a. Leave your request on the answering system, and leave your phone #._____
   b. On the day of the inspection, call the Planning/ Building Department between 7:00-7:30 a.m., at 482-4236, and discuss your request with the Inspector.

NOTE: If you do not state your permit number, name and the address, no inspection will be done.
NOTE: Specific time inspection can not and will not be scheduled via the recording. You must talk to the Inspector between 7:00-7:30 a.m., on the day of the inspection!

Doc 11.doc

Permit #: 0000042953
STRUCTURAL PERMIT

Job Address:	3301 W HIGHWAY 86 CNTY	Status:	ISSUED
Parcel No:	019-100-04-01	Issued:	02/24/2005
Location:	WESTMORLAND 3301 W HWY 86	Expires:	08/24/2005
App Type:	OTHER		

)WNER	DESERT VALLEY CO ATTN LYNN JENSEN 950 W LINDSEY ROAD CALIPATRIA CA 92233 License:	02/23/2005	Phone: 3484000
\PPLICANT	DESERT VALLEY COMPANY 3301 W HWY 86 WESTMORLAND CA 92281 License:	02/23/2005	Phone:

)escription:

60 - 70 FT MONITORING WELL WITH 8" CASING GW10A

'aluation:

)ccupancy	Type	Factor	Sq Feet	Valuation
	Totals...			$0.00*

ERMIT FEES

TYPE	AMOUNT	TYPE	AMOUNT
Valuation:	$0.00	Other Plan Ck:	$0.00
Other Building Fees:	$200.00	Plan Check:	$0.00
S.M.I.Fee:	$0.00	Addl Plan Ck:	$0.00
General Plan:	$0.00	Zoning Review:	$0.00
Legal Service Fees:	$0.00	Violation:	$0.00
Reinspections:	$0.00	Inspections:	$0.00

Total Permit Fees: $200.00

ITIGATION FEES

TYPE	FIRE QUANITY	AMOUNT	TYPE	SHERIFF QUANITY	AMOUNT
Residential			Residential		
SFR/MH:	0	$0.00	SFR/MH:	0	$0.00
Apartment Units:	0	$0.00	Apartment Units:	0	$0.00
Addl Sq Ft:	0	$0.00			
Comm/Ind (Sq. Ft.)					
Light Hazard:	0	$0.00	Comm/Ind (Sq Ft.):	0	$0.00
Low/Mod Hazard:	0	$0.00	Shade Park (Sq Ft.):	0	$0.00
High Hazard:	0	$0.00			
Shade Park (Sq Ft.)					
Light Hazard:	0	$0.00	Other Sheriff Fees:		$0.00
Low/Mod Hazard:	0	$0.00	Sheriff Admin Fee:		$0.00
High Hazard:	0	$0.00	Sheriff Violation:		$0.00
Other Fire Mitigation:		$0.00			
Fire Admin Fee:		$0.00			

Total Mitigation Fees: $0.00

Total Calculated Fees:	$200.00
Additional Fees:	$75.00
Total Permit Fees:	$299.75

3/11/05

INSPECTION RECORD

REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – ***482-4236***

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS			
	REINFORCING			
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING			
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			

EXPIRED			
FINALED	per Accela	12-16-08	NHW

PERMITTED WORK: C DRILL 70' MONITORING WELL W)(A

OWNER: DESERT VALLEY COMPANY

CONTRACTOR: CAL ENERGENY OPERATING/DESERT VALLEY COMPANY

LOCATION: 3301 W HWY 86 WESTMORLAND

Date Issued: 3/11/05 PERMIT NO. 42999

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

IMPERIAL COUNTY – PLANNING/BUILDING DEPT., 939 MAIN ST, STE B-1, EL CENTRO, CA 92243

F:/word/inspcard

CORRECTION NOTICES

DATE	INSPECTOR	COMMENTS	R. – FEE

NOTES:

FEE COMPUTATION

QUANITY	ITEM		FEE
	ELECTRICAL PERMIT		
	MAIN SERVICE _____ AMP.		
	BREAKER OR OTHER CONTROL BOX		
	SWITCHES, LIGHTS, OUTLETS, ETC.		
	MOTORS, TRANSFORMERS, ETC.		
	OTHER _____		
		Sub. Total	$_____
	PLUMBING PERMIT		
	EACH FIXTURE OR TRAP		
	EACH SEWER CONNECTION		
	EACH WATER HEATER		
	GAS PIPING (1–TO-4 OUTLETS)		
	WATER PIPING (1-TO-4 OUTLETS		
	OTHER _____		
		Sub. Total	$_____
	MECHANICAL PERMIT		
	A / C WITH DUCTS (BTU _____)		
	VENTILATION		
	RANGE HOOD		
	FURNACE		
	OTHER_____		
		Sub. Total	$_____

3805

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

☐ BUILDING	☐ NEW RESIDENTIAL	☐ REMODEL RESIDENTIAL
☐ ELECTRICAL	☐ NEW COMMERCIAL	☐ REMODEL COMMERCIAL
☐ PLUMBING	☐ NEW INDUSTRIAL	☐ REMODEL INDUSTRIAL
☐ MECHANICAL	☐ NEW POOL	☐ _____
☐ GRADING	☐ NEW SIGN	☐ _____
☐ DEMOLITION	☐ M. H. UTILITIES	☒ Monitoring Well

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1	PROPERTY OWNERS NAME: Desert Valley Company	PHONE NO.: 760-348-4000	
2	MAILING ADDRESS: 950 West Lindsey Road	ZIP CODE: 92233	
3	PROJECT SITE ADDRESS: 3301 West Hwy 86, Westmoreland		
4	ASSESSORS PARCEL NO.: 019-100-04	LEGAL DESCRIPTION: Sect. 33 T12S R11E	
5	DESCRIBE INTENDED USE: Refi CUP # 02-0003		
6	DESCRIBE (CLEARLY) THE PROPOSED WORK: Drill 70' deep monitoring Well W09A		
7	(ADDITIONAL SPACE FOR LINE 6)		
8	ARCHITECT / ENGINEER: Balderman Consulting Inc.	LICENSE NO.: 940	PHONE NO.: 949-240-2396
9	MAILING ADDRESS: Po Box 796 Dana Point, CA	ZIP CODE: 92629	
10	CONTRACTORS NAME: CAL Energy / Desert Valley Company	LICENSE NO.:	PHONE NO.: 760-348-4000
11	MAILING ADDRESS: 950 West Lindsey Road	ZIP CODE: 92233	

ZONE: M-2/S-2 AREA:
OCCUPANCY GROUP:
CONSTRUCTION TYPE:
VALUATION:

QTY		FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE (AMP)	
	BREAKER-CONTROL DEVICE	
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
	OTHER	
	OTHER	
	OTHER	
	Sub-Total	
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE(S)	
	GAS LINE(S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

___ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

✓ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number WA2-690-550801-014 Carrier Liberty Mutual Fire & Casualty

___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: Date: 3/1/05 Applicant: CalEnergy

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13 SIGNATURE OF OWNER: D Hackley

14 SIGNATURE OF CONTRACTOR: D Hackley

S. M. I.	
BUILDING PERMIT	200
PLAN CHECK	
ELECTICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	75
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER	24.75
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA

ELECTRICAL APP
GAS APP
FINALED / EXPIRED
RECEIPT NO: R#0500313
DATE ISSUED: 3/11/05

APPROVALS REQUIRED

WORKERS COMP. CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)	ENERGY CERT.	E. H. S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED	RESUBMITTED	A. P. C. D. / AG.	DATE
SPECIAL LAND USE PERMIT		PLANNING RF	DATE 3/8

PERMIT NO.: 42999

RECEIVED BY: DATE 3-8-05

APPROVED BY: DATE 3-9-05

FEE $ 299.75

WHITE-OFFICE MASTER / GOLDENROD-PLICANT / PINK-ASSESSOR / YELLOW-PLAN FEE

PLANNING / BUILDING DEPARTMENT FORM 1084 BP

Permit #: 0000042999
STRUCTURAL PERMIT

Job Address:	3301 W HIGHWAY 86 CNTY	Status:	ISSUED
Parcel No:	019-100-04-01	Issued:	03/11/2005
Location:	WESTMORLAND 3301 W HWY 86	Expires:	09/11/2005
App Type:	OTHER		

OWNER DESERT VALLEY CO 03/08/2005 Phone: 3484000
ATTN LYNN JENSEN
950 W LINDSEY ROAD
CALIPATRIA CA 92233
License:

APPLICANT DESERT VALLEY COMPANY 03/08/2005 Phone: 760.348.4000
950 W LINDSEY RD
CALIPATRIA CA
92233
License:

Description:
70' MONITORING WELL W09A

Valuation:

Occupancy	Type	Factor	Sq Feet	Valuation
	Totals...			$500.00*

PERMIT FEES

TYPE	AMOUNT	TYPE	AMOUNT
Valuation:	$0.00	Other Plan Ck:	$0.00
Other Building Fees:	$200.00	Plan Check:	$0.00
S.M.I.Fee:	$0.00	Addl Plan Ck:	$0.00
General Plan:	$0.00	Zoning Review:	$75.00
Legal Service Fees:	$0.00	Violation:	$0.00
Reinspections:	$0.00	Inspections:	$0.00

Total Permit Fees: $275.00

MITIGATION FEES

TYPE	FIRE QUANITY	AMOUNT	TYPE	SHERIFF QUANITY	AMOUNT
Residential			Residential		
SFR/MH:	0	$0.00	SFR/MH:	0	$0.00
Apartment Units:	0	$0.00	Apartment Units:	0	$0.00
Addl Sq Ft:	0	$0.00			
Comm/Ind (Sq. Ft.)					
Light Hazard:	0	$0.00	Comm/Ind (Sq Ft.):	0	$0.00
Low/Mod Hazard:	0	$0.00	Shade Park (Sq Ft.):	0	$0.00
High Hazard:	0	$0.00			
Shade Park (Sq Ft.)					
Light Hazard:	0	$0.00	Other Sheriff Fees:		$0.00
Low/Mod Hazard:	0	$0.00	Sheriff Admin Fee:		$0.00
High Hazard:	0	$0.00	Sheriff Violation:		$0.00
Other Fire Mitigation:		$0.00			
Fire Admin Fee:		$0.00			

Total Mitigation Fees: $0.00

Total Calculated Fees:	$275.00
Additional Fees:	$0.00
Total Permit Fees:	$299.75

RECEIPT

RECEIPT NUMBER: R0500313

APD #: 0000042999 TYPE: STRUCTURAL PERMIT
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-04-01
RECEIPT NOTATION:

TRANSACTION DATE: 03/11/2005 TOTAL PAYMENT: 299.75
TOTAL PAID FROM TRUST: .00
TOTAL PAID FROM CURRENCY: 299.75

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	1108	299.75
		TOTAL:	299.75

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
BUILDING PERMITS	1035001-413000	200.00
SURCHARGE	1035001-413000	24.75
ZONING FEES	1041001-414000	75.00
	TOTAL:	299.75

RECEIPT ISSUED BY: CORRENNE INITIALS: CD
ENTERED DATE: 03/11/2005 TIME: 04:32 PM

This is your original copy of the **receipt** for funds received by the Imperial County Planning/Building Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Correnne Durrick

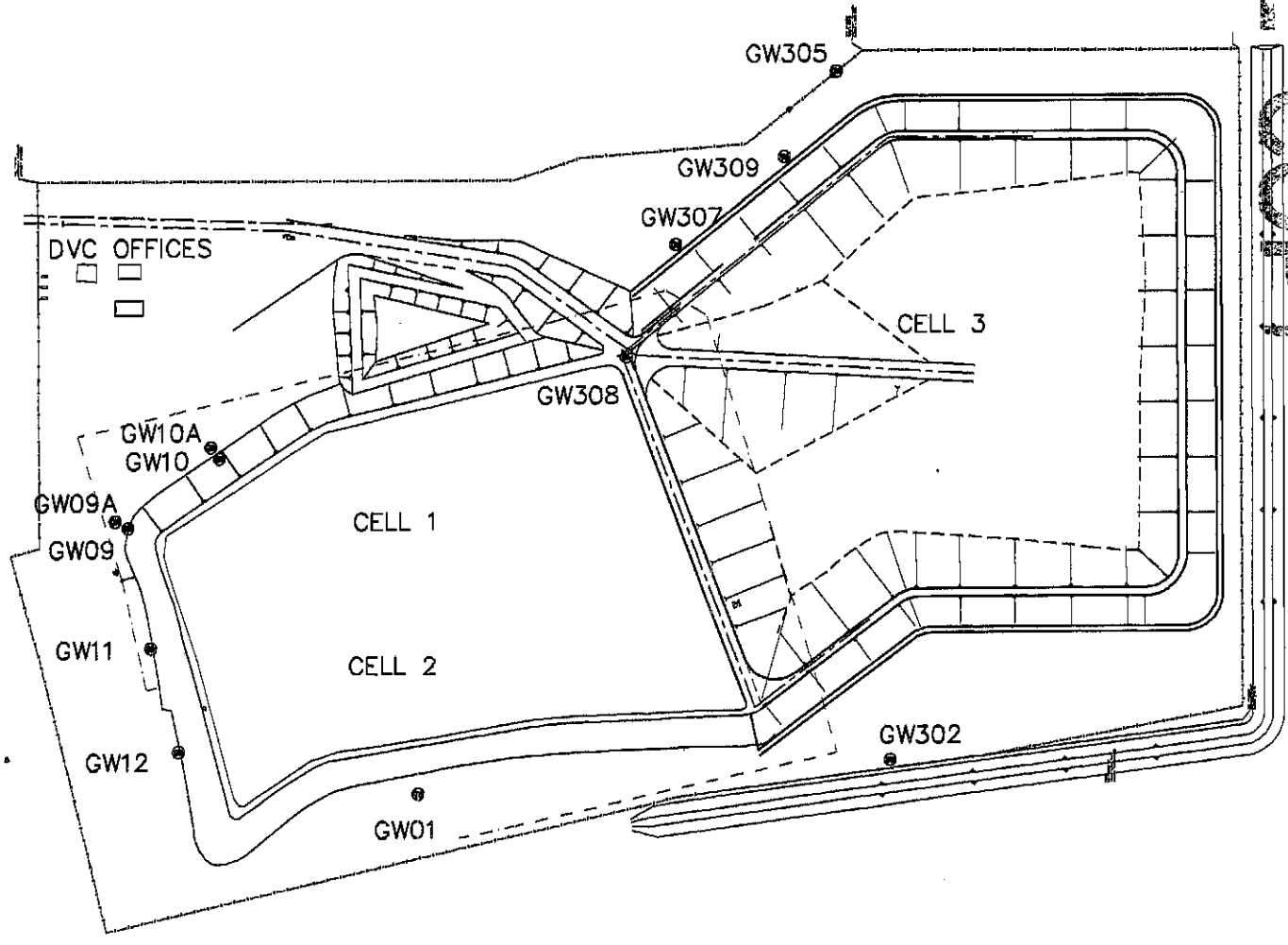
Jurg Heuberger, AICP
Planning Director/Building Official

cc: Auditor/Controller
Permit File

Permitrc.doc

OFFICE COPY

BUILDING INSPECTION DIVISION
COUNTY OF IMPERIAL CALIFORNIA
APPROVED
PERMIT NO. 4998
SITE
DATE 3-9-05
ZONE
SETBACK FRONT
APPROVED BY
THIS IS NOT A BUILDING PERMIT



GW306

DVC MONOFILL FACILITY

Groundwater Monitoring Well Summary

GW Well	Date Constructed	Date Abandoned
W01	Mar-89	
W02	Mar-89	Oct-90
W03	Mar-89	Oct-90
W04	Mar-89	Scheduled 2/05
W05	NOT USED	
W06	Mar-91	Mar-99
W07	NOT USED	
W08	Apr-91	Mar-99
W09	Apr-91	Mar-05
W10	Apr-91	Mar-05
W11	Dec-90	
W12	Dec-90	
W301	Dec-99	Sep-04
W302	Dec-99	
W303	Dec-99	Jan-05
W304	Dec-99	Sep-04
W305	Dec-99	
W306	Dec-99	
W307	Scheduled 2/05	
W308	Scheduled 2/05	
W309	Scheduled 2/05	
W09A	Scheduled 2/05	
W10A	Scheduled 2/05	

NO.	REVISIONS	BY	APPR.	DATE
0	REFERENCE DRAWING	SSC	HEV	01/20/05

WARNING
IF BAR BELOW DOES NOT MEASURE 1 INCH THEN DRAWING IS NOT TO SCALE
0 1 INCH

VEIZADES & ASSOCIATES, INC.
CONSULTING ENGINEERS
5 THIRD STREET · SUITE 400 · SAN FRANCISCO · CA
(415) 394, 6855 FAX: 415, 394, 6866

DESIGNED BY HEV
CHECKED BY
DRAFTED BY JCH
APPROVED BY HEV
DATE 10/13/04
SCALE 1"=100'

CALENERGY OPERATING CORPORATION
CALIPATRIA, CALIFORNIA

DESERT VALLEY COMPANY
CELL 3 DESIGN REVIEW AND FENCE PLAN

CELL 3 GENERAL PLAN

PROJECT NO. 242-008
CONTRACT NO.
CADFILE NO. GENERAL PLAN.DWG
SHEET NO. R1
REV. NO. 0

3808

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

☐ BUILDING	☐ NEW RESIDENTIAL	☐ REMODEL RESIDENTIAL	
☐ ELECTRICAL	☐ NEW COMMERCIAL	☐ REMODEL COMMERCIAL	
☐ PLUMBING	☐ NEW INDUSTRIAL	☐ REMODEL INDUSTRIAL	
☐ MECHANICAL	☐ NEW POOL	☐ _____	
☐ GRADING	☐ NEW SIGN	☐ _____	
☐ DEMOLITION	☐ M. H. UTILITIES	☒ Monitoring Well	

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1	PROPERTY OWNERS NAME: Desert Valley Company	PHONE NO.: 760-348-4000	
2	MAILING ADDRESS: 950 West Lindsey Road	ZIP CODE: 92233	
3	PROJECT SITE ADDRESS: 3301 West Hwy 86, Westmoreland		
4	ASSESSORS PARCEL NO.: 019-100-04	LEGAL DESCRIPTION: Sect. 33 T12S R11E	
5	DESCRIBE INTENDED USE: Ref: CUP # 02-0003		
6	DESCRIBE (CLEARLY) THE PROPOSED WORK: Drill 70' deep monitoring Well W09A		
7	(ADDITIONAL SPACE FOR LINE 6)		
8	ARCHITECT / ENGINEER: Balderman Consulting Inc. LICENSE NO.: 940	PHONE NO.: 949-240-2396	
9	MAILING ADDRESS: PO Box 796 Dana Point, CA	ZIP CODE: 92629	
10	CONTRACTORS NAME: CAL Energy / Desert Valley Company LICENSE NO.:	PHONE NO.: 760-348-4000	
11	MAILING ADDRESS: 950 West Lindsey Road	ZIP CODE: 92233	

READ

WORKERS' COMPENSATION DECLARATION

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✓ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number WA2-690-550801-014 Carrier Liberty Mutual Fire & Casualty

___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: Date: 3/1/05 Applicant: CalEnergy

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13	SIGNATURE OF OWNER: D Faebely	
14	SIGNATURE OF CONTRACTOR: D Faebely	

ZONE	AREA
OCCUPANCY GROUP	
CONSTRUCTION TYPE	
VALUATION	

QTY	FEE
ELECTRICAL PERMIT	
MAIN SERVICE (AMP)	
BREAKER-CONTROL DEVICE	
SWITCHES / OUTLETS	
MOTORS / TRANSFORMERS	
OTHER	
OTHER	
OTHER	
Sub-Total	
PLUMBING PERMIT	
EA. FIXTURE OR TRAP	
EA. SEWER CONNECTION	
WATER LINE(S)	
GAS LINE(S)	
WATER HEATER	
OTHER	
OTHER	
Sub-Total	
MECHANICAL PERMIT	
A/C WITH DUCTS (BTU)	
VENTILATION FAN	
RANGE HOOD	
HEATING SYSTEM	
OTHER	
OTHER	
Sub-Total	

S. M. I.	
BUILDING PERMIT	200
PLAN CHECK	
ELECTICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	75
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER _____	24.75
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA	APPROVALS REQUIRED		
ELECTRICAL APP	WORKERS COMP. CERT.	PUBLIC WORKS	DATE
GAS APP	SCHOOL FEE(S) / ENERGY CERT.	E. H. S. / HEALTH	DATE
FINALED / EXPIRED		FIRE / O.E.S.	DATE
RECEIPT NO:	REJECTED / RESUBMITTED	A. P. C. D. / AG.	DATE
DATE ISSUED	SPECIAL LAND USE PERMIT	PLANNING	DATE

PERMIT NO.	RECEIVED BY / DATE	APPROVED BY: / DATE	FEE $
42999	3-8-05		299.75

WHITE-OFFICE MASTER / GOLDENROD-APPLICANT / PINK-ASSESSOR / YELLOW-PLAN FILE

PLANNING / BUILDING DEPARTMENT FORM 10/94 BP

8-25-11

INSPECTION RECORD

REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – **482-4236**

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS			
	REINFORCING			
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING		8-22-05	SE
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (_____ amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			

EXPIRED		8-25-11	SE
FINALED	SHADE only 8-22-05 SE		

PERMITTED WORK: C CONSTRUCT SUNSHADE & 1 CARGO CONTAINER

OWNER: CALENERGY/ desert valley co

CONTRACTOR: BIG D CONSTRUCTION

LOCATION: 3301 W HWY 86 WESTMORLAND

Date Issued: 8/4/05 PERMIT NO. 47089

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

CORRECTION NOTICES

DATE	INSPECTOR	COMMENTS	R. – FEE

NOTES:

FEE COMPUTATION

QUANITY	ITEM		FEE
	ELECTRICAL PERMIT		
	MAIN SERVICE _____ AMP.		
	BREAKER OR OTHER CONTROL BOX		
	SWITCHES, LIGHTS, OUTLETS, ETC.		
	MOTORS, TRANSFORMERS, ETC.		
	OTHER _____		
		Sub. Total	$_____
	PLUMBING PERMIT		
	EACH FIXTURE OR TRAP		
	EACH SEWER CONNECTION		
	EACH WATER HEATER		
	GAS PIPING (1–TO-4 OUTLETS)		
	WATER PIPING (1-TO-4 OUTLETS		
	OTHER _____		
		Sub. Total	$_____
	MECHANICAL PERMIT		
	A / C WITH DUCTS (BTU _____)		
	VENTILATION		
	RANGE HOOD		
	FURNACE		
	OTHER_____		
		Sub. Total	$_____

8-1-05

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

[X]	BUILDING	[ ]	NEW RESIDENTIAL	[ ]	REMODEL RESIDENTIAL
[ ]	ELECTRICAL	[ ]	NEW COMMERCIAL	[ ]	REMODEL COMMERCIAL
[ ]	PLUMBING	[X]	NEW INDUSTRIAL	[ ]	REMODEL INDUSTRIAL
[ ]	MECHANICAL	[ ]	NEW POOL	[ ]	
[ ]	GRADING	[ ]	NEW SIGN	[ ]	
[ ]	DEMOLITION	[ ]	M. H. UTILITIES	[ ]	

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1 PROPERTY OWNERS NAME: CALENERGY / DESERT VALLEY Co — PHONE NO.: 348-4082

2 MAILING ADDRESS: 7030 GENTRY RD CALIPATRIA — ZIP CODE: 92233

3 PROJECT SITE ADDRESS: 3301 WEST HWY 86 BRAWLEY

4 ASSESSORS PARCEL NO.: 019-100-04-01 — LEGAL DESCRIPTION: SECT. 33 T12S R11E

5 DESCRIBE INTENDED USE: NON-HAZARDOUS LANDFILL

6 DESCRIBE (CLEARLY) THE PROPOSED WORK: CONSTRUCTION OF SUN SHADE & 1 CANOPY

7 (ADDITIONAL SPACE FOR LINE 6)

8 ARCHITECT / ENGINEER: S.E. CONSULTANTS — LICENSE NO. — PHONE NO.

9 MAILING ADDRESS: 5800 EAST THOMAS Rd SUITE 104 — ZIP CODE: 85251

10 CONTRACTORS NAME: BIG "D" CONSTRUCTION — LICENSE NO.: 771340 — PHONE NO.: 348-4082

11 MAILING ADDRESS: 7030 GENTRY Rd CALIPATRIA — ZIP CODE: 92233

ZONE: M-2/S-2 — AREA: SEE PLANS

OCCUPANCY GROUP: B, S1

CONSTRUCTION TYPE: VN

VALUATION: ~~12,800~~ 8262 — 972 1-Shade 1-Canopy

QTY		FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE (AMP)	
	BREAKER-CONTROL DEVICE	
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
	OTHER	
	OTHER	
	OTHER	
	Sub-Total	
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE(S)	
	GAS LINE(S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

READ 11-30-05

WC 3-1-04

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

___ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

X I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number ON FILE *Carrier* AON

X I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: *Date:* 7 JULY 2005 *Applicant:*

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13 SIGNATURE OF OWNER

14 SIGNATURE OF CONTRACTOR

S. M. I.	
BUILDING PERMIT	6/6 1338.38
PLAN CHECK	538.78
ELECTICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	10
ZONE REVIEW	150
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER	
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA

ELECTRICAL APP.
GAS APP.
FINALED / EXPIRED
RECEIPT NO: R#0501083
DATE ISSUED: 8/4/05

APPROVALS REQUIRED

WORKERS COMP. CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)	ENERGY CERT.	E. H. S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED	ESGIL 7-9-05 RESUBMITTED	A. P. C. O. / AG.	DATE
SPECIAL LAND USE PERMIT		PLANNING RJC 7-7-8	DATE

PERMIT NO: 47089

RECEIVED BY: DATE 7-7-05

APPROVED BY: DATE 8-1-05

FEE $ 836.76

WHITE-OFFICE MASTER / GO-GENERAL APPLICANT / PINK-ASSESSOR / YELLOW-PLANNING FILE

PLANNING / BUILDING DEPARTMENT FORM 10934 6P

PERMIT

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

____ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number_____ **Carrier**_____

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date:_____ **Applicant:**_____

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

I/We agree that by accepting this permit I/We agreed to comply with all laws pertaining to this construction, including the contractors license law, the building ordinance, workers compensation insurance, and any other law that governs construction.

SIGNATURE OF OWNER / Date	SIGNATURE OF CONTRACTOR / Date

Inspection requests may be also made via email.
The Inspection Request Form is located on our website:
www.imperialcounty.net/planning.

NOTICE:

This is your official PERMIT that authorizes you to perform the work described on the other side.

Please review the other side and make sure all information is correct.

Please remember that you are only permitted to perform the work authorized by this permit. If you change, add-to and/or alter the scope of work you may need to obtain additional permits.

If you have any questions please call the Department or ask your Inspector.

NOTE: It is your responsibility to request all inspections. DO NOT cover or conceal any work until it is approved by the Inspector and the field card is signed!

NOTE: Failure to follow Permit requirements, failure to have work inspected, and/or providing false information may result in your permit being revoked.
NOTE: A permit revoked due to an NSF check, or violations of conditions in the permit will result in a double fee.

Thank You,

Jurg Heuberger
Building Official

How to Request an Inspection:

1. CALL 482-4236. After the automated system answers, PRESS 4277 on your phone, this will route your inspection request automatically.

2. State the following information after the sound-of-the-tone: (Speak slow and clear).
   a. permit number _____
   b. address of project _____
   c. date of inspection _____
   d. permit name _____
   e. your telephone number _____
   f. type of inspection req. _____

3. Only if a specific time is absolutely necessary, take the following steps:
   a. Leave your request on the answering system, and leave your phone #._____
   b. On the day of the inspection, call the Planning/ Building Department between 7:30-8:30 a.m., at 482-4236, and discuss your request with the Inspector.

NOTE: If you do not state your permit number, name and the address, no inspection will be done.
NOTE: Specific time inspection can not and will not be scheduled via the recording. You must talk to the Inspector between 7:30-8:30 a.m., on the day of the inspection!

Permit #: 0000047089
STRUCTURAL PERMIT

Job Address:	3301 W HIGHWAY 86 CNTY	Status:	ISSUED
Parcel No:	019-100-04-01	Issued:	08/04/2005
Location:	BRAWLEY 3301 WEST HIGHWAY 86	Expires:	02/04/2006
App Type:	REMODEL COMMERCIAL		

OWNER CALENERGY DESERT VALLEY CO 07/08/2005 Phone: 760.348.4082
7030 GENTRY ROAD
CALIPATRIA CA
92233
License:

CONTRACTOR BIG D CONSTRUCTION 07/08/2005 Phone: 760-355-4749
293 CHISOLM TRAIL
IMPERIAL, CA
92251
License: 771342

APPLICANT CALENERGY DESERT VALLEY CO 07/08/2005 Phone: 760.348.4082
7030 GENTRY ROAD
CALIPATRIA CA
92233
License:

Description:
CONSTRUCTION OF SUN SHADE

Valuation:

Occupancy	Type	Factor	Sq Feet	Valuation
Shades/Awnings/Decks	Open Steel Shades	8.50	972	$8,262.00
Totals...		972	$8,262.00*	

PERMIT FEES

TYPE	AMOUNT	TYPE	AMOUNT
Building Inspection Fee:	$419.59	Plan Check Fee:	$257.17
S.M.I.Fee:	$0.00		
General Plan:	$10.00	Zoning Review:	$150.00
Legal Service Fees:	$0.00	Violation:	$0.00
Other Inspections:	$0.00		

Total Permit Fees: $836.76

MITIGATION FEES

TYPE	FIRE QUANTITY	FIRE AMOUNT	TYPE	SHERIFF QUANTITY	SHERIFF AMOUNT
Residential			Residential		
SFR/MH:	0	$0.00	SFR/MH:	0	$0.00
Apartment Units:	0	$0.00	Apartment Units:	0	$0.00
Addl Sq Ft:	0	$0.00			
Comm/Ind (Sq. Ft.)					
Light Hazard:	0	$0.00	Comm/Ind (Sq Ft.):	0	$0.00
Low/Mod Hazard:	0	$0.00	Shade Park (Sq Ft.):	0	$0.00
High Hazard:	0	$0.00			
Shade Park (Sq Ft.)					
Light Hazard:	0	$0.00	Other Sheriff Fees:		$0.00
Low/Mod Hazard:	0	$0.00	Sheriff Admin Fee:		$0.00
High Hazard:	0	$0.00	Sheriff Violation:		$0.00
Other Fire Mitigation:		$0.00			
Fire Admin Fee:		$0.00			

Total Mitigation Fees: $0.00

Total Calculated Fees:	$836.76
Additional Fees:	$0.00
Total Permit Fees:	$836.76

RECEIPT

Copy Reprinted on 08-04-2005 at 15:54:51 08/04/2005

RECEIPT NUMBER: R0501083

APD #: 0000047089 TYPE: STRUCTURAL PERMIT
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-04-01
RECEIPT NOTATION: 170000802

TRANSACTION DATE: 08/04/2005

TOTAL PAYMENT:	**836.76**
TOTAL PAID FROM TRUST:	**.00**
TOTAL PAID FROM CURRENCY:	**836.76**

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	SEE ABVE	836.76
		TOTAL:	**836.76**

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
BUILDING PERMITS	1035001-413000	419.59
GENERAL PLAN TRUST	7086000-301000	10.00
PLAN CHECK FEES	7222000-301000	257.17
ZONING FEES	1041001-414000	150.00
	TOTAL:	**836.76**

RECEIPT ISSUED BY: CORRENNE INITIALS: CD
ENTERED DATE: 08/04/2005 TIME: 03:54 PM

This is your original copy of the **receipt** for funds received by the Imperial County Planning and Development Services Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Correnne Durrick

Jurg Heuberger, AICP, CEP
Building Official / Director of Planning & Development Services

CC: Auditor/Controller
Permit File

9/7/07 left mess CD

PERMIT APPLICATION

PLANNING & DEVELOPMENT SERVICES
DEPARTMENT - COUNTY OF IMPERIAL

☐	BUILDING	☐	NEW RESIDENTIAL	☐	REMODEL RESIDENTIAL
☐	ELECTRICAL	☐	NEW COMMERCIAL	☐	REMODEL COMMERCIAL
☐	PLUMBING	☐	NEW INDUSTRIAL	☐	REMODEL INDUSTRIAL
☐	MECHANICAL	☐	NEW POOL	☐	
☒	GRADING	☐	NEW SIGN	☐	
☐	DEMOLITION	☐	M.H. UTILITIES	☐	

COMPLETE ALL NUMBERED SPACES! PLEASE TYPE OR PRINT! READ INSTRUCTIONS ON THE BACK!

1	PROPERTY OWNERS NAME: Desert Valley Company	PHONE NUMBER: 351-3050	
2	MAILING ADDRESS: 551 W. Main St. #1, Brawley	ZIP CODE: 92227	
3	PROJECT SITE ADDRESS: 3301 Hwy. 86, Westmorland, CA 92281		
4	ASSESSORS PARCEL NO.: 19-10-04	LEGAL DESCRIPTION: T12S-R11E: Sec. 33	
5	DESCRIBE INTENDED USE: Final Closure of Cells 1 and 2 at The		
6	DESCRIBE (CLEARLY) THE PROPOSED WORK: Desert Valley Company Monofil (see		
7	(ADDITIONAL SPACE FOR LINE 6): Attached documents)		
8	ARCHITECT / ENGINEER: Veizades & Asso.	LICENSE NO.: 12451	PHONE NUMBER: 415.394.8855
9	MAILING ADDRESS: 5 3rd St. Suite 400 San Francisco CA	ZIP CODE: 94103	
10	CONTRACTORS NAME: McGlocklin Mining	LICENSE NO.: 648284A	PHONE NUMBER: 951-699
11	MAILING ADDRESS: P.O. Box 892347 Temecula, CA	ZIP CODE: 92589	

ZONE: M2/S2	AREA
OCCUPANCY GROUP	
CONSTRUCTION TYPE	
VALUATION	

QTY		FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE (AMP)	
	BREAKER-CONTROL DEVICE	
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
	OTHER	
	OTHER	
	Sub-Total	
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE (S)	
	GAS LINE (S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued

__X__ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number:

Policy Number 0012402-2007 *Carrier* State Fund

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and Labor Code, I shall forthwith comply with these provisions.

12. DATE: 9/5/07 **APPLICANT:**

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGESAS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

13	SIGNATURE OF OWNER	14	SIGNATURE OF CONTRACTOR: Russell Jean

S. M. I.	
BUILDING PERMIT	381.45
PLAN CHECK	233.79
ELECTRICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	10 ✓
ZONE REVIEW	150 ✓
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER	
FIRE MITIGATION	
SHERIFF MITIGATON	

DATA	
ELECTRICAL APP.	
GAS APP.	
FINALED / EXPIRED	
RECEIPT NO.	#07000840
DATE ISSUED	9/10/07

APPROVALS REQUIRED			
WORKERS COMP. CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)		E.H.S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED	RESUBMITTED	A. P. C. D. / A. G.	DATE
SPECIAL LAND USE PERMIT		PLANNING	DATE RM 9/6

PERMIT NUMBER	RECEIVED BY:	DATE	APPROVED BY:	DATE
50839		9-6-07		9-7-07

FEE $ 775.24

WHITE – OFFICE (MASTER) YELLOW – ASSESSOR PINK – APPLICANT XEROX COPY – PLAN FILE

Total Calculated Fees: $1,269.93
Additional Fees: $0.00
Total Permit Fees: $1,269.93

Permit #: 0000050839
GRADING PERMIT

Job Address:	3301 W HIGHWAY 86 CNTY	Status:	APPROVED
Parcel No:	019-100-004-001	Issued:	
Location:	WESTMORLAND 3301 W HWY 86	Expires:	03/10/2008
App Type:	OTHER		

Applicant:	DESERT VALLEY COMPANY C/O MID AMERICAN ENERGY HOLDING CORP	Phone:	760.351.3050
Owner:	DESERT VALLEY CO ATTN LYNN JENSEN	Phone:	3484000

Description:
FINAL CLOSURE OF CELLS 1 AND 2

Cubic Yards: 70000 Zoning: M2/S2

FEE INFORMATION

Grading Inspection Fee:	$381.45	General Plan:	$10.00
Plan Check Fee:	$233.79	Zoning Review:	$150.00
Violation:	$0.00	Legal Service:	$0.00
Addl Plan Check Fee:	$0.00	Additional Inspection Fee:	$0.00

Total Calculated Fees:	$775.24
Additional Fees:	$0.00
Total Permit Fees:	$775.24

RECEIPT

Copy Reprinted on 09-10-2007 at 07:18:51 09/10/2007

RECEIPT NUMBER: R0700840

APD #: 0000050839 TYPE: GRADING PERMIT
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-004-001

TRANSACTION DATE: 09/10/2007 TOTAL PAYMENT: **775.24**
TOTAL PAID FROM TRUST: **.00**
TOTAL PAID FROM CURRENCY: **775.24**

COUNTY DEP#??

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Credit C	8182	775.24
		TOTAL:	**775.24**

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
GENERAL PLAN TRUST	7086000-301000	10.00
GRADING PERMITS	1035001-413000	381.45
PLAN CHECK FEES	7222000-301000	233.79
ZONING FEES	1041001-414000	150.00
	TOTAL:	**775.24**

RECEIPT ISSUED BY: CORRENNE INITIALS: CD
ENTERED DATE: 09/10/2007 TIME: 07:18 AM

This is your original copy of the **receipt** for funds received by the Imperial County Planning and Development Services Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

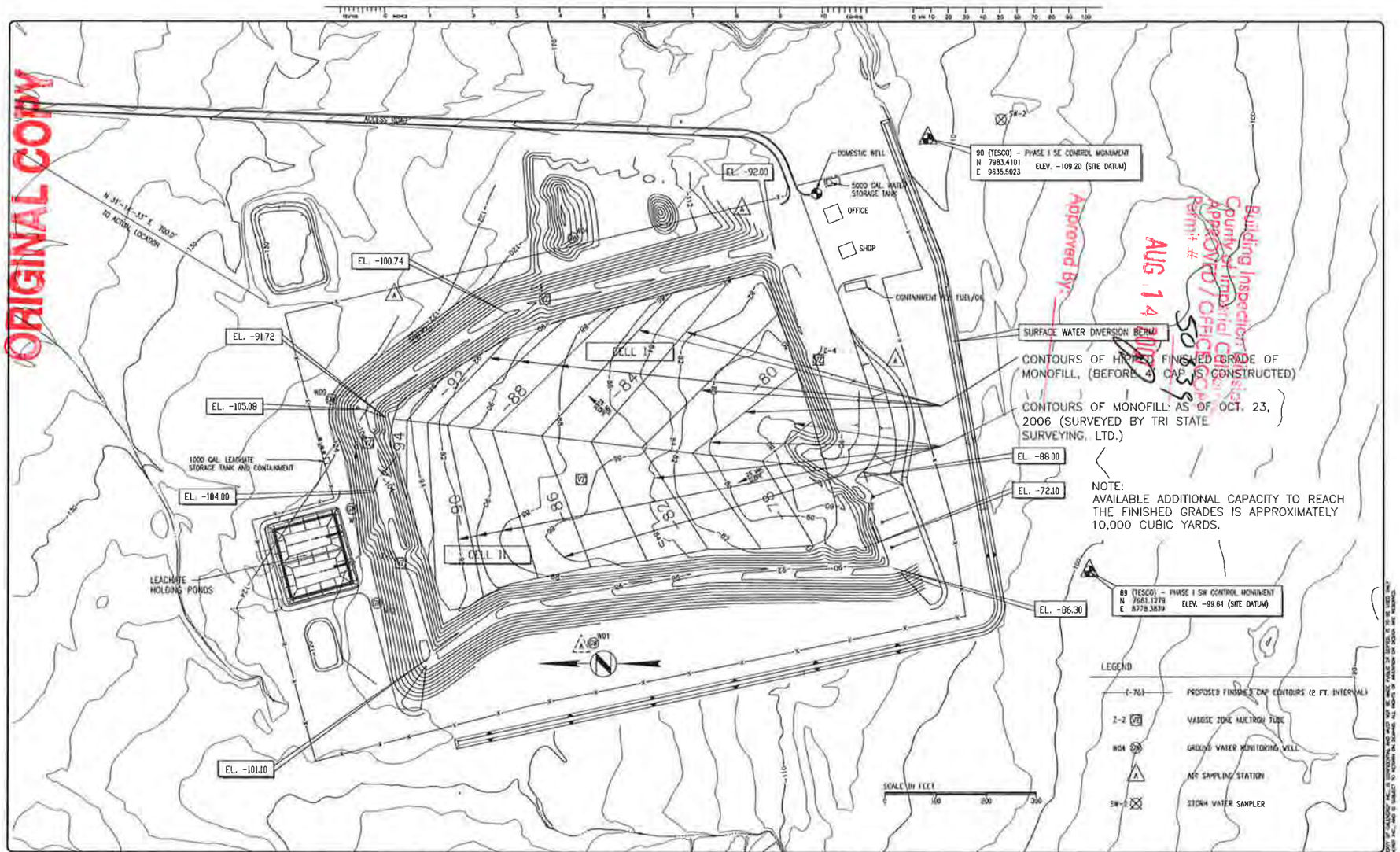
If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation! Correnne Derrick

Jurg Heuberger, AICP, CEP
Building Official / Director of Planning & Development Services

CC: Auditor/Controller
Permit File
Permitrc.doc



CAL ENERGY OPERATING CORPORATION
7030 DENTRY ROAD
CALIPATRIA, CALIFORNIA 92233

REV	DATE	DESCRIPTION	BY	APPR
4				
3				
2				
1				

REVISION RECORD

ISSUE	DATE	REV	DESCRIPTION
4			
3			
2			
1		0	ISSUED FOR CONSTRUCTION

ISSUE RECORD

ENGINEERING MGR: D HACKLEY
PROJECT MGR:
PROJECT ENG: B NORONHA
DRAWN BY: J HUIA
DRAWN DATE: 2/1/2007

DESERT VALLEY MONOFILL
CELL 1-2 CLOSURE AND CAP
FIGURE 2

PROJECT NUMBER EP-06-006
DRAWING NUMBER 17-0701-01Y-02_0
SHEET NUMBER 1

2'2'

INSPECTION RECORD

REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – 482-4236

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS for S. East section of wall D.T. 1-30-12			
	REINFORCING		1-25-12	DT OVGN
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING			
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			
EXPIRED				
FINALED			02/09/12	VRH

PERMITTED WORK: CONSTRION STORM WATER DIVERSION WALL

OWNER: CALENERAY OPERATION COMPANY

CONTRACTOR: Mclauahlin engineering and mining

LOCATION: 3301 WEST HIGH WAY 86 ~~BRAWLEY~~ Westmorland

Date Issued: 11-10-11 PERMIT NO. 53792

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

IMPERIAL COUNTY – PLANNING & DEVELOPMENT SERVICES DEPT.
801 MAIN STREET, EL CENTRO, CA 92243

s:/forms_lists/inspcard - black

CORRECTION NOTICES

DATE	INSPECTOR	COMMENTS	R. – FEE
11/14/12	VAH	Aff Nte Section of Wall	

NOTES:

FEE COMPUTATION

QUANITY	ITEM	FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE _____ AMP.	
	BREAKER OR OTHER CONTROL BOX	
	SWITCHES, LIGHTS, OUTLETS, ETC.	
	MOTORS, TRANSFORMERS, ETC.	
	OTHER _____	
	Sub. Total	$_____
	PLUMBING PERMIT	
	EACH FIXTURE OR TRAP	
	EACH SEWER CONNECTION	
	WATER LINE(S)	
	GAS LINE(S)	
	WATER HEATER	
	OTHER _____	
	Sub. Total	$_____
	MECHANICAL PERMIT	
	A / C WITH DUCTS (BTU _____)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER _____	
	Sub. Total	$_____

PERMIT APPLICATION

COUNTY OF IMPERIAL

[X]	BUILDING	[ ]	NEW RESIDENTIAL	[ ]	REMODEL RESIDENTIAL
[ ]	ELECTRICAL	[ ]	NEW COMMERCIAL	[X]	REMODEL COMMERCIAL
[ ]	PLUMBING	[ ]	NEW INDUSTRIAL	[ ]	REMODEL INDUSTRIAL
[ ]	MECHANICAL	[ ]	NEW POOL	[ ]	
[ ]	GRADING	[ ]	NEW SIGN	[ ]	
[ ]	DEMOLITION	[ ]	M.H. UTILITIES	[ ]	

COMPLETE ALL NUMBERED SPACES! PLEASE TYPE OR PRINT! READ INSTRUCTIONS ON THE BACK!

1	PROPERTY OWNERS NAME: CALENERGY OPERATING CO	PHONE NUMBER: (760) 604-2340
2	MAILING ADDRESS: 7030 GENTRY RD, CALIPATRIA	ZIP CODE: 92233
3	PROJECT SITE ADDRESS: 3301, WEST HWY 86, BRAWLEY, CA-92227	
4	ASSESSORS PARCEL NO.: 019-100-04-01	LEGAL DESCRIPTION (SEE #3): MONOFILL FACILITY
5	DESCRIBE INTENDED USE: SOLID WASTE LANDFILL	
6	DESCRIBE (CLEARLY) THE PROPOSED WORK: TO CONSTRUCT STORM WATER DIVERSION WALL	
7	(ADDITIONAL SPACE FOR LINE 6): SEE ATTACHED DRAWINGS	
8	ARCHITECT / ENGINEER: THE HOLT GROUP — LICENSE NO.: 31773	PHONE NUMBER: (760) 337-3883
9	MAILING ADDRESS: 1561 S 4th ST, EL CENTRO CA	ZIP CODE: 92243
10	CONTRACTORS NAME: MCLAUGHLIN ENGINEERING AND MINING — LICENSE NO.: 648284A	PHONE NUMBER: (951) 830-3636
11	MAILING ADDRESS: SUITE L7222 27636 YNEZ RD, TEMECULA CA	ZIP CODE: 92591

ZONE	AREA
OCCUPANCY GROUP	
CONSTRUCTION TYPE	
VALUATION	

QTY		FEE
	ELECTRICAL PERMIT	
	MAIN SERVICE (AMP)	
	BREAKER-CONTROL DEVICE	
	SWITCHES / OUTLETS	
	MOTORS / TRANSFORMERS	
	OTHER	
	OTHER	
	Sub-Total	
	PLUMBING PERMIT	
	EA. FIXTURE OR TRAP	
	EA. SEWER CONNECTION	
	WATER LINE (S)	
	GAS LINE (S)	
	WATER HEATER	
	OTHER	
	OTHER	
	Sub-Total	
	MECHANICAL PERMIT	
	A/C WITH DUCTS (BTU)	
	VENTILATION FAN	
	RANGE HOOD	
	HEATING SYSTEM	
	OTHER	
	OTHER	
	Sub-Total	

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

✓ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued

✓ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number: STATE COMPENSATION INSURANCE FUND

Policy Number 1960842 Carrier

___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and Labor Code, I shall forthwith comply with these provisions.

X 12. DATE: 9/12/2011 X APPLICANT: SEE ATTACHED AUTHORIZATION

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGESAS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

13 SIGNATURE OF OWNER

14 SIGNATURE OF CONTRACTOR

S. M. I.	5.25
BUILDING PERMIT	457.74
PLAN CHECK	280.55
ELECTRICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	10.00
ZONE REVIEW	150.00
LEGAL SERVICE	
ADMINISTRATIVE	1.00
OTHER	
FIRE MITIGATION	
SHERIFF MITIGATON	

DATA	
ELECTRICAL APP.	
GAS APP.	
FINALED / EXPIRED	
RECEIPT NO.	1100174
DATE ISSUED	1-10-11

APPROVALS		REQUIRED	
WORKERS COMP. CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)		E.H.S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED / RESUBMITTED		A.P.C.D / A.G.	DATE
SPECIAL LAND USE PERMIT		PLANNING	DATE Kt 9/19/11

PERMIT NUMBER	RECEIVED BY:	DATE	APPROVED BY	DATE
53792	SR	9-16-11	SR	11-10-11

FEE $ 904.54

RECEIPT

DEPARTMENT'S COPY

RECEIPT NUMBER: R1100774

APD #: 0000053792
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-004-001

TYPE: STRUCTURAL PERMIT

TRANSACTION DATE: 11/10/2011

TOTAL PAYMENT:	**904.54**
TOTAL PAID FROM TRUST:	**.00**
TOTAL PAID FROM CURRENCY:	**904.54**

COUNTY DEP#??

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Credit C	1863	904.54
		TOTAL:	**904.54**

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
BUILDING PERMITS	1035001-413000	457.74
CBSC STATE (SB 1473)	7395000-301000	.90
CSBC COUNTY (SB 1473)	1035001-413000	.10
GENERAL PLAN TRUST	7086000-301000	10.00
PLAN CHECK FEES	7222000-301000	280.55
S.M.I. FEES	7210000-301000	5.25
ZONING FEES	1041001-414000	150.00
	TOTAL:	**904.54**

RECEIPT ISSUED BY: MELISSA
ENTERED DATE: 11/10/2011

INITIALS: MO
TIME: 03:59 PM

This is your original copy of the **receipt** for funds received by the Imperial County Planning and Development Services Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Armando G. Villa
Building Official / Director of Planning & Development Services

CC: Auditor/Controller
Permit File

RECEIPT

DEPARTMENT'S COPY

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COUNTY DEP#??

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Payment	Credit C	1863	904.54
		TOTAL:	**904.54**

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ENTERED DATE: 11/10/2011 TIME: 03:59 PM

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If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Armando G. Villa
Building Official / Director of Planning & Development Services

CC: Auditor/Controller
Permit File

PERMIT APPLICATION

I.C. PLANNING & DEVELOPMENT SERVICES DEPT
801 Main Street, El Centro, CA 92243 (442) 265-1736

[x] BUILDING	[ ] DEMOLITION	[ ] NEW RESIDENTIAL	[ ] REMODEL RESIDENTIAL
[ ] ELECTRICAL	[ ] GRADING	[ ] NEW COMMERCIAL	[ ] REMODEL COMMERCIAL
[ ] MECHANICAL	[ ] POOL	[ ] NEW INDUSTRIAL	[ ] REMODEL INDUSTRIAL
[ ] PLUMBING	[ ] SIGN	[ ]	[x] Soil borings

COMPLETE ALL NUMBERED SPACES! PLEASE TYPE OR PRINT! READ INSTRUCTIONS ON THE BACK!

1.	PROPERTY OWNERS NAME Desert Valley Company	EMAIL ADDRESS Yanqiu.Wu@calenergy.com	
2.	MAILING ADDRESS 7030 Gentry Road, Calipatria, CA	ZIP CODE 92233	PHONE NUMBER (760) 604 5740
3.	PROJECT SITE ADDRESS 3301 West Highway 86, Westmoreland, CA 92281	LOCATION	
4.	ASSESSOR'S PARCEL NO. 019-100-004	LEGAL DESCRIPTION Section 33, T12 S, R 11 E	
5.	DESCRIBE INTENDED USE Collect subsurface data as part of a siting study for landfill expansion		
6.	DESCRIBE (CLEARLY) THE PROPOSED WORK Drill geotechnical borehole B-401, prepare lithologic log and geophysical log, and collect soil samples		
7.	ARCHITECT / ENGINEER Janet Sowers, Fugro USA Land LICENSE NO. P.G. #5614	EMAIL ADDRESS j.sowers@fugro.com	
8.	MAILING ADDRESS 1777 Botelho Drive, Suite 262, Walnut Creek, CA	ZIP CODE 94596	PHONE NUMBER (925) 949-7144
9.	CONTRACTORS NAME Tri-County Drilling LICENSE NO. C-57 #547737	EMAIL ADDRESS timd@tcdrilling.com	
10.	MAILING ADDRESS 9631 Candida Street, San Diego, CA	ZIP CODE 92126	PHONE NUMBER (858) 271-0099

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

[ ] I have and will maintain a certificate of self-insurance for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work which this permit is issued.

[X] I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number:

Policy Number: 9223808 2018 Carrier: State Compensation Insurance Fund

[ ] I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and Labor Code, I shall forthwith comply with these provision.

11. Date: 9/27/18 **Applicant:**

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

VALUATION

NA

ZONE AREA	M2
OCCUPANCY GROUP	NA
CONSTRUCTION TYPE	NA

X **12.** SIGNATURE OF OWNER

13. SIGNATURE OF CONTRACTOR

DATA

ELECTRICAL APPROVAL	
GAS APPROVAL	
FINALED	EXPIRED
RECEIPT NO.	
DATE ISSUED	

APPROVALS REQUIRED

WORKERS' COMPENSATION		PUBLIC WORKS	DATE
SCHOOL FEES		EHS	DATE
ARCHITECT COMMITTEE		FIRE / OES	DATE
REJECTED	RESUBMITTED	APCD / AG	DATE
SPECIAL LAND USE PERMIT		PLANNING	DATE

SMI	
BUILDING PERMIT	
PLAN CHECK	
ELECTRICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	
LEGAL SERVICE	
ADMINISTRATIVE	
FIRE MITIGATION	
ADDITIONAL	
SHERIFF MITIGATION	
OTHER	
FEE $	

PERMIT NUMBER 58790	RECEIVED BY: DATE 10-10-18	APPROVED BY: DATE

WHITE – OFFICE (MASTER) YELLOW – ASSESSOR PINK – APPLICANT XEROX COPY – PLAN FILE

PERMIT APPLICATION

I.C. PLANNING & DEVELOPMENT SERVICES DEPT
801 Main Street, El Centro, CA 92243 (442) 265-1736

☒ BUILDING	☐ DEMOLITION	☐ NEW RESIDENTIAL	☐ REMODEL RESIDENTIAL
☐ ELECTRICAL	☑ GRADING	☐ NEW COMMERCIAL	☐ REMODEL COMMERCIAL
☐ MECHANICAL	☐ POOL	☐ NEW INDUSTRIAL	☐ REMODEL INDUSTRIAL
☐ PLUMBING	☐ SIGN	☐	☒ Fault Trenching

COMPLETE ALL NUMBERED SPACES! PLEASE TYPE OR PRINT! READ INSTRUCTIONS ON THE BACK!

1.	PROPERTY OWNERS NAME Desert Valley Company	EMAIL ADDRESS Yanqiu.Wu@calenergy.com	
2.	MAILING ADDRESS 7030 Gentry Road, Calipatria, CA	ZIP CODE 92233	PHONE NUMBER (760) 604 5740
3.	PROJECT SITE ADDRESS 3301 West Highway 86, Westmoreland, CA 92281	LOCATION	
4.	ASSESSOR'S PARCEL NO. 019-100-004-001	LEGAL DESCRIPTION Section 33, T12 S, R 11 E	
5.	DESCRIBE INTENDED USE Seismic Survey Trenching		
6.	DESCRIBE (CLEARLY) THE PROPOSED WORK Excavate and backfill trench (4ft wide x 4 to 8 ft. deep) to map seismic faults....Less than 1000 cy		
7.	ARCHITECT / ENGINEER Janet Sowers, Fugro USA Land	LICENSE NO. P.G. #5614	EMAIL ADDRESS j.sowers@fugro.com
8.	MAILING ADDRESS 1777 Botelho Drive, Suite 262, Walnut Creek, CA	ZIP CODE 94596	PHONE NUMBER (925) 949-7144
9.	CONTRACTORS NAME Primo Construction	LICENSE NO. 899648	EMAIL ADDRESS office@primoconstructionservices.com
10.	MAILING ADDRESS 1665 River Drive, Brawley, CA	ZIP CODE 92227	PHONE NUMBER 760.482.8538

WORKERS' COMPENSATION DECLARATION A, C21 7/19

I hereby affirm under penalty of perjury one of the following declarations:

☐ I have and will maintain a certificate of self-insurance for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work which this permit is issued.

☒ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number: 6/19

Policy Number: 9133953 -18 Carrier: State Compensation Insurance Fund

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and Labor Code, I shall forthwith comply with these provision.

11. Date: 01/16/19 **Applicant:**

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

VALUATION

NA

ZONE AREA	~~A2~~ S-2 / M-2
OCCUPANCY GROUP	NA
CONSTRUCTION TYPE	NA

SMI	
BUILDING PERMIT	
PLAN CHECK	
ELECTRICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	
LEGAL SERVICE	
ADMINISTRATIVE	
FIRE MITIGATION	
ADDITIONAL	
SHERIFF MITIGATION	
OTHER	
FEE $	

12. SIGNATURE OF OWNER LENIE SARMIENTO 1/16/19

13. SIGNATURE OF CONTRACTOR

DATA

ELECTRICAL APPROVAL	
GAS APPROVAL	
FINALED	EXPIRED
RECEIPT NO.	
DATE ISSUED	

APPROVALS REQUIRED

WORKERS' COMPENSATION		PUBLIC WORKS	DATE
SCHOOL FEES		EHS	DATE
ARCHITECT COMMITTEE		FIRE / OES	DATE
REJECTED	RESUBMITTED	APCD / AG	DATE
SPECIAL LAND USE PERMIT		PLANNING D.R.	DATE 01/17/19

PERMIT NUMBER 58947	RECEIVED BY: 11:55AM L. Hunt	DATE 1/16/19
	APPROVED BY:	DATE

WHITE – OFFICE (MASTER) YELLOW – ASSESSOR PINK – APPLICANT XEROX COPY – PLAN FILE

INSPECTION RECORD

*REQUEST INSPECTIONS AT LEAST 24 HOURS IN ADVANCE – **482-4236***

ONLY ITEMS SIGNED & DATED ARE APPROVED!

		NOTES	DATE	APPROVED BY
PHASE I	COMPACTION REPORTS			
	SET BACKS			
	EXCAVATION			
	FORMS			
	REINFORCING			
	ELECTRICAL (ground-work)			
	PLUMBING (ground-work)			
	WATER SERVICE			
	GAS LINE (ground-work)			
	SEWER LINE (ground-work)			
	TERMITE TREATMENT			
	EPOXY ANCHOR BOLTS			
	TIE DOWN SYSTEM PADS & PIERS			
	TEMPORARY CONSTRUCTION POWER			

IF PHASE I, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE II	ROOF SYSTEMS & NAILING			
	FRAMING & STRUCTURAL			
	ELECTRICAL (rough-in)			
	PLUMBING (rough-in)			
	GAS (rough-in)			
	GAS TEST 6oz.-8oz. (MOBILE HOMES)			
	H.V.A.C. DUCT			
	VENTS			
	CHIMNEY TIES			
	RING OUT (MOBILE HOMES)			
	CONC. BLOCK			

IF PHASE II, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
III	INSULATION			
	EXTERIOR LATHE			
	WALLBOARD			

IF PHASE III, *IS NOT APPROVED* DO NOT PROCEED!

		NOTES	DATE	APPROVED BY
PHASE IV	TEMPORARY ELECTRICAL (release form)			
	ENERGY COMPLIANCE			
	ELECTRICAL (finish)			
	PLUMBING (finish)			
	WATER HEATER			
	STAIRS, STEPS, RAILINGS			
	SMOKE DETECTORS			
	SEWER CONNECTION			
	WATER CONNECTION			
	GAS SERVICE			
	ELECTRIC SERVICE (_____ amps)			
	WEATHER PROOFING			
	HEATING/AC FINISH			
	AWNING			
	SKIRTING			
EXPIRED			2/23/11	MHD
FINALED				

PERMITTED WORK: CG GRADING FOR OFFICES

OWNER: CALENERGY/DESERT VALLEY CO

CONTRACTOR: CALENERGY

LOCATION: 3301 W. HWY 86 BRAWLEY

Date Issued: 4/7/04 PERMIT NO. 41057

* HAVE THIS CARD AVAILABLE AT SITE FOR INSPECTOR *

PERMIT APPLICATION

PLANNING / BUILDING DEPARTMENT
COUNTY OF IMPERIAL

[X]	BUILDING	[ ]	NEW RESIDENTIAL	[ ]	REMODEL RESIDENTIAL
[ ]	ELECTRICAL	[ ]	NEW COMMERCIAL	[ ]	REMODEL COMMERCIAL
[ ]	PLUMBING	[X]	NEW INDUSTRIAL	[ ]	REMODEL INDUSTRIAL
[ ]	MECHANICAL	[ ]	NEW POOL	[ ]	
[X]	GRADING	[ ]	NEW SIGN	[ ]	
[ ]	DEMOLITION	[ ]	M. H. UTILITIES	[ ]	

COMPLETE ALL NUMBERED SPACES ! PLEASE TYPE OR PRINT ! READ INSTRUCTIONS ON THE BACK !

1	PROPERTY OWNERS NAME: CalEnergy / Desert Valley Co	PHONE NO.: 348-4082	
2	MAILING ADDRESS: 7030 Gentry Rd Calipatria	ZIP CODE: 92233	
3	PROJECT SITE ADDRESS: 3301 West Hwy 86 Brawley		
4	ASSESSORS PARCEL NO.: 019-100-04-01	LEGAL DESCRIPTION: Sect. 33 T12S R11E	
5	DESCRIBE INTENDED USE: Non-Hazardous Landfill		
6	DESCRIBE (CLEARLY) THE PROPOSED WORK		
7	(ADDITIONAL SPACE FOR LINE 6)		
8	ARCHITECT / ENGINEER: McDowell + Assoc.	LICENSE NO.: 33870	PHONE NO.: 989 496-3610
9	MAILING ADDRESS: 3730 James Savage Rd. Midland MI.	ZIP CODE: 48642	
10	CONTRACTORS NAME: CalEnergy	LICENSE NO.:	PHONE NO.: 348-4082
11	MAILING ADDRESS: 7030 Gentry Rd. Calipatria	ZIP CODE: 92233	

READ

WORKERS' COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

[ ] I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

[X] I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number ON FILE Carrier AON

[X] I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

12: Date: 19 MAR 03 Applicant:

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

13 SIGNATURE OF OWNER

14 SIGNATURE OF CONTRACTOR

ZONE	M-2
AREA	
OCCUPANCY GROUP	B, S, F
CONSTRUCTION TYPE	VN
VALUATION	$5,000,000

QTY	FEE
ELECTRICAL PERMIT	
MAIN SERVICE (AMP)	
BREAKER-CONTROL DEVICE	
SWITCHES / OUTLETS	
MOTORS / TRANSFORMERS	
OTHER	
OTHER	
OTHER	
Sub-Total	included
PLUMBING PERMIT	
EA. FIXTURE OR TRAP	
EA. SEWER CONNECTION	
WATER LINE(S)	
GAS LINE(S)	
WATER HEATER	
OTHER	
OTHER	
Sub-Total	included
MECHANICAL PERMIT	
A/C WITH DUCTS (BTU)	
VENTILATION FAN	
RANGE HOOD	
HEATING SYSTEM	
OTHER	
OTHER	
Sub-Total	

S. M. I.	1050,00
BUILDING PERMIT	20208.75
PLAN CHECK	13135.69
ELECTICAL PERMIT	included
PLUMBING PERMIT	included
MECHANICAL PERMIT	—
GENERAL PLAN	
ZONE REVIEW	75,00
LEGAL SERVICE	
ADMINISTRATIVE	
OTHER 9% City Surcharge	3102.25
FIRE MITIGATION	
SHERIFF MITIGATION	

DATA

ELECTRICAL APP	
GAS APP	
FINALED / EXPIRED	
RECEIPT NO:	R#0400262
DATE ISSUED	4/7/04

APPROVALS REQUIRED

WORKERS COMP. CERT.		PUBLIC WORKS	DATE
SCHOOL FEE(S)	ENERGY CERT.	E. H. S. / HEALTH	DATE
		FIRE / O.E.S.	DATE
REJECTED	RESUBMITTED	A. P. C. D. / AG.	DATE
SPECIAL LAND USE PERMIT		PLANNING	DATE OK RRJH 3-30-03

PERMIT NO. 41057	RECEIVED BY:	DATE 3/24/03	APPROVED BY: DATE 4/17/03

FEE $ 37,571,69

WHITE-OFFICE MASTER / GOLDENROD-APPLICANT / PINK-ASSESSOR / YELLOW-PLAN FILE

PLANNING / BUILDING DEPARTMENT FORM 10/94 BP

PERMIT

READ

WORKERS' COMPENSATION DECLARATION

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____ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

____ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Policy Number_____ **Carrier**_____

____ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date:_____ **Applicant:**_____

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

SIGN

I/We agree that by accepting this permit I/We agreed to comply with all laws pertaining to this construction, including the contractors license law, the building ordinance, workers compensation insurance, and any other law that governs construction.

SIGNATURE OF OWNER / Date	SIGNATURE OF CONTRACTOR / Date

Inspection requests may also be made via email.
The Inspection Request Form is located on our website:
www.imperialcounty.net/planning.

NOTICE:

This is your official PERMIT that authorizes you to perform the work described on the other side.

Please review the other side and make sure all information is correct.

Please remember that you are only permitted to perform the work authorized by this permit. If you change, add-to and/or alter the scope of work you may need to obtain additional permits.

If you have any questions please call the Department or ask your Inspector.

NOTE: It is your responsibility to request all inspections. DO NOT cover or conceal any work until it is approved by the Inspector and the field card is signed!

NOTE: Failure to follow Permit requirements, failure to have work inspected, and/or providing false information may result in your permit being revoked.
NOTE: A permit revoked due to an NSF check, or violations of conditions in the permit will result in a double fee.

Thank You,
Jurg Heuberger
Building Official

How to Request an Inspection:

1. **CALL 482-4236.** After the automated system answers, **PRESS 4277** on your phone, this will route your inspection request automatically.

2. State the following information after the sound-of-the-tone: (Speak slow and clear).
- a. permit number _____
- b. address of project _____
- c. date of inspection _____
- d. permit name _____
- e. your telephone number _____
- f. type of inspection req. _____

3. Only if a specific time is absolutely necessary, take the following steps:
   a. Leave your request on the answering system, and leave your phone #._____
   b. On the day of the inspection, call the Planning/ Building Department between 7:00-7:30 a.m., at 482-4236, and discuss your request with the Inspector.

NOTE: If you do not state your permit number, name and the address, no inspection will be done.
NOTE: Specific time inspection can not and will not be scheduled via the recording. You must talk to the Inspector between 7:00-7:30 a.m., on the day of the inspection!

Doc 11.doc

RECEIPT

Copy Reprinted on 04-07-2004 at 10:50:26 04/07/2004

RECEIPT NUMBER: R0400262

APD #: 0000041057 TYPE: COMBINATION PERMIT
SITE ADDRESS: 3301 W HIGHWAY 86 CNTY
PARCEL: 019-100-04-01
RECEIPT NOTATION:

TRANSACTION DATE: 04/07/2004

TOTAL PAYMENT:	**37,571.69**
TOTAL PAID FROM TRUST:	**.00**
TOTAL PAID FROM CURRENCY:	**37,571.69**

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	17000423	37,571.69
		TOTAL:	**37,571.69**

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
BUILDING PERMITS	1035001-413000	20,208.75
PLAN CHECK FEES	7222000-301000	13,135.69
S.M.I. FEES	7210000-301000	1,050.00
SURCHARGE	1035001-413000	3,102.25
ZONING FEES	1041001-414000	75.00
	TOTAL:	**37,571.69**

RECEIPT ISSUED BY: CORRENNE INITIALS: CD
ENTERED DATE: 04/07/2004 TIME: 10:48 AM

This is your original copy of the **receipt** for funds received by the Imperial County Planning/Building Department for the above identified ***PERMIT***.

Please make sure this receipt is accurate and reflects the payment amount and the permit information referenced.

If you request cancellation of your permit and/or a refund, please understand that we can only refund a maximum of 70% of the total minus all costs already incurred to date.

If you have questions please direct them to this office at (760) 482-4236.

Thank you for your cooperation!

Correnne Derrick

Jurg Heuberger, AICP
Planning Director/Building Official

cc: Auditor/Controller
Permit File

Permitrc.doc

PERMIT APPLICATION

I.C. PLANNING & DEVELOPMENT SERVICES DEPT
801 Main Street, El Centro, CA 92243 (442) 265-1736

[x] BUILDING	[ ] DEMOLITION	[ ] NEW RESIDENTIAL	[ ] REMODEL RESIDENTIAL
[ ] ELECTRICAL	[ ] GRADING	[ ] NEW COMMERCIAL	[ ] REMODEL COMMERCIAL
[ ] MECHANICAL	[ ] POOL	[ ] NEW INDUSTRIAL	[ ] REMODEL INDUSTRIAL
[ ] PLUMBING	[ ] SIGN	[ ]	[x] Fault Trenching

COMPLETE ALL NUMBERED SPACES! PLEASE TYPE OR PRINT! READ INSTRUCTIONS ON THE BACK!

1.	PROPERTY OWNERS NAME Desert Valley Company	EMAIL ADDRESS Yanqiu.Wu@calenergy.com	
2.	MAILING ADDRESS 7030 Gentry Road, Calipatria, CA	ZIP CODE 92233	PHONE NUMBER (760) 604 5740
3.	PROJECT SITE ADDRESS 3301 West Highway 86, Westmoreland, CA 92281	LOCATION	
4.	ASSESSOR'S PARCEL NO. 019-100-004-001	LEGAL DESCRIPTION Section 33, T12 S, R 11 E	
5.	DESCRIBE INTENDED USE Seismic Survey Trenching		
6.	DESCRIBE (CLEARLY) THE PROPOSED WORK Excavate and backfill trench (4ft wide x 4 to 8 ft. deep) to map seismic faults....Less than 1000 cy		
7.	ARCHITECT / ENGINEER Janet Sowers, Fugro USA Land	LICENSE NO. P.G. #5614	EMAIL ADDRESS j.sowers@fugro.com
8.	MAILING ADDRESS 1777 Botelho Drive, Suite 262, Walnut Creek, CA	ZIP CODE 94596	PHONE NUMBER (925) 949-7144
9.	CONTRACTORS NAME Primo Construction	LICENSE NO. 899648	EMAIL ADDRESS office@primoconstructionservices.com
10.	MAILING ADDRESS 1665 River Drive, Brawley, CA	ZIP CODE 92227	PHONE NUMBER 760.482.8538

WORKERS' COMPENSATION DECLARATION A, C-21 7/19

I hereby affirm under penalty of perjury one of the following declarations:

[ ] I have and will maintain a certificate of self-insurance for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work which this permit is issued.

[X] I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number: 6/19

Policy Number: 9133953 -18 Carrier: State Compensation Insurance Fund

[ ] I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and Labor Code, I shall forthwith comply with these provision.

11. Date: 01/16/19 **Applicant:**

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

12.	SIGNATURE OF OWNER LENIE SARMIENTO 1/16/18	13.	SIGNATURE OF CONTRACTOR

VALUATION
NA

ZONE AREA	A2
OCCUPANCY GROUP	NA
CONSTRUCTION TYPE	NA

DATA		APPROVALS REQUIRED		
ELECTRICAL APPROVAL		WORKERS' COMPENSATION	PUBLIC WORKS	DATE
GAS APPROVAL		SCHOOL FEES	EHS	DATE
FINALED	EXPIRED	ARCHITECT COMMITTEE	FIRE / OES	DATE
RECEIPT NO.		REJECTED / RESUBMITTED	APCD / AG	DATE
DATE ISSUED		SPECIAL LAND USE PERMIT	PLANNING	DATE

SMI	
BUILDING PERMIT	
PLAN CHECK	
ELECTRICAL PERMIT	
PLUMBING PERMIT	
MECHANICAL PERMIT	
GENERAL PLAN	
ZONE REVIEW	
LEGAL SERVICE	
ADMINISTRATIVE	
FIRE MITIGATION	
ADDITIONAL	
SHERIFF MITIGATION	
OTHER	
FEE $	

PERMIT NUMBER	RECEIVED BY:	DATE	APPROVED BY:	DATE
58935	11:55AM L. Hunt	1/16/19		

WHITE – OFFICE (MASTER) YELLOW – ASSESSOR PINK – APPLICANT XEROX COPY – PLAN FILE

APPENDIX E

Historical Research Documentation

3301 W HWY 86 HWY
3301 W HWY 86 HWY
Thermal, CA 92274

Inquiry Number: 5990802.5
March 27, 2020

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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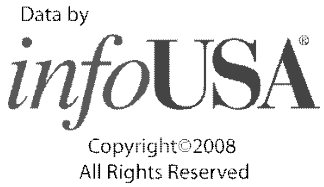

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1996	☐	☐	Haines Criss-Cross Directory
1991	☐	☐	Haines Criss-Cross Directory
1986	☐	☐	Haines Criss-Cross Directory
1979	☐	☐	Haines Criss-Cross Directory
1974	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

3301 W HWY 86 HWY
Thermal, CA 92274

Year	CD Image	Source	
STATE HIGHWAY 86			
2017	pg A1	EDR Digital Archive	
2014	pg A2	EDR Digital Archive	
2010	pg A3	EDR Digital Archive	
2005	pg A4	EDR Digital Archive	
2000	pg A8	EDR Digital Archive	
1996	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1991	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1986	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1979	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1974	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2017

3100	BLAIR, JEFF
	KLEIN, THOMAS M
	PACHECO, VERONICA
	RAMIREZ, JUAN L
	SANDERS, PHILLIP E
	STEPHENS, DON P
	WILSON, FAYE
88610	LOPEZ, JUAN
	MCCLUNG, RANDALL T
	RARDON, DEBRA A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2014

3100	KLEIN, THOMAS M
	PACHECO, VERONICA
	STEPHENS, DON P
	WILSON, GARY B
88610	HAGAN, LYNDA
	MATOS, GILPATRICK
	MORA, ALFREDO
	PENA, ZEFF
	PHILLIPS, MICHAEL C
	RARDON, DEBRA A
	RUELAS, ELIAS
	SILVER SANDS RV & CAMP RESORT
	WALKER, DONNA A
	WONDERLING, GARY
	WOOLLEY, JOHN P
89150	IVIE, ALAN A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2010

3095	SUBWAY
3100	GREEN, JAN E
	KLEIN, THOMAS M
	STEPHENS, DON
	WILSON, GARY B
3600	BORUNDA, LEO B
76800	OASIS FIRE STATION
88610	LOPEZ, JUAN
	MATOS, GILPATRICK
	MENDOZA, EUSTAQUIO
	MORA, SEVERIANO V
	WONDERLING, GARY
89150	IVIE, ALAN A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2005

3100 CHAPALA MARKET
KLEIN, THOMAS M
WILSON, GARY
3600 OCCUPANT UNKNOWN,
54684 CANO, RAYMOND
54694 ESPINOZA, JESUS G
54722 GONZALEZ, MARIA
54754 MELENDEZ, ROSA
54868 GUTIERREZ, LETICIA C
54874 BONILLA, FREDDY
54878 MENDOZA, MARIA G
55526 MEDINA, SERRANO
55568 MARTINEZ, ANDREW
55570 RODRIGUEZ, DOMITILA S
55600 OCCUPANT UNKNOWN,
55644 ROCHA, MARIA T
55648 BETANCOURTH, S J
55650 RODRIGUEZ, GRISELDA
55700 CENTRO MUFFLER & AUTO REPAIR
55750 DIAZ, BLANCA
GOMEZ, VERONICA
VELA, RICARDO N
55800 CEASAR TOVAR
CENTRO MUFFLER AND AUTO REPAIR
56541 CORRALES, MANUELA
56589 AVILA, MIGUEL A
56675 SUERTE, JAIME G
56801 NAVA, PAUL R
56811 ANAYA, MAGDALENA M
56815 OCCUPANT UNKNOWN,
57401 GONZALEZ, DANILO
57875 FOUNDER, JOHN
57901 ZARATE, MARIA
60171 ZARAGOZA, JOSE A
60261 GARCIA, CONCEPCION M
60275 PANIAGUA, FRANCISCO T
60499 ADAIR, DOUGLASS N
PATOS DREAM DATE GARDENS CO
60723 CASTILLO, CANDELARIA
GRACIANO, HERMENEJILDO
HERRERA, EDUARDO
MENDOZA, MANUELA
MONTANEZ, CARLOS
RAPACON, ROSARIO
SANCHEZRAMIREZ, MANUEL
VALENZUELA, BEATRICE
VELASQUEZ, RAMON
61225 OLVERA, RAMON S
61335 RODRIGUEZ, HERIBERTO
61495 OCCUPANT UNKNOWN,

STATE HIGHWAY 86 2005 (Cont'd)

61610 OCCUPANT UNKNOWN,
64670 COSSIO, JOSE A
GALARZA, MARIA
GOMEZ, FRANCISCO R
GUZMAN, GLORIA
LOPEZ, JOSE L
MARQUEZ, PORFIRIO
SUPULVEDA, CARLOS
VELASCO, DIEGO
VELASQUEZ, PILAR
64975 CAMACHO, MARIA
CONTRERAS, MARIA
MORENO, RODOLFO
SALAZAR, ANTONIO
SAMANO, SERAPIO C
VALDEZ, OSCAR
VILLANUEVA, JUAN M
65075 VASQUEZ, IGNACIO
65450 OCCUPANT UNKNOWN,
65730 CASTRO JANITORIAL SERVICES
CASTRO, RAMON
65830 ARTEAGA, MARIA
AVILA, FRANCISCO
CECENA, RAYMOND
FUENTES, FRANCISCA
RODRIGUEZ, VICTOR N
SANTILLAN, FRANCISCO
65940 RODRIGUEZ, EULOJIO
65949 DS APPLE RECYCLING
65959 APPLE MARKET TWO
66021 DERUEDA, RAFAEL
66115 MORENO, MANUEL
66190 FRIAS, MA G
66215 ONE HUNDRED PALMS AUTO PARTS
SAMS FENCE CO
66351 CHAPALA MARKET
VELAZQUEZ ADOLFO
66363 BAZALDUA, JOSE A
66371 SOTO, RAYMOND G
66705 G & C INTERIORS
ROMERO, ELOISA
66808 AVC FARM & AUTO REPAIR
RODRIGUEZ, SALVADOR Z
66845 100 PALMS RESORT
66991 HERNANDEZ, JAVIER
66997 MESA, EFRAIN
67280 ESCOBEDO, LOPEZ J
67284 MEZA, IGNACIO
67305 OCCUPANT UNKNOWN,
67683 YOUNG, VOYT D

STATE HIGHWAY 86 2005 (Cont'd)

68035 THERMAL PLAZA RANCH & NURSERY
68401 OCCUPANT UNKNOWN,
68461 OCCUPANT UNKNOWN,
YOUNG DOWLIN L
YOUNGS NURSERY
68600 MAGANA, RICARDO A
75550 ALVARADO, MARCIAL
75850 CAR WASH MOVIL GARCIA
CEJA, ANTONIO C
76467 RIVAS, VINCENT J
76553 FLORES, FRANCISCO
76600 TEQUILA MARKET
77110 KONO FARMS INC
OASIS VEGETABLE EXCHANGE
77800 OCCUPANT UNKNOWN,
77860 TORRES, JOSE
78479 BRITO, RUTILIO M
MIRANDA, PEDRO
RENAGA, ENRIQUE
78498 BENITEZ, MIGUEL A
78499 BENITEZ, MACEDONIO
80100 OCCUPANT UNKNOWN,
80200 MENDEZ, BRENDA
80500 OCCUPANT UNKNOWN,
80624 MORA, JUAN C
80637 RAMOS, ALFREDO
80638 GOPAR, VALENTE P
80640 VALDEZ, FRANCISCO
80671 OCCUPANT UNKNOWN,
80705 FOOKES, THOMAS
80761 MARTINEZ, ANTONIO M
81050 ALAMO DISCOUNT STORE
81370 RIVERA, CARDIEL
81400 CHAPA, LUZ M
81550 GARCIA, O
81850 ALVAREZ, RODRIGUEZ S
82900 RODRIGUEZ, MARTIN
88610 FRANCO, GUSTAVO
HARGIS, HERBERT
HUNT, ROBERT N
ISBELL, EMILY
MENDOZA, EUSTAQUIO
MONZINGO, JOE
MORA, ALFREDO
REEVES, WADE
RUSSELL, NORMAN
SALDANA, MARIO
SALDANA-ESCOBAR, MARIO A
TEEKAMP, JANET
WALKER, DONNA L

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2005 (Cont'd)

88610 WOOLLEY, JOHN P
89150 IVIE, ALAN A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

STATE HIGHWAY 86 2000

3100 DECKERS, KAREN L
54684 CHRIST IS SALVATION CHURCH
RUBENS TRANSMISSIONS
55996 JUANITOS TIRE SERVICE
56801 NAVA BROTHERS LANDSCAPE MAINTENANCE
57401 BLIXSETH FARMS
66845 ONE HUNDRED PALMS MARKET
68461 YOUNGS NURSERY

3301 W HWY 86 HWY

3301 W HWY 86 HWY

Thermal, CA 92274

Inquiry Number: 5990802.3

February 28, 2020

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/28/20

Site Name:	Client Name:
3301 W HWY 86 HWY	Ninyo & Moore
3301 W HWY 86 HWY	5710 Ruffin Rd
Thermal, CA 92274	San Diego, CA 92123
EDR Inquiry # 5990802.3	Contact: Adrian Olivares

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Ninyo & Moore were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 6521-4EA3-9AEC

PO # NA

Project 109005001

UNMAPPED PROPERTY

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Sanborn® Library search results

Certification #: 6521-4EA3-9AEC

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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3301 W HWY 86 HWY

3301 W HWY 86 HWY

Thermal, CA 92274

Inquiry Number: 5990802.8

March 02, 2020

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/02/20

Site Name:

3301 W HWY 86 HWY
3301 W HWY 86 HWY
Thermal, CA 92274
EDR Inquiry # 5990802.8

Client Name:

Ninyo & Moore
5710 Ruffin Rd
San Diego, CA 92123
Contact: Adrian Olivares

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=750'	Flight Year: 2016	USDA/NAIP
2012	1"=750'	Flight Year: 2012	USDA/NAIP
2009	1"=750'	Flight Year: 2009	USDA/NAIP
2005	1"=750'	Flight Year: 2005	USDA/NAIP
1992	1"=750'	Acquisition Date: September 26, 1992	USGS/DOQQ
1984	1"=750'	Flight Date: October 08, 1984	USDA
1976	1"=750'	Flight Date: October 12, 1976	USGS
1953	1"=750'	Flight Date: April 26, 1953	USDA
1949	1"=750'	Flight Date: February 22, 1949	USDA
1937	1"=750'	Flight Date: November 18, 1937	USDA

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YEAR: 2016

= 750'

N

EDR

INQUIRY #: 5990802.8

YEAR: 2012

= 750'

N

EDR

INQUIRY #: 5990802.8

YEAR: 2009

= 750'

N

EDR

INQUIRY #: 5990802.8
YEAR: 2005
= 750'
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EDR

INQUIRY #: 5990802.8

YEAR: 1992

= 750'

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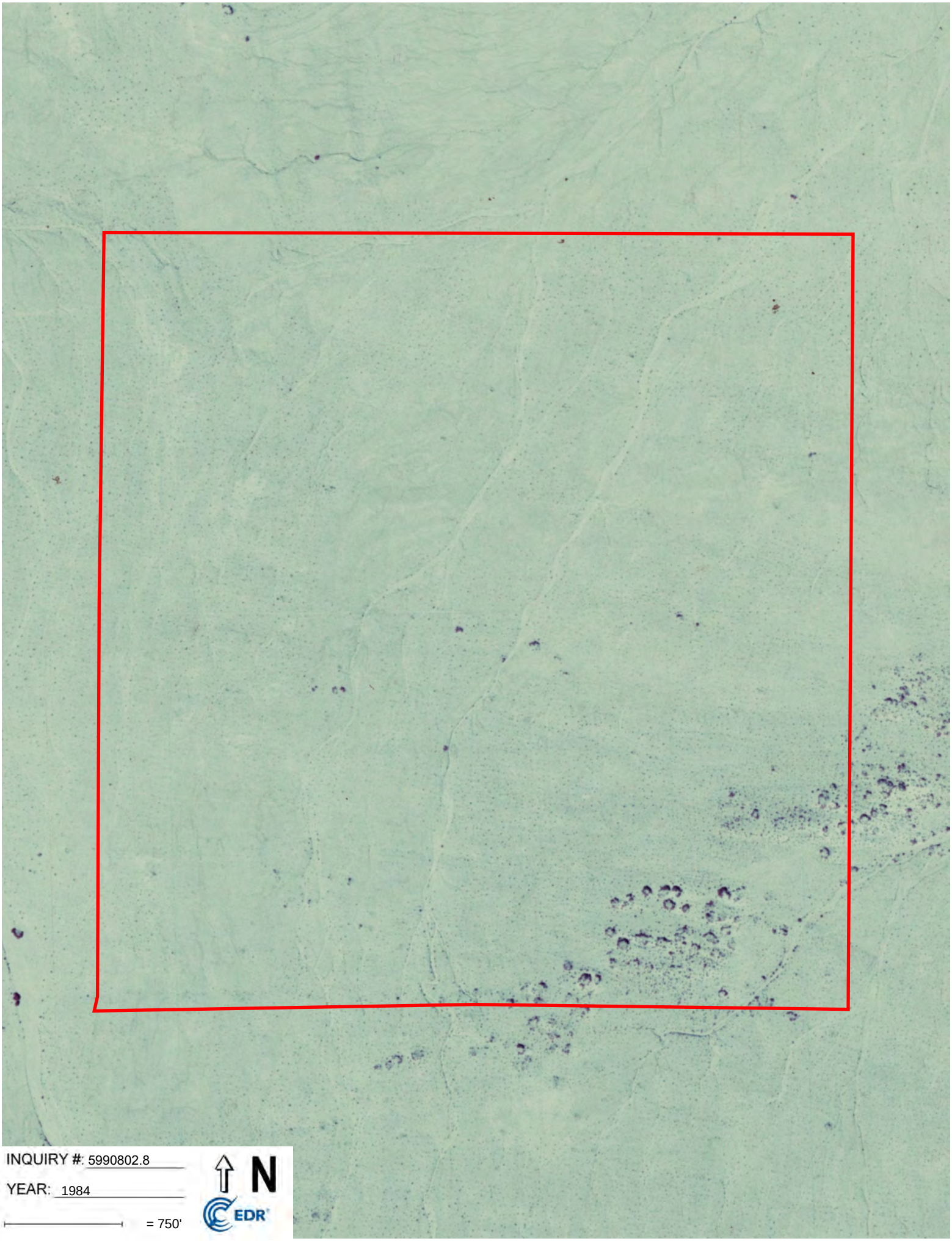
EDR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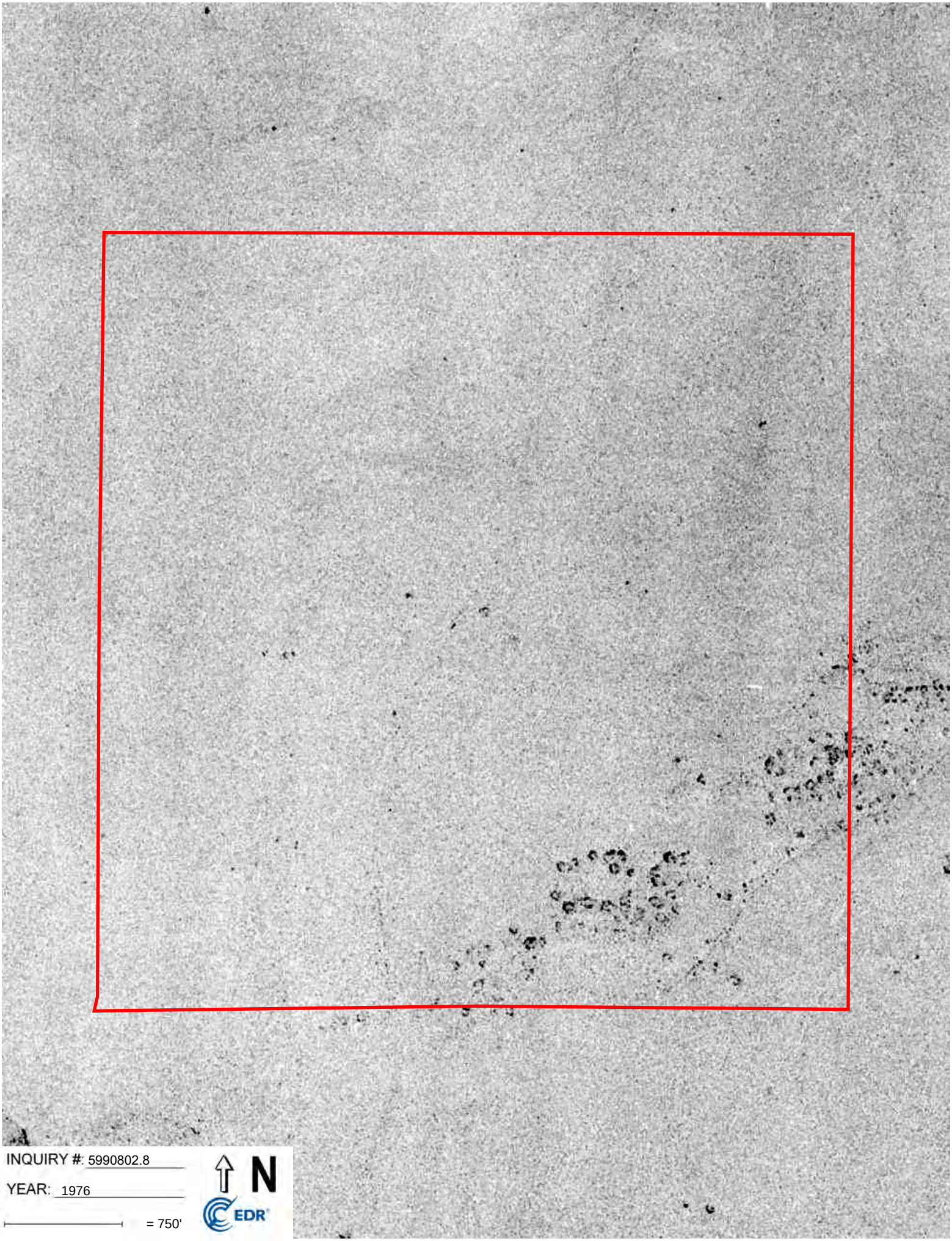
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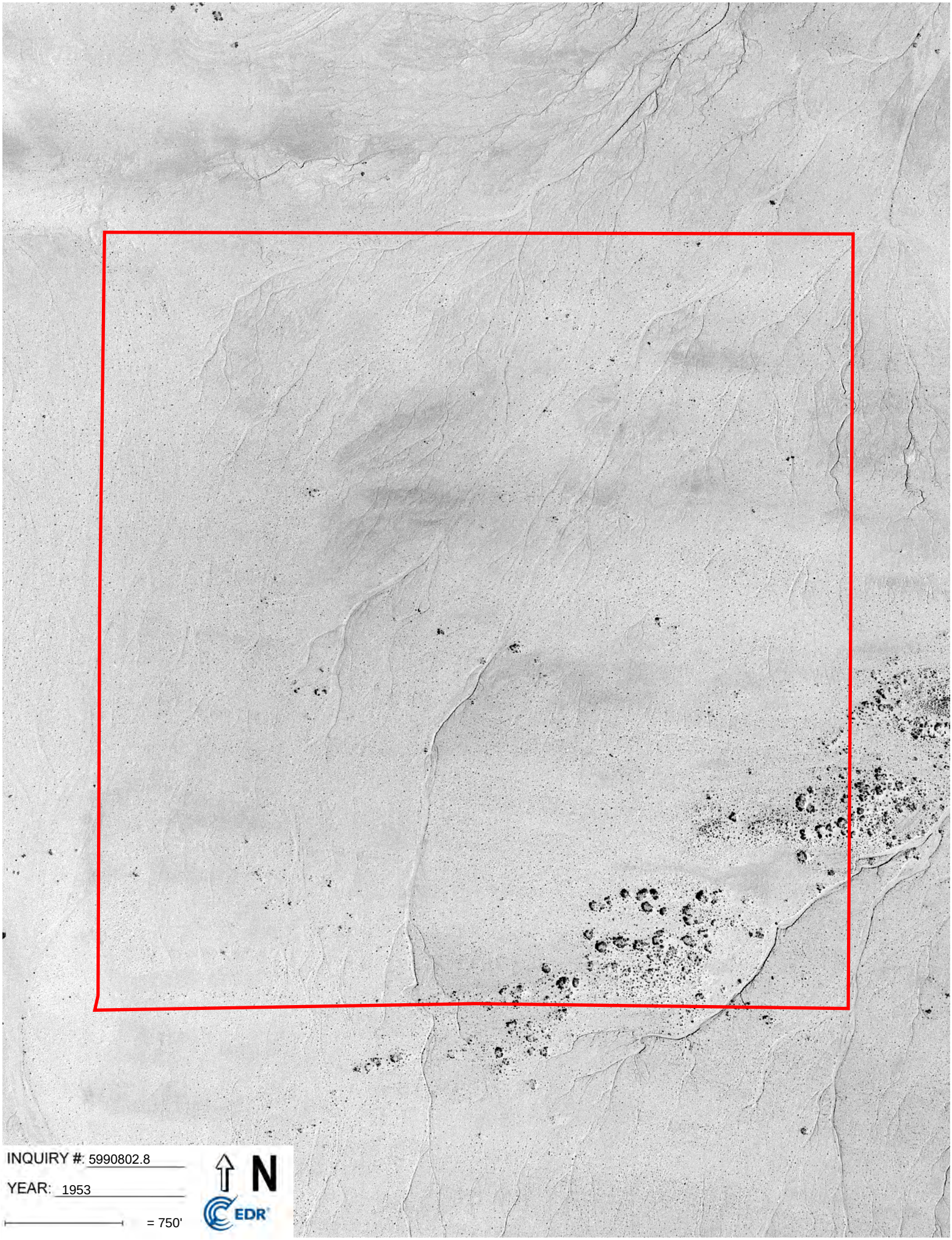
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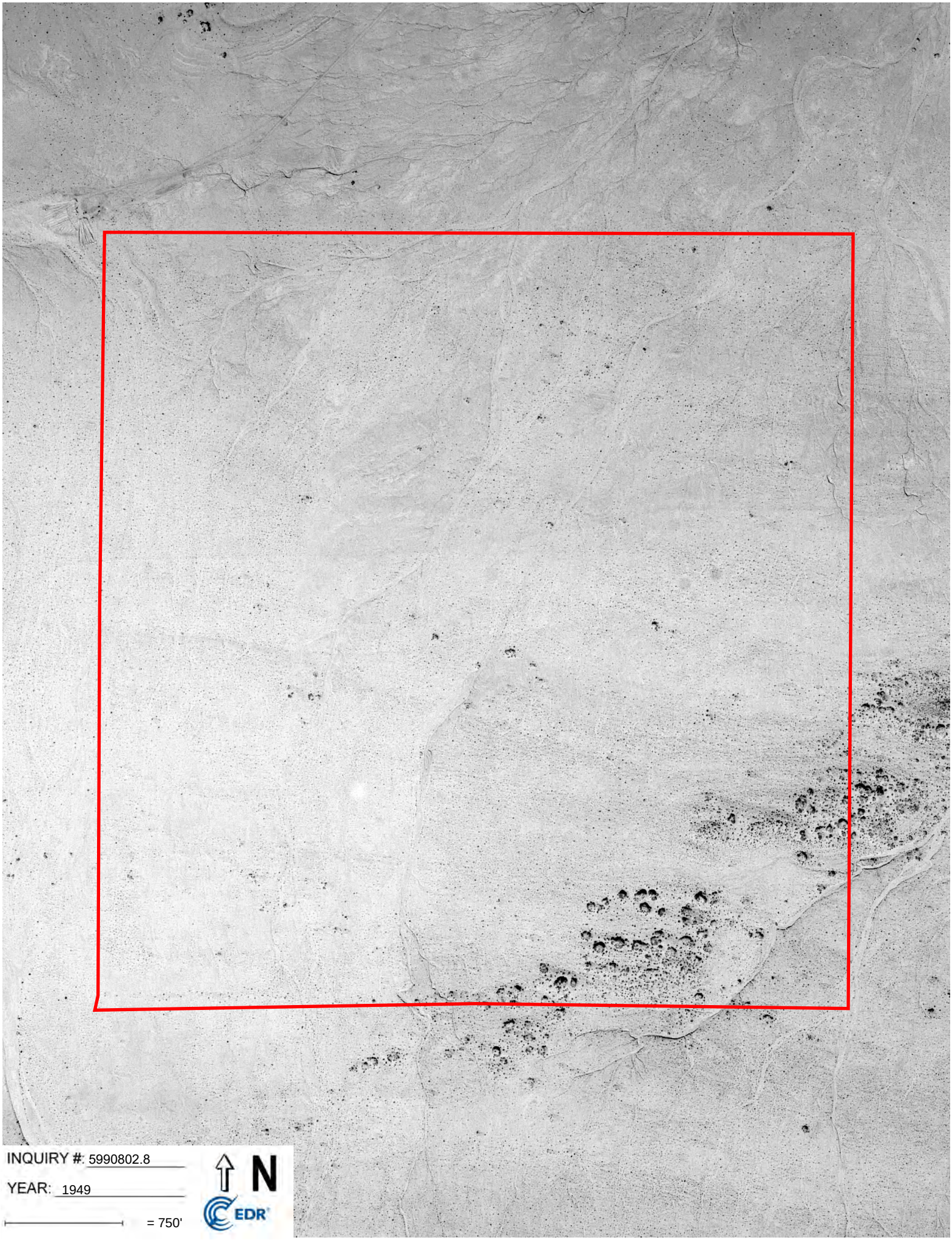
EDR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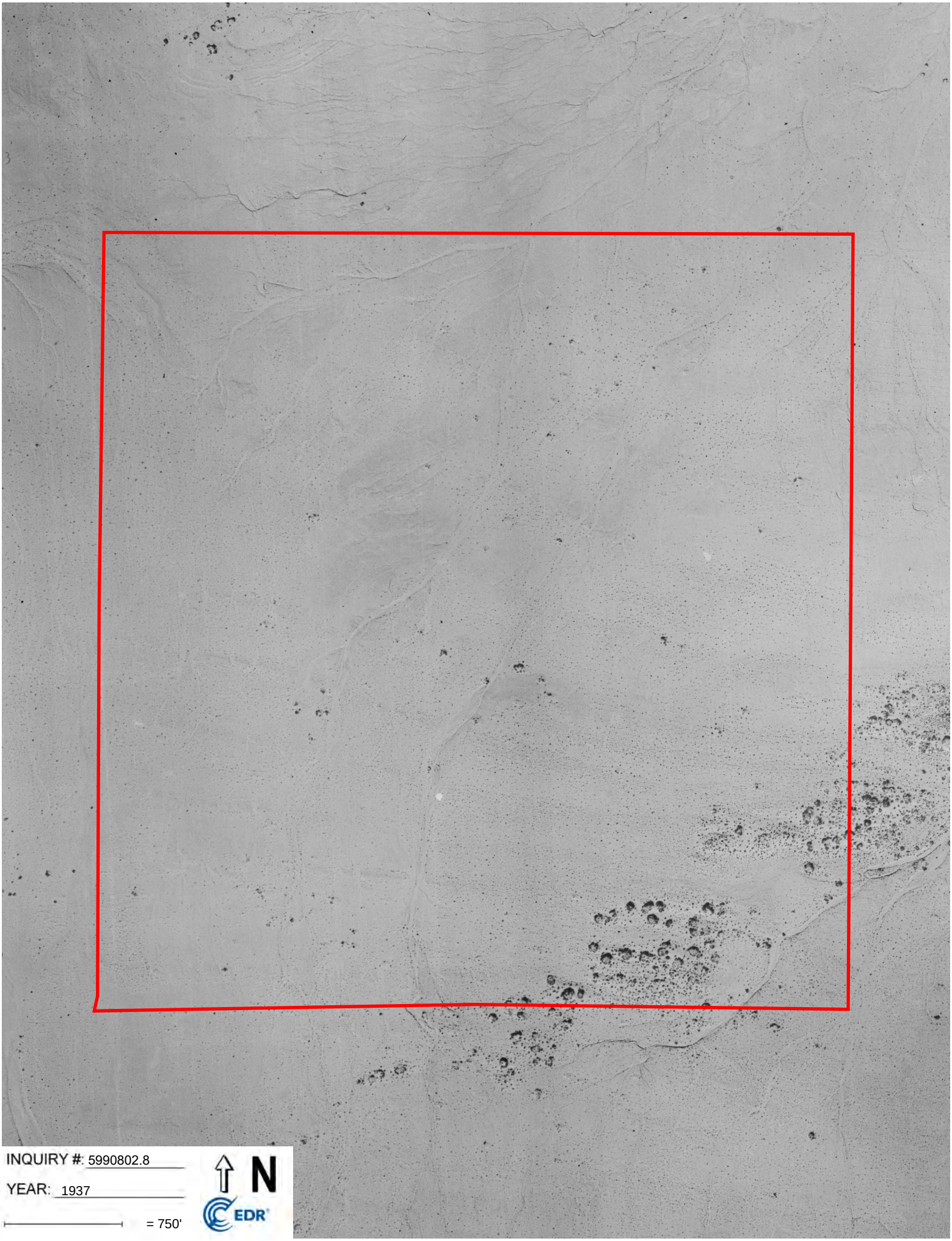
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YEAR: 1937
= 750'
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EDR

3301 W HWY 86 HWY

3301 W HWY 86 HWY

Thermal, CA 92274

Inquiry Number: 5990802.4

February 28, 2020

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

02/28/20

Site Name:

3301 W HWY 86 HWY
3301 W HWY 86 HWY
Thermal, CA 92274
EDR Inquiry # 5990802.4

Client Name:

Ninyo & Moore
5710 Ruffin Rd
San Diego, CA 92123
Contact: Adrian Olivares

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Ninyo & Moore were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA
Project: 109005001

Coordinates:

Latitude:	33.082317 33° 4' 56" North
Longitude:	-115.830648 -115° 49' 50" West
UTM Zone:	Zone 11 North
UTM X Meters:	609137.53
UTM Y Meters:	3661020.63
Elevation:	-80.98' below sea level

Maps Provided:

2012
1995
1956
1947
1944
1940

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets

Kane Spring
2012
7.5-minute, 24000

1995 Source Sheets

Kane Spring
1995
7.5-minute, 24000
Aerial Photo Revised 1992

1956 Source Sheets

Kane Spring
1956
7.5-minute, 24000
Aerial Photo Revised 1953

1947 Source Sheets

KANE SPRING
1947
15-minute, 50000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1944 Source Sheets

Kane Spring
1944
15-minute, 62500
Aerial Photo Revised 1940

1940 Source Sheets

Kane Spring
1940
15-minute, 62500
Aerial Photo Revised 1940

Historical Topo Map

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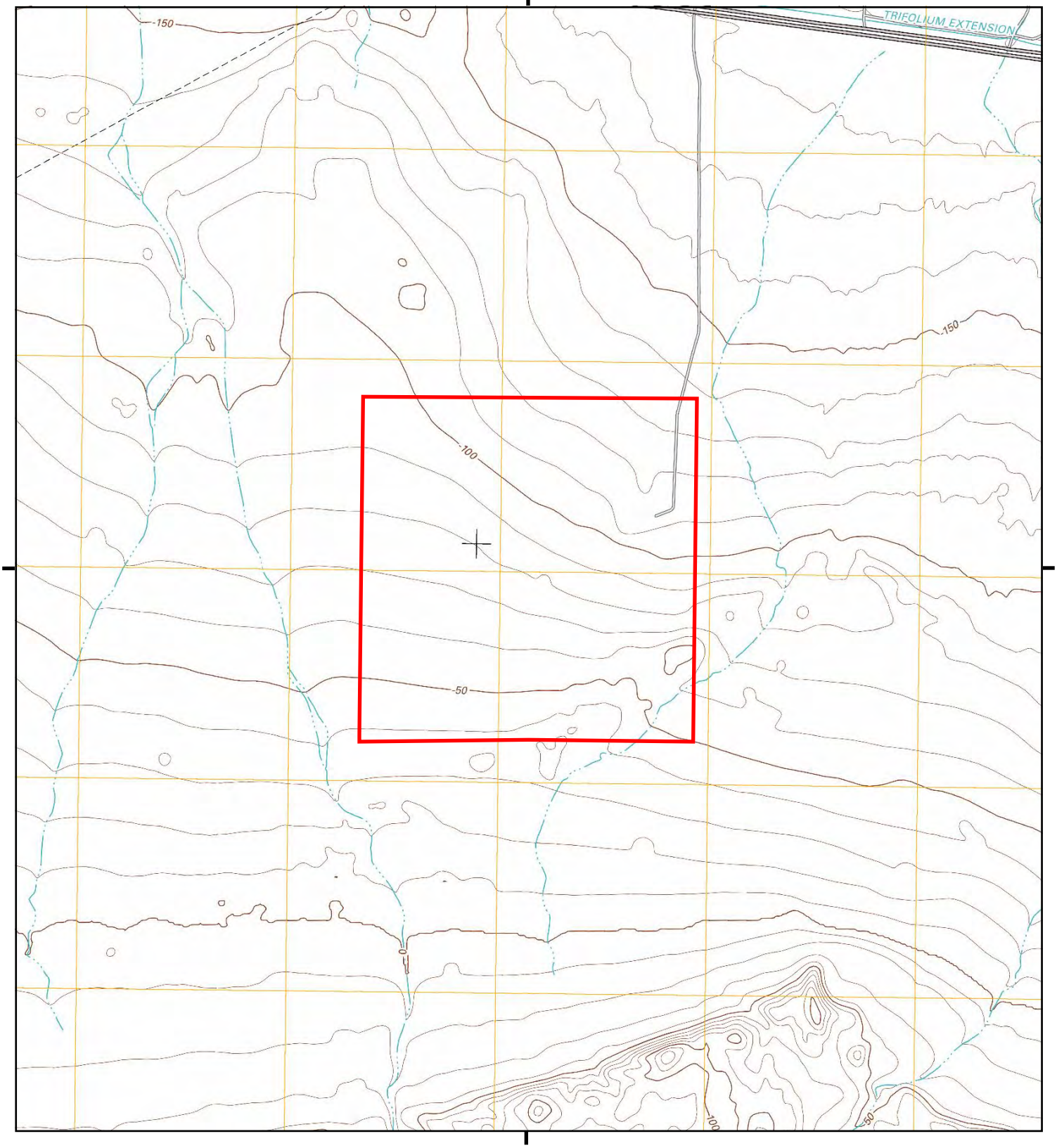


This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

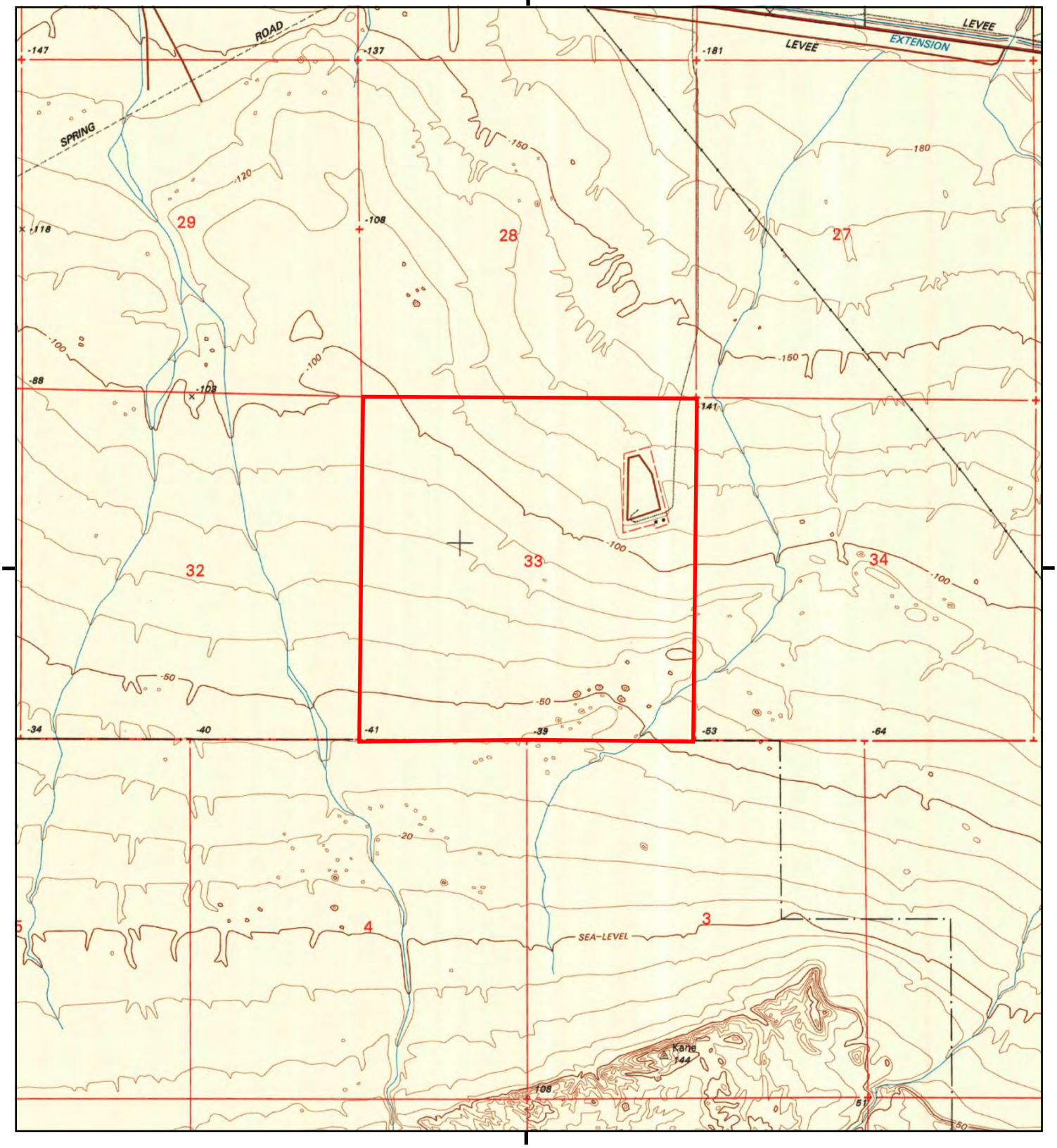
TP, Kane Spring, 2012, 7.5-minute

SITE NAME: 3301 W HWY 86 HWY
ADDRESS: 3301 W HWY 86 HWY
Thermal, CA 92274
CLIENT: Ninyo & Moore

N

Historical Topo Map

1995



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W E
SW S SE

TP, Kane Spring, 1995, 7.5-minute

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ADDRESS: 3301 W HWY 86 HWY
Thermal, CA 92274
CLIENT: Ninyo & Moore

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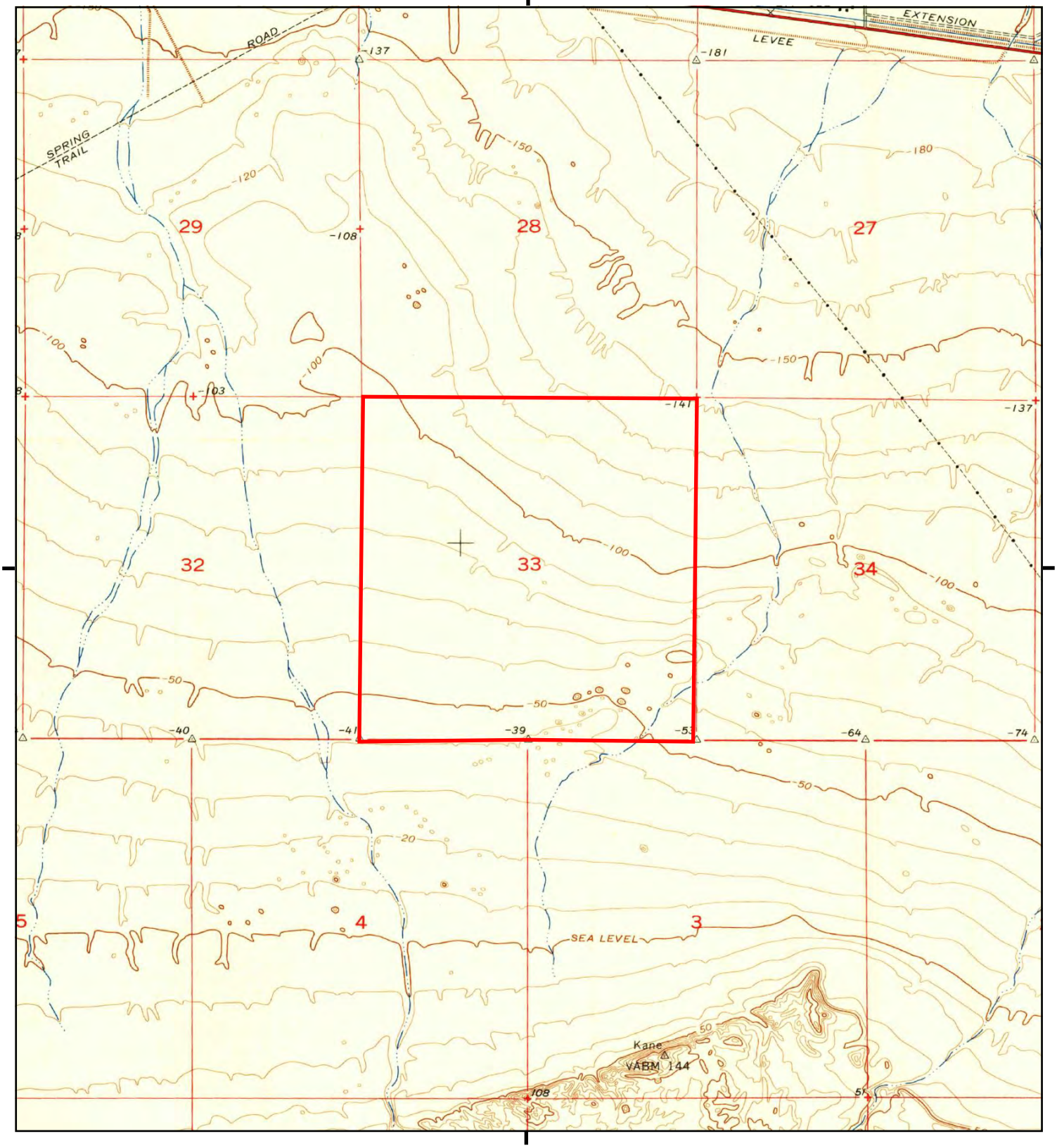

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SW S SE

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Thermal, CA 92274
CLIENT: Ninyo & Moore

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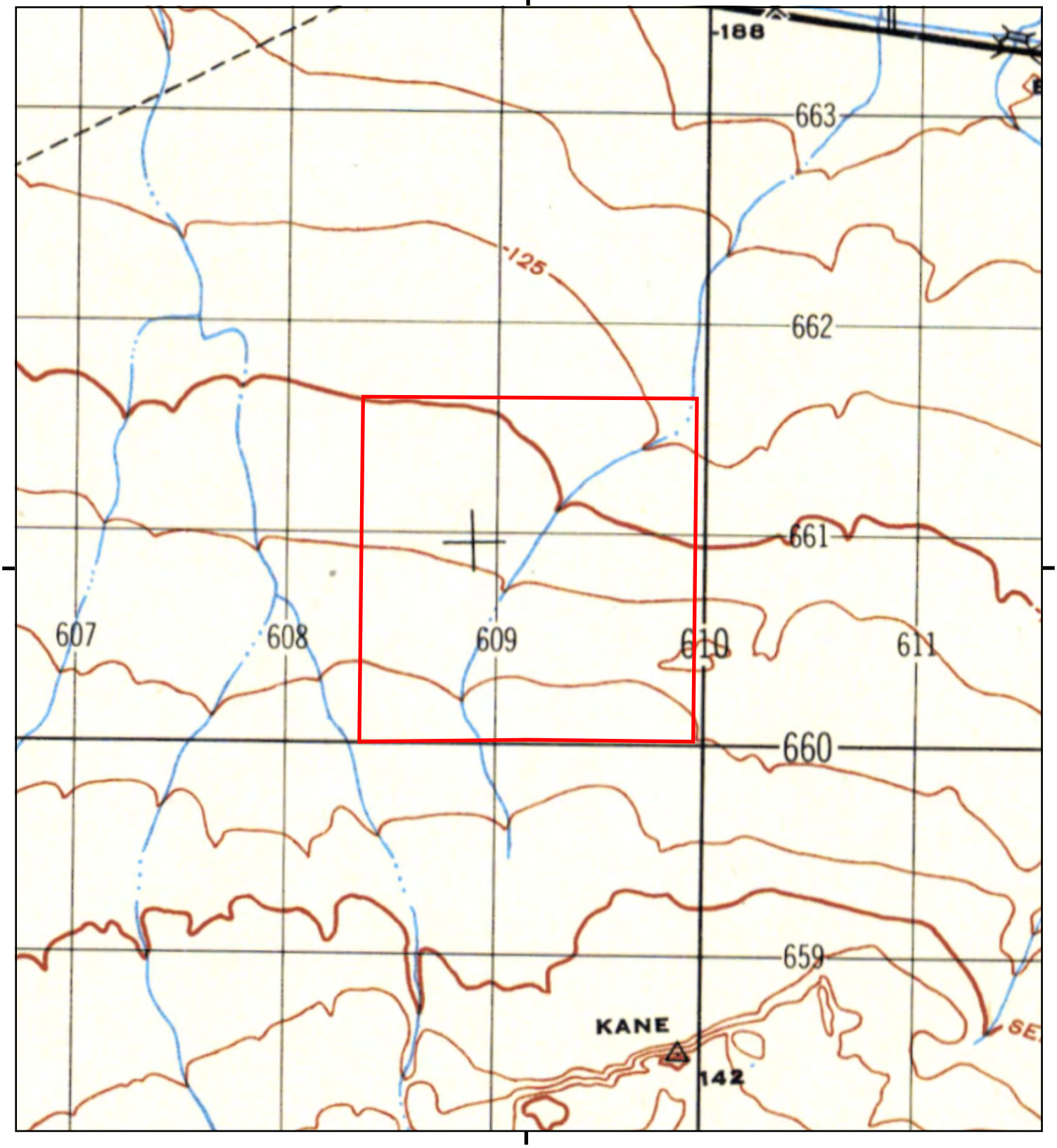

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W E
SW S SE

TP, KANE SPRING, 1947, 15-minute

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Thermal, CA 92274
CLIENT: Ninyo & Moore

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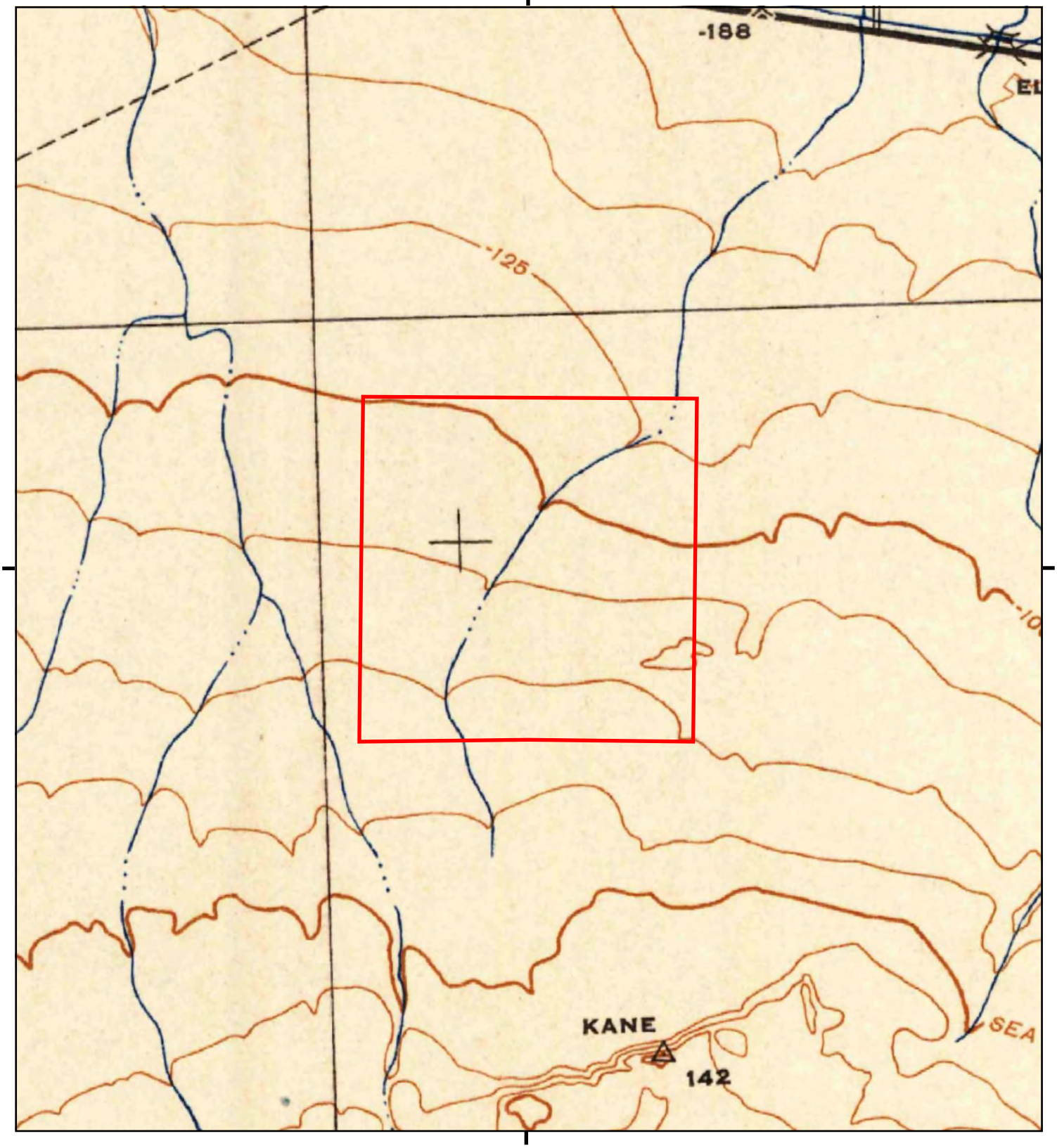

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SW S SE

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Thermal, CA 92274
CLIENT: Ninyo & Moore

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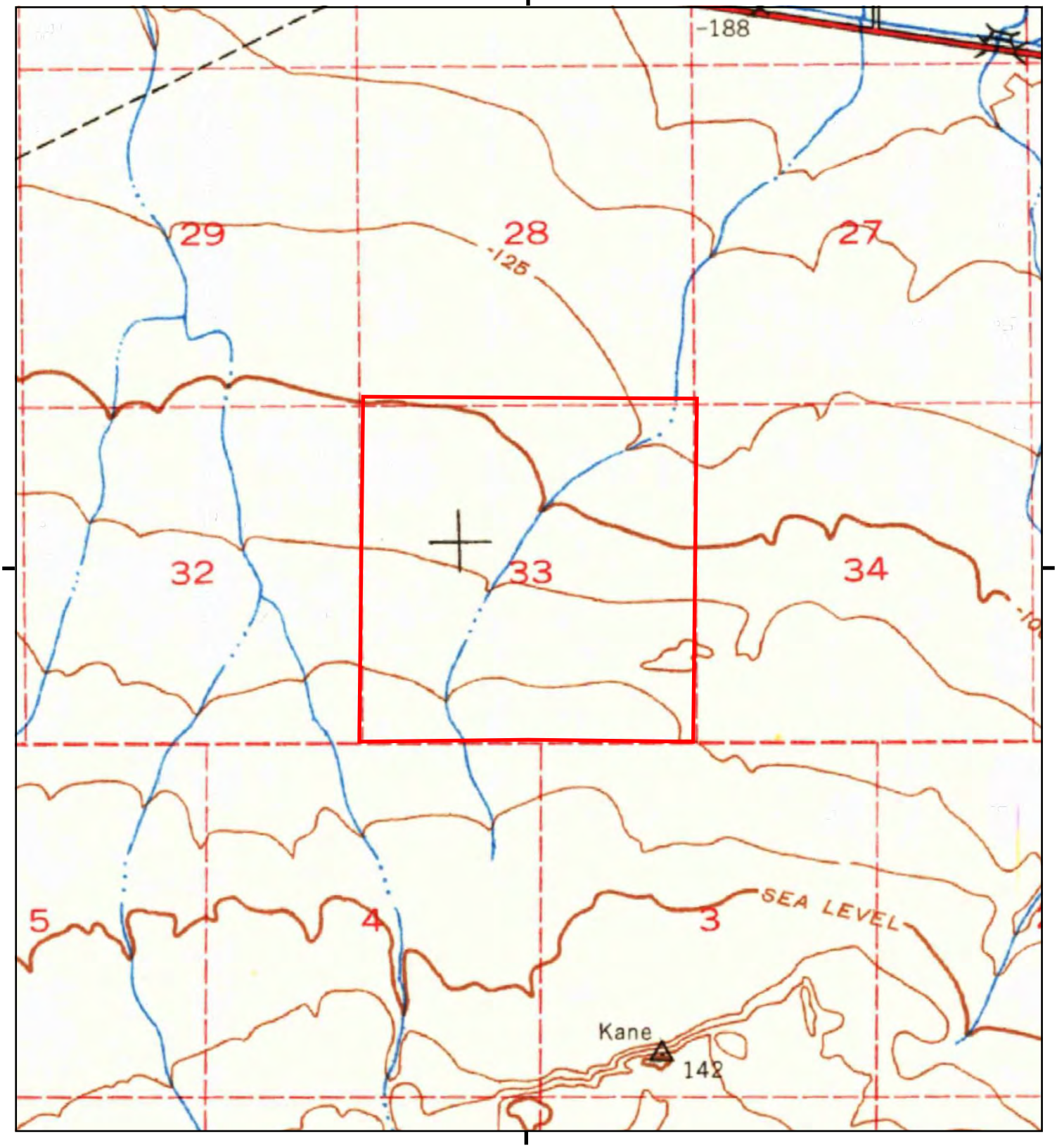

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W E
SW S SE

TP, Kane Spring, 1940, 15-minute

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ADDRESS: 3301 W HWY 86 HWY
Thermal, CA 92274
CLIENT: Ninyo & Moore

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APPENDIX F

Vapor Encroachment Screening Matrix

Phase I ESA Vapor Encroachment Conditions (VEC) matrix includes a (1) Search Radius Test, (2) Chemicals of Concern Test (COC), and (3) a Critical Distance Test [1].

(1) Search Radius Test: Are there any known or suspect contaminated properties in the primary area of concern within the corresponding search radii?

☒ Yes ☐ No — If ***No***, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If ***Yes***, then:

(2) Chemicals of Concern Test: Are COC likely to be present within the area of concern for those known or suspect contaminated sites identified based on the Search Distance Test?

☒ Yes ☐ No — If ***No***, then screening for a VEC is complete and no VEC *currently* exists, go to #4. If ***Yes***, then:

(3) Critical Distance Test: A plume test to determine whether or not COC in the contaminated plume(s) may be within the critical distance.

☐ Yes ☒ No — (3a) Is information related to the contaminated(s) plume available (i.e., isoconcentration maps, site drawings, etc.)?

(3b) If ***No***, then a VEC cannot be ruled out; check ***Yes*** in #4 below indicating it is likely a VEC exists. If ***Yes***, then:

☐ Yes ☐ No — (3c) Is the site less than 100 feet to the nearest edge of a contaminated [non-petroleum hydrocarbon] plume(s)? If ***Yes***, then check ***Yes*** in #4 below indicating it is likely a VEC exists.

☐ Yes ☐ No — (3d) Is the site less than 30 feet to the nearest edge of a dissolved petroleum hydrocarbon plume(s)? If ***Yes***, then check ***Yes*** in #4 below indicating it is likely a VEC exists.

If the distance from the nearest edge of a contaminated plume to the nearest existing or planned structure on the site is less than 100 feet for non-petroleum hydrocarbon COC, or less than 30 feet for dissolved petroleum hydrocarbons, then it is presumed that a VEC *currently* exists beneath the site. If the distance from the nearest edge of the contaminated plume is greater than or equal to 100 feet for non-petroleum hydrocarbons, or 30 feet for dissolved petroleum hydrocarbon chemicals of concern, then it is presumed unlikely that a VEC *currently* exists beneath the site.

(4) Is it likely that a VEC *currently* exists beneath the site?

☒ Yes ☐ No — If ***No***, then the VEC screening is complete and no further investigation is recommended at this time. If ***Yes,*** Ninyo & Moore recommends performing additional assessment, such as a Tier 2 VEC assessment according to ASTM E 2600-15.

[1] Based on guidance presented in the ASTM E 2600-15 Standard.

APPENDIX G

Qualification of the Environmental Professionals

ADRIAN OLIVARES

SENIOR PROJECT ENVIRONMENTAL SCIENTIST

EDUCATION

M.P.H., Environmental Health Concentration, 2016, San Diego State University

B.S., Environmental Studies, 2002, University of California Santa Barbara

REGISTRATIONS AND CERTIFICATIONS

40-Hour OSHA HAZWOPER Certification (with annual updates)

CPR / First Aid Certification

EXPERIENCE HIGHLIGHTS

City of San Diego, As-Needed Environmental Services Site Assessment and Mitigation Process Contract

City of San Diego, As-Needed Environmental Consultant Services for Brownfield Assessment Project

County of San Diego, Cedar and Kettner Development Project

Cajon Valley Union School District, Magnolia Elementary School

PROFESSIONAL AFFILIATIONS

San Diego Association of Environmental Professionals

As a Senior Project Environmental Scientist for Ninyo & Moore, Mr. Olivares manages and conducts Phase I and Phase II Environmental Site Assessments (ESAs), underground storage tank unauthorized release case investigations, human health risk assessments, indoor air quality studies, Caltrans Initial Site Assessments (ISAs), and California Environmental Quality Act (CEQA) hazardous materials technical studies (HMTS) for Environmental Impact Reports (EIRs). Mr. Olivares performs all phases of environmental investigations, coordinates and observes subsurface drilling activities, conducts investigations of subsurface contamination and logging of exploratory borings, conducts groundwater monitoring utilizing a variety of methods, authors reports, and interfaces with regulatory agencies.

REPRESENTATIVE PROJECT EXPERIENCE

City of San Diego, As-Needed Environmental Services Site Assessment and Mitigation Process Contract, San Diego, California: Project Manager for two, five-year contracts awarded to Ninyo & Moore, which includes conducting environmental site assessments at contaminated, City-owned properties throughout the County of San Diego. Scope of services include: work plan and health and safety plan preparation, field investigations (drill, sample, analytical testing), remediation, human health risk assessments, groundwater monitoring and sampling, and report preparation including corrective action plans and site conceptual models. The purpose of the contract is to assist the City of San Diego in obtaining regulatory agency closure of its properties that have been affected by unauthorized releases from underground storage tanks (USTs).

City of San Diego, Successor Agency to the Redevelopment Agency, As-Needed Environmental Consulting Services, Brownfields Assessment Project, San Diego, California: Project Manager for this three year contract awarded to Ninyo & Moore, which includes conducting Phase I and II ESAs at various brownfield sites within redevelopment areas of City Heights, Central Imperial, and Southeastern San Diego. Work was performed as part of a United States Environmental Protection Agency (USEPA) community-wide grant program. Ninyo & Moore's scope of services included developing a program-level Quality Assurance Project Plan (QAPP) and site-specific, Phase I ESAs, Field Sampling Plans, Phase II ESAs, human health risk assessments, and participating in community outreach efforts. The contract also includes preparation of remedial plans and estimates. The purpose of the contract is to assist the City and other stake holders with assessment of brownfield sites to support redevelopment efforts in the community.

County of San Diego, Cedar and Kettner Development Project, San Diego, California: Project Manager for the Cedar and Kettner Development Project, which was performed as part of a five-year contract awarded to Ninyo & Moore by the County of San Diego DGS. The site was historically occupied by Hercules Oil Refining Company and an automotive repair facility. Scope of services included: pre-characterization of soil; preparation of a Soil and Groundwater Management Plan (SGMP), Community and Contractor Health and Safety Plans; and construction field support involving implementation of the SGMP, community monitoring, and worker monitoring.

Cajon Valley Union School District, Magnolia Elementary School, El Cajon, California: Project Manager performed an indoor air quality (IAQ) study, soil vapor survey, and human health risk assessment at Magnolia Elementary School located in El Cajon, California. The project was initiated in response to concerns that indoor air may be impacted with chlorinated hydrocarbons as a result of groundwater contaminants from an adjacent aerospace/electronics facility migrating into the school buildings via the vapor intrusion pathway. The Department of Toxic Substances Control (DTSC) provided regulatory oversight.

REPRESENTATIVE PROJECT EXPERIENCE (continued)

City of Chula Vista, Sweetwater Union High School District Property, Chula Vista, California: Project Manager for this Phase II ESA project, which was performed as part of a USEPA community-wide grant program. Ninyo & Moore's scope of services included: preparation of a sampling and analysis plan; collection of soil and soil vapor samples to evaluate contaminants associated with underground storage tanks (USTs) and fueling areas, maintenance areas, and a paint shop; and preparation of a Phase II ESA report. The purpose of the project was to assist the City and District with the assessment of a brownfield site to support redevelopment efforts.

Miramar Pipeline Relocation, 17 Miles from Naval Base Point Loma to Marine Corps Air Station Miramar, San Diego, California: Project Environmental Scientist for an environmental assessment related to the relocation of portions of an existing 17-mile fuel pipeline. Ninyo & Moore's scope included: 1) preparation of an HMTS to document potential releases of hazardous materials or wastes from historical activities along the project alignment; 2) preparation of an SGMP to assist the contractor in the excavation, notification, monitoring, segregation, characterization, handling, and reuse and/or disposal of waste that may be encountered during earthwork activities; and 3) soil sampling and analytical testing to provide a screening evaluation of the environmental condition of existing soils along the proposed alignment.

City of San Diego, Southeastern San Diego Community Plan Update, San Diego, California: Project Manager for the preparation of an HMTS for the comprehensive update of the Southeastern San Diego Community Plan. The purpose of the HMTS was to document the presence of properties, which may have been impacted by hazardous materials or wastes, and to document the significance of impacts from the project area with respect to CEQA, and to discuss measures that can be implemented to reduce or mitigate the potential impacts.

Otay Truck Route, San Diego, California: Project Manager prepared an ISA for the Otay Truck Route Improvement Project in San Diego County, California. The area evaluated for this ISA was generally bounded by Siempre Viva Road to the north, Customhouse Court to the east, the international border to the south, and Britannia Boulevard to the west in the community of Otay Mesa. The purpose of the project was to provide the construction of additional travel lanes to the existing truck route for truck traffic entering the Otay Mesa Border Crossing Port of Entry and to provide a travel lane for Border Patrol and emergency vehicles. The ISA involved evaluation of properties within the boundaries of the project area and off-site properties, which have the potential to negatively impact the project area.

Metropolitan Transit System, 13th Street Light Rail Vehicle Maintenance Facility and Newton Avenue Taxi Inspection Facility San Diego, California: Project Manager for the implementation of the facility's Storm Water Pollution Prevention Plan (SWPPP). The project included monthly inspections, sampling, an annual inspection for the comprehensive site compliance evaluation for potential pollutant sources, and reporting to comply with the facility's Regional Water Quality Control Board industrial storm water permit requirements.

NCTD Sorrento Valley Double Track Project, ISA, San Diego, California: Project Environmental Scientist for an ISA for the Sorrento Valley Double Track Project. The project consists of construction of a second rail track extending the railroad double tracks from Sorrento Valley Station at MP 248.9 northwest approximately 1 mile to MP 247.8. The purpose of the ISA was to document potential environmental concerns related to hazardous materials and/or hazardous wastes including oil/water separators, waste oil, polychlorinated biphenyls, asbestos- containing material, lead-based paint, aerially-deposited lead, and railroad related hazards.

University Avenue Pipeline, San Diego, California: Project Environmental Scientist performed an HMTS for the University Avenue Pipeline Replacement Project located in San Diego, California. The purpose of the HMTS was to document the presence of properties and areas of potential environmental concern, which may have been impacted by releases of hazardous materials and/or wastes within the project area, which have the potential to impact the project, in order to assist with project planning and preliminary design.

West Vista Way Sewer Project, Vista California: Project Environmental Scientist for an environmental and geotechnical evaluation for the West Vista Way Sewer project in Vista, California. The project included the installation of a 15- to 16-inch diameter sewer pipeline along West Vista Way and a 12-inch diameter sewer pipeline from Huff Street to Grapevine Road. Of particular concern was a section of sewer crossing beneath Emerald Drive where a shallow groundwater table and potential contamination was suspected due to the presence of nearby unauthorized releases from several gas stations.

STEPHAN A. BECK, PG, HG, CEG, EM, REA II

PRINCIPAL ENVIRONMENTAL GEOLOGIST

EDUCATION

M.A., Geology, 1981, California State University, Fresno

B.A., Geology, 1976, University of California at Santa Barbara

REGISTRATIONS AND CERTIFICATIONS

PG 4375 (California)

CEG 1512 (California)

HG 126 (California)

REA I 2181 (California)

REA II 20110 (California)

PG 33080 (Arizona)

EM 1545 (Nevada)

PG 2234 (Wyoming)

OSHA 40-hour Health and Safety Training (with annual updates)

OSHA 8-hour Health and Safety Supervisor Training

County of San Diego Environmental Consultant Certification

Data Quality Objectives/Data Quality Assessment, 1997, Naval Facilities Engineering Service Center

Professional Certificate, Hazardous Materials Management, 1989, University of California at San Diego

Hydrogen Sulfide Safety, 1987, ESSE International, Inc.

EXPERIENCE HIGHLIGHTS

Caltrans, District 11 Contract

San Diego Unified Port District, Environmental Contract

County of San Diego Burnsite Contract

San Diego County Regional Airport Authority On-Call Contract

PROFESSIONAL AFFILIATIONS

International Society of Environmental Forensics

National Groundwater Association

San Diego Association of Geologists

San Diego Environmental Professionals

Mr. Beck's project experience includes soil, soil vapor, sediment, sludge, surface water, groundwater and soil vapor surface and subsurface site assessments, hazardous building materials, human health and ecological risk assessments, remedial design, and remedial/removal actions involving volatile and semi-volatile organic compounds, polychlorinated biphenyls, metals, refined petroleum products, and pesticides, underground storage tanks, radiological surveys, and various phases of hydrologic/groundwater supply projects. Other experience includes site assessment investigations for real estate transfers, including Navy property, school sites, power and coal gasification plants, Brownfields, pipeline, transportation and railroad rights-of-way, regulatory compliance involving U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Fish and Game Department, Regional Water Quality Control Board, Department of Health Services, Air Pollution Control District, California Integrated Waste Management Board, State Water Resources Control Board, and California Coastal Commission, environmental construction management services, characterization at NPL sites, RCRA, SARA, CERCLA, TSCA, CWA, SWDA, and CIWMB projects, technical studies for inclusion in CEQA/NEPA documents, preliminary endangerment assessments, expert witness and litigation support, enhanced oil recovery projects, and extensive drilling in the U.S. and abroad.

REPRESENTATIVE PROJECT EXPERIENCE

Metropolitan Transit Development Board, On-Call 5-Year Environmental Services Contract, San Diego County, California Contract Manager and Principal Environmental Geologist for this on-call contract. Mr. Beck's services have included third party review, regulatory liaison, site assessments, permitting, stormwater compliance, construction management services, hazardous materials management and disposal, and lead and asbestos abatement oversight. Most recently, Mr. Beck has been integrally involved in the Mission Valley East Light Rail Extension project, providing critical senior technical expertise and quality review on stormwater pollution prevention protocols.

San Diego City Schools, As Needed Environmental Consulting Services Contract, San Diego, California: Principal-in-Charge, Technical Advisor, and QA/QC Manager for Phase I Environmental Site Assessments (ESA) at 13 proposed and existing elementary, middle, and high school sites within the jurisdiction of the San Diego Unified School District (SDUSD). The proposed sites included properties with existing commercial, industrial, and residential land uses. Phase II ESAs were also conducted on 9 existing SDUSD school sites and 2 proposed SDUSD school sites. Mr. Beck also provided technical input and report preparation assistance regarding implementation of Remedial Action Workplans at several of the sites to cleanup lead and organochlorine pesticides in soil. This work was performed under the direction of the California Department of Toxic Substances Control.

County of San Diego Burnsite and Landfill Engineering Services As-Needed Contract, Various Locations, San Diego County, California: Principal-in-Charge and Technical Advisor for an on-call environmental services to the County of San Diego Department of Public Works as part of its three year, $500,000, Burn Site and Landfill Engineering Services As-Needed Contract. The general scope of work for this contract focuses on conducting investigations and remedial action at County inactive solid waste disposal sites, most of which are former burn sites. The specific engineering services required by the County include characterizing and delineating former burn sites; preparing landfill closure and post-closure maintenance plans; preparing construction plans, specifications, and cost estimates for landfill maintenance projects; implementing remedial action plans, preparing of health and safety plans; value engineering; and assistance during the bidding process for construction activities.

REPRESENTATIVE PROJECT EXPERIENCE (continued)

Centre City Development Corporation (CCDC), On-call Environmental Consulting Services Contract, San Diego, California: Contract Manager and Principal Environmental Geologist on this on-call contract. Our services on this contract in the past years have included performing Phase I and Phase II Environmental Assessments on Downtown San Diego properties slated for purchase and redevelopment, third-party review of environmental consultants reports, and development and implementation of soil management protocols on construction sites within the CCDC jurisdiction. Mr. Beck performed complex third-party reviews and acted as Technical Liaison for the CCDC, working with stakeholders and regulators on complex urban redevelopment projects. As an example, Mr. Beck authored and has helped to implement the conclusions of a hazardous materials constraints analysis as part of the Downtown Community Plan Update and Master Environmental Impact Report. The analysis presented a summary of current downtown San Diego redevelopment trends in hazardous materials management from a regulatory and practical perspective, suggested methods that have proven effective in the identification, assessment, and mitigation of environmental issues, and provided general conclusions regarding the potential impact of hazardous materials releases on redevelopment in the 1500 acre downtown area. Mr. Beck was commended by the CCDC and other key downtown stakeholders for this concise and technically sound planning document.

San Diego Unified Port District, San Diego, California: Since 1994, Mr. Beck has been Program Director, Project Manager, Technical Advisor, and QA/QC Manager on numerous Port District on-call site assessment contracts involving Phase I due diligence, Phase II investigation, National Contingency Plan, Preliminary Endangerment Assessment, Remedial Investigation, Feasibility Studies, Risk Assessment, Public Participation Plans, Remedial Action Plans, NEPA/CEQA studies, and dealing with regulatory compliance issues and public concerns. Mr. Beck's involvement on such projects as the San Diego Convention Center Expansion and the Naval Training Center Landfill, has led to the swift and successful completion of these high profile, environmentally sensitive projects. Mr. Beck continues to provide technical input, QA/QC management, and regulatory liaison and negotiation for the former Campbell Shipyard remediation (landside and sediment), the East Parking Lot remediation of coal gasification wastes, the Tow Basin PCB remediation, and the assessment of contamination at the future Spinnaker Hotel site.

San Diego County Regional Airport Authority (SDCRAA) On-Call Services Agreement, San Diego, California: Principal Environmental Geologist for this contract, provided technical input and services to SDCRAA regarding environmental issues pertaining to airport operations, maintenance, construction, and expansion.. Mr. Beck also is Principal Environmental Geologist and Contract Manager for the environmental constraints study for the final alternative sites that will considered as potential locations for either a new airport or the expansion of existing facilities.

California Integrated Waste Management Board (CIWMB) Closed, Illegal and Abandoned Disposal Site Investigation Program, Various Locations, California: Principal-in-Charge and Technical Advisor for the Closed, Illegal and Abandoned (CIA) Site Investigation Program. This contract includes subsurface investigations of illegal disposal sites, solid waste disposal and co disposal sites where further site characterization is necessary for monitoring, enforcement action, or site cleanup. Investigations have included excavating and logging trenches and test pits and drilling borings to characterize subsurface materials, delineation of the extent of burned wastes or other buried wastes to evaluate recommended remedial action. The disposal site projects have all been sites where there has been an identified potential risk to human health and the environment.

NTC Inactive Landfill, San Diego, California: Principal-in-Charge and Technical Advisor for the Naval Training Center Inactive Landfill. The project involved identifying, delineating and characterizing buried wastes, a geotechnical investigation, evaluating remedial action alternatives, providing cost estimates for implementing corrective action, extensive interfacing with the client, RWQCB, CIWMB and other agencies, and presentation of data at various meetings and to technical advisory boards. A subsequent subsurface investigation to delineate the extent of burned wastes within the site and in outlying areas and to characterize the burn material in accordance with LEA requirements. Principal reviewer of the remedial action plan to clean close the site by removing the wastes and affected media.

Chula Vista Bayfront Master Plan EIR, Chula Vista, California: Principal Environmental Geologist for a hazardous materials technical study (HMTS) for the Chula Vista Bayfront Master Plan. The technical report will be utilized in the preparation of an Environmental Impact Report (EIR), and is not intended for the purpose of design or construction. The project area consists of a number of parcels along the bayfront in the city of Chula Vista, California totaling approximately 550 acres under the ownership and jurisdiction of the San Diego Unified Port District (Port), including land acquired from B.F. Goodrich, vacant and underutilized areas, and the existing South Bay Power Plant parcel. Mr. Beck's services included review of maps, reports and other environmental documents pertaining to the site; review regulatory agency databases for the site and for properties located within a 1,000-foot radius of the project area; and review of a HMTS report documenting findings and providing opinions and recommendations regarding possible environmental impacts to the project area.

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L Hydrology/Water Quality Assessment

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Hydrology and Water Quality Analysis Report
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

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July 26, 2019

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Hydrology and Water Quality Analysis Report
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

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APPENDICES

Appendix A. First Quarter 2019 WDR Groundwater Monitoring Results

Hydrology and Water Quality Analysis Report
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

1.0 Introduction

This Hydrology and Water Quality Assessment Report has been prepared for CalEnergy Operating Company of Calipatria, California for the proposed Cell 4 Waste Storage Area (the "Project") at the Desert Valley Company (DVC) Monofill Facility in Imperial County, California (Figure 1). The overall Project entails a modification to DVC's Conditional Use Permit (CUP) No. 05-0020 issued by Imperial County for the Monofill Facility located at 3301 Highway 86 in Brawley, California.

The DVC Monofill Facility includes two closed cells, Cell 1 and Cell 2, and a currently active cell, Cell 3. The Project involves the permitting and construction of a new cell, Cell 4, and the subsequent closure of Cell 3. CUP No. 05-0020 limits the facility to Class 2 waste disposal activities such that only certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California can be accepted. Solid Waste Facility Permit No. 13-AA-0022 specifies the wastes that can be accepted at the facility:

- Geothermal drilling muds and cuttings;
- Geothermal filter cake;
- Soils contaminated with geothermal material; and
- Incidental plastic sheeting (truck bed liners)/materials.

The above wastes must be generated within Imperial County and no materials from outside of the County are permitted to be disposed at the facility.

Cell 4 will be constructed in two phases. Each phase will have a capacity of approximately 1.3 million cubic yards, which is comparable to the size of Cell 3. Phase 1 of Cell 4 (also referred to as Cell 4a) will begin receiving waste when the existing Cell 3 reaches or nears its capacity, at which time Cell 3 will be closed. Phase 2 of Cell 4 (also referred to as Cell 4b) will have a capacity similar to Phase 1 and will be constructed when there is a demand for additional waste storage capacity. Phase 1 is estimated to have a surface area of approximately 24 acres. The area in which Cell 4 will be constructed is shown on Figure 2. While the preferred location for the Project is

within Section 33, an alternative project location in the southwest quarter of Section 27 is also considered in this evaluation.

The projected life of each phase of Cell 4 is based on the estimated design capacity of approximately 1.3 million cubic yards and a projected disposal rate of approximately 60,000 tons per year. The geothermal waste materials disposed of at the site have an empirically determined airspace utilization factor of 1.32 tons per cubic yard. Thus, the annual volumetric disposal rate is approximately 45,455 cubic yards per year. The approximate life span of each phase of Cell 4 is 28.6 years, based on the total volumetric capacity of 1.3 million cubic yards divided by the average annual disposal rate of 45,455 cubic yards per year.

The design and construction of Cell 4 will be consistent with Cell 3, where the liner system will be designed to Class I hazardous waste standards and other criteria will conform to Class 2 designated waste standards and other permit requirements. Other aspects of the proposed Cell 4 waste storage area, such as operations, maintenance, monitoring, recordkeeping and financial assurance, will also be consistent with those of the existing DVC Monofill Facility

Waste material composition and disposal operations for Cell 4 will be the same as for existing Cell 3. Water would be supplied from an existing groundwater well that is currently used for site water needs and a new groundwater well that would be drilled for the Project (EMKO, 2019). Project water demand would include water needed for dust control and construction (e.g. soil compaction) during installation of Cell 4, closure of existing Cell 3, and for subsequent operation of Cell 4.

The evaluations presented in this report are consistent with the California Environmental Quality Act (CEQA) Guidelines, Appendix G, as modified on December 28, 2018, and the Imperial County Initial Study Environmental Checklist Template dated April 9, 2019.

2.0 Environmental Setting

The environmental setting consists of the existing hydrologic conditions in the region and at the Project site. Existing conditions are described below for both surface water and groundwater, and for water quality. The existing conditions define the baseline for the evaluation of potential environmental impacts. In Section 5.0, the identified baseline conditions are compared with the anticipated Project effects discussed in Section 3.0 to assess the level of significance of any potential impacts.

2.1 Surface Water

This section describes the environmental setting, or existing conditions, related to surface water, including both surface water occurrence and surface water quality.

2.1.1 Regional Conditions

The Project site is located in an arid, desert environment. Rainfall data from five stations ranging from 18 miles to 42 miles from the Project site indicate that the average annual rainfall varies from 2.47 inches to 2.86 inches (EMKO Environmental, Inc., 2019). Peak annual rainfall ranges from 5.73 inches to 10.16 inches for the five stations (ibid). At each station, there have been years when very little or no rainfall occurred. The estimated total rainfall from a 100-year, 24-hour storm event is 2.88 inches (DWR, 1976). The pan evaporation rate is reported to range from 87 inches per year to 117 inches per year (DWR, 1979).

The nearest perennial drainage to the Project site is San Felipe Creek, located approximately 3.5 miles to the northwest. Groundwater from a shallow aquifer zone (see Section 2.2.1) may discharge to this drainage to maintain the surface flows (Todd Engineers, 2013). Other drainages in the region are ephemeral and only experience surface flows during or after major storm events. As a result, there may be several years between flow events within the ephemeral drainages.

The Salton Sea is located four miles to the northeast. The Salton Sea is a major inland water body with no outlet, which results in highly saline conditions.

2.1.2 Site-Specific Conditions

Surface drainages that are classified as jurisdictional under California Department of Fish and Wildlife (CDFW) criteria have been mapped by Hernandez Environmental Services (2018). The jurisdictional drainages in the Project vicinity are shown on Figure 3. A total of 44.8 acres of CDFW jurisdictional drainages are present in Section 27 while a total of 35.2 acres of CDFW jurisdictional drainages are present in Section 33. Photographs from Hernandez Environmental Services (2018) showing the nature of the surface drainage features are provided on Figure 4. The surface drainages at the Project site are ephemeral and may only experience flow after major storm events. There may be multiple years between periods when surface water flows occur in the drainages.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Firm) Panel Number 060065-0400 B, there are no areas within the

southwest quarter of Section 27 or in any part of Section 33 that are within a flood hazard zone. The FEMA Firm Panel is available at http://www.icpds.com/CMS/Media/19-FEMA-400.pdf.

Estimates of stormwater flows within the drainages have been performed by McDowell & Associates (2002) for the design of the diversion berm that is present along the south side of Cell 3 and the west side of Cells 1, 2, and 3. Peak stormwater flows were estimated based on a Probable Maximum Precipitation of 13.3 inches of rain over 24 hours, with an estimated maximum intensity of 4.03 inches per hour. The estimated peak runoff from the jurisdictional drainages to the south (upstream) of Cells 1, 2, and 3 is 101.1 cubic feet per second (cfs). To prevent flooding and erosion of the existing facility, a three-foot high berm along with a 1.5-foot deep swale along the outer edge of the berm are present around the south and west side of Cell 3, as depicted on Figure 5. The berm and swale were designed based on the Probable Maximum Precipitation of 13.3 inches in a 24-hour period (McDowell & Associates, 2002), which is a protection level equivalent to that required for a Class I landfill.

Additional evaluations of the runoff from several jurisdictional drainages west of Cell 3 were also calculated to estimate the appropriate size for drainage crossings along the access road north of the facility along the west side of Section 27, based on the same Probable Maximum Precipitation and maximum rainfall intensity used to design the Cell 3 berm and swale (McDowell & Associates, 2002). Two of the jurisdictional drainages west of Cell 3 pass through the area in which Cell 4 is proposed to be constructed. For these two drainages, the peak runoff ranges from 275 cfs to 290 cfs. Because the total drainage area evaluated in the McDowell & Associates (2002) calculations extends northward (downslope) to the access road for the facility, those watershed areas are approximately twice the area that would provide runoff from upslope of the south edge of the proposed Cell 4. Thus, the peak runoff approaching the south edge of the Cell 4 area may be approximately one-half of the peak runoff for the entire drainage area extending to the access road, or approximately 300 cfs.

The facility operates in accordance with an active Industrial Storm Water Pollution Prevention Plan (I-SWPPP), WDID 7 13I004548, which was most recently revised on September 14, 2018 (DVC, 2018a). The existing I-SWPPP identifies appropriate best management practices (BMPs) to prevent erosion and the mobilization of pollutants in stormwater runoff, defines primary and alternative sampling locations, and describes on-going monitoring and maintenance requirements. In 2018, the existing stormwater management system was enhanced with additional erosion control measures, including construction of an earthen drainage swale around the perimeter of Cell 3 (DVC, 2018b).

Leachate from Cells 1 and 2 is collected within a pair of lined basins to the north of those two former disposal cells. Leachate from active Cell 3, and any rain that falls within the perimeter of the cell, is collected in a lined basin at the northeast corner of Cell 3. Any leachate that accumulates in these lined basins eventually evaporates and there is no discharge to any of the surface drainages.

2.1.3 Existing Surface Water Quality

Storm water runoff from qualifying storm events is monitored in accordance with the current I-SWPPP. Except for rain that falls within the active Cell 3 area, storm water is not retained onsite, but is discharged through several designated discharge points. Figure 6 from the current SWPPP shows the storm water management system and discharge points.

Table 1. Results of January 15, 2019 Qualifying Storm Event (from DVC, 2019b)

Facility	Parameter	Qualifying Storm Event (QSE) Results – January 15, 2019 Alternative Sampling Location for DP 5 & 6	Reporting Units	Annual Numeric Action Level (NAL)	Instantaneous Maximum Numeric Action Level (NAL)	Method
Desert Valley Company	Iron (Fe), Total	2.04	mg/L	1.0	N/A	EPA 200.7
	pH	6.28	pH Units	N/A	<6.00 - >9.0	A4500-H+B
	Total Suspended Solids (TSS)	17	mg/L	100	400	SM 2540-D
	**Total Oil & Grease (O&G)	<5.0	mg/L	15	25	EPA 1664B

Since adoption of the 2015 Industrial General Permit, the iron annual numeric action level was exceeded in January 2016. Phase 1 and Phase 2 Exceedance Response Action (ERA) evaluations were conducted and enhancements to the stormwater best management practices (BMPs) were implemented in 2017 (Yorke, 2016; CalEnergy, 2017 and 2018). However, the sampling results from a qualifying storm event (QSE) on January 15, 2019 indicate that iron still exceeds its annual numeric action level (CalEnergy, 2019). The results of the January 15, 2019 QSE sampling are shown in Table 1. Evaluation of iron concentrations in onsite and offsite soils, and of iron in windblown dust entering the site (CalEnergy, 2018), suggests that the source of the iron may be naturally-occurring levels in the native soils and windblown dust, and is not a result of waste disposal activities at Cell 3.

Table 2 presents the leachate monitoring data for the fourth quarter of 2018 (DVC, 2019).

Table 2. Fourth Quarter 2018 Leachate Monitoring Results			
Cell No.	Volume (gallons)	pH	Conductivity (μmhos/cm)
1	215	6.8	101,900
2	14,033	4.9	208,100
3	0	NA	NA

2.2 Groundwater

This section describes the environmental setting, or existing conditions, related to groundwater, including both groundwater occurrence and groundwater quality.

2.2.1 Regional Conditions

The DVC Monofill Facility is located within the Ocotillo-Clark Valley Groundwater Basin (Basin Number 7-25), as defined by DWR (2004), as shown on Figure 7. The basin is bounded by the Santa Rosa Mountains to the north and northeast, Coyote Creek and Superstition Mountain faults to the west and south, and the Salton Sea and surface drainage divides to the east. The total surface area is approximately 223,000 acres (348 square miles), while the estimated groundwater storage capacity of the Ocotillo Valley part of the groundwater basin is 5,800,000 acre-feet (DWR, 2004). However, the actual volume of groundwater currently in storage is unknown.

Clark Valley drains toward Clark Dry Lake, to the northeast of Borrego Springs (see Figure 7). The eastern part of the groundwater basin drains toward the Salton Sea. The basin is an alluvial filled valley of stream, alluvial fan, lake and aeolian deposits[1] (DWR, 2004). Recharge occurs due to runoff from the mountains along the north and west sides of the basin and is estimated to be 1,200 acre-feet per year for the Clark Valley part of the basin and 1,100 acre-feet per year for the Ocotillo Valley part of the basin (DWR, 2004).

Two aquifers are present within the Ocotillo Valley area of the groundwater basin (Todd Engineers, 2013). Northwest of San Felipe Creek, shallow groundwater is encountered at depths ranging from 40 feet to 90 feet below ground surface, with depths generally

[1] Aeolian deposits are those that are transported and deposited by wind, such as dune sands and wind-blown silt deposits.

increasing toward the west (Ericsson-Grant, 2014). The depth to groundwater in the lower aquifer is approximately 100 feet deeper than that in the shallow aquifer (Ericsson-Grant, 2014). Thus, in the area west of San Felipe Creek, the shallow groundwater zone is generally unconfined and perched, while the lower aquifer is confined. Groundwater from the shallow zone may discharge at springs along Fish Creek and San Felipe Creek (Todd Engineers, 2013), suggesting that groundwater flow is toward the east-southeast in the western area of the Ocotillo Valley part of the groundwater basin. Groundwater from all areas of the Ocotillo Valley part of the groundwater basin ultimately discharges to the Salton Sea (DWR, 2004).

Historically, the largest groundwater user in the basin was Allegretti Farms, located approximately 10 miles west-northwest of the Project site (see Figure 7). From the 1950s into the 2010s, irrigation for agricultural production occurred on land areas ranging from 320 acres up to 2,000 acres (Todd Engineers, 2013). The estimated groundwater pumping ranged from over 10,000 acre-feet per year in 1978, decreasing to 2,800 acre-feet per year, on average, from 1996 to 2009 (Todd Engineers, 2013). In 2010 and 2011, groundwater pumping decreased to 208 acre-feet and 224 acre-feet per year, respectively. The Seville Solar Farm has largely supplanted agricultural use of the Allegretti Farms property (Ericsson-Grant, 2014). Estimated annual water demand for the property now ranges from 140 acre-feet to 300 acre-feet (Todd Engineers, 2013).

Groundwater levels have been monitored by the U.S. Geological Survey in a lower-aquifer well at Allegretti Farms since 1953 (USGS, 2019). Figure 8 shows the water levels in the well monitored by USGS. The data demonstrate that from 1953 to 2001, groundwater levels decreased from a depth of approximately -75 feet relative to the 1988 North American Vertical Datum (ft NAVD88) to about -240 ft NAVD88. However, as shown on Figure 8, since 2001 the groundwater level has recovered by approximately 35 feet.

As described above, the estimated rate of recharge in the Ocotillo Valley part of the groundwater basin is 1,100 acre-feet per year (DWR, 2004). Thus, pumping at rates in excess of this amount would result in overdraft and declining groundwater levels. The more recent groundwater pumping rates reported by Todd Engineers (2013) at the Allegretti Farms/Seville Solar Farm property are less than the estimated recharge rate, and may account for the slow recovery in groundwater levels. Based on the maximum projected water use for the Seville Solar Farm of 300 acre-feet per year (Todd Engineers, 2013), up to 800 acre-feet of groundwater per year are available for other users in the Ocotillo Valley part of the groundwater basin, without causing further overdraft.

A series of three bills passed by the California legislature were signed by Governor Brown on September 16, 2014. These three bills, Assembly Bill (AB) 1739, SB 1168, and SB 1319, together comprise the Sustainable Groundwater Management Act of 2014 (SGMA). SGMA provides a structure under which local agencies are to develop a sustainable groundwater management program. SGMA focuses on basins or subbasins designated by DWR as high- or medium priority basins, and those with critical conditions of overdraft.

The Ocotillo-Clark Valley Groundwater Basin (DWR Basin 7-25) is classified as a very low priority basin with no significant declining groundwater levels (i.e. no evidence of critical conditions of overdraft), according to the SGMA Basin Prioritization Dashboard (https://gis.water.ca.gov/app/bp2018-dashboard/p1/, accessed February 20, 2019). As such, the general requirements of SGMA do not apply to the basin. The Ocotillo-Clark Valley Groundwater Basin has not been adjudicated.

2.2.2 Site-Specific Conditions

At the Project site, groundwater has been encountered in both the shallow aquifer zone and in the lower aquifer. Shallow groundwater is present at depths ranging from 50 feet to 60 feet below ground surface (Balderman, 2002). Sixteen shallow zone wells have been drilled at the Project site (see Figure 5). Shallow zone groundwater occurs within eight separate geologic layers within the Pleistocene Brawley Formation (Balderman, 2002). These layers represent ancient lake bed deposits that range from clay lenses to fine-grained sand units. The geologic layers dip toward the north at a slope of five to eight percent, or about two to five degrees. Due to the sloping layers, wells that are drilled to the same depth in the shallow aquifer zone in different parts of the Project site are often not completed within the same geologic layer.

From 1991 to 2002, the groundwater level varied by no more than two to three feet in the onsite shallow aquifer zone wells (Balderman, 2002). Shallow groundwater flows toward the northeast with a hydraulic gradient of approximately 0.0164 foot/foot and at a velocity of approximately 3.86 feet per year (DVC, 2019).

In 2005, DVC installed a new water supply well into the lower aquifer for operation of Cell 3. The information provided below for the supply well is from UCM (2005). The well was drilled to a total depth of 605 feet and completed with 5-inch Schedule 80 PVC casing. The screened interval extends from 490 feet to 600 feet below ground surface, but the filter pack sand extends from 340 feet to 605 feet below ground surface. The static water level is approximately 44 feet below ground surface, indicating that the lower aquifer is under confined conditions (UCM, 2005). Since there is only one lower

aquifer zone well onsite, it is not possible to estimate the slope of the groundwater surface or rate of flow within this aquifer zone.

After installation of the lower aquifer supply well, a series of pumping tests were conducted with a temporary pump set at various depths to identify the optimal placement of a permanent pump. Based on these tests, a three-horsepower, three-phase submersible pump was installed at a depth of 461 feet. The pump provides up to 38 gallons per minute of groundwater from the lower aquifer zone. Two 5,000-gallon water tanks are used to store pumped groundwater before use onsite.

The water well attachment to CUP 05-0020 allows up to 8.5 acre-feet of groundwater per year to be produced from the supply well. Over the past decade, the maximum annual water use reported by DVC was 8.02 acre-feet in 2010. Since 2012, the peak annual water use has been 5.57 acre-feet while the minimum annual water use has been 3.58 acre-feet. The median water use over the past seven years has been 5.45 acre-feet per year.

2.2.3 Groundwater Quality

The groundwater quality throughout the Ocotillo Valley area of the groundwater basin is generally poor. For example, in the area of the basin west of San Felipe Creek, the total dissolved solids (TDS) content of the deeper groundwater ranges from 1,200 milligrams per liter (mg/L) to 1,800 mg/L, while the TDS in the shallow groundwater is reported to be three to four times higher (Ericsson-Grant, 2014).

At the Project site, the TDS in the shallow groundwater ranges from 2,000 mg/L to 11,000 mg/L (Balderman, 2002). The TDS is comprised primarily of sodium, chloride, and sulfate. The TDS levels vary appreciably within the eight different geologic layers described in Section 2.2.2. For example, in one layer, referred to as Qb3, the TDS ranges from 7,000 mg/L to 11,000 mg/L, whereas in layers Qb6 and Qb4 the TDS ranges from 3,500 mg/L to 5,000 mg/L respectively (Balderman, 2002). In the southernmost upgradient well at the Project site, which is completed within the lowest geologic layer, referred to as Qb8, the TDS level is 2,000 mg/L.

Groundwater monitoring is conducted in accordance with the Monitoring and Reporting Program (MRP) that is a part of Waste Discharge Requirements Order No. R7-2016-0016 (the “WDRs”). Appendix A provides a summary of the groundwater monitoring results for the first quarter of 2019.

Due to the variation in TDS levels in the different geologic layers that make up the shallow aquifer zone, there is not a valid upgradient background well for assessing

potential effects of the existing DVC Monofill cells on groundwater quality. However, a trend analysis determined that within each individual well the water quality has remained relatively consistent over time (RPS Iris Environmental, 2016). Figure 9 presents an example of the trend analysis for Specific Conductance from the existing groundwater monitoring wells at the DVC Monofill Facility. The trend graph in Figure 9 illustrates the large differences in the Specific Conductance between wells and demonstrates that there are not any increasing trends within in any of the wells. Therefore, evaluation of changes in water quality and verification of compliance with the WDRs are based on intra-well comparisons. To date, there has not been a verified excursion that would indicate the potential for leakage from existing Cells 1, 2, and 3 at the DVC Monofill Facility.

The produced water from the existing deep, onsite supply well has a TDS level of 1,200 mg/L, a pH of 7.9, and a temperature of 95 degrees F (35 degrees C).

3.0 Anticipated Project Conditions

The Project will result in various changes to and disturbances of the existing environmental setting. From the perspective of hydrology and water quality, these effects include disruption of jurisdictional drainages that will alter flood flows, generation of additional storm water runoff, additional leachate generation potential, changes in the amount of groundwater used from the lower aquifer, and other changes. The discussion below identifies the likely changes and disturbances and, where possible, provides some quantification of the magnitude of the effects. Identification of anticipated project conditions is focused on the proposed Cell 4 location within Section 33. However, limited discussion of potential effects for the alternative location within the southwest quarter of Section 27 is also provided.

3.1 Surface Water

Construction activities, including the closure of Cell 3, the construction of Cell 4, and the installation of additional roadways and support facilities would need to be conducted in accordance with the requirements of a Construction SWPPP (C-SWPPP). DVC would need to file a Notice of Intent (NOI) to comply with the construction general permit. The C-SWPPP would identify potential locations and operations where construction activities could pollute storm water runoff. Best Management Practices (BMPs) and appropriate monitoring requirements would also be described in the C-SWPPP.

As shown on Figure 2, the overall footprint for the construction of Cell 4 within Section 33 would be approximately 24 acres for Cell 4a, 21 acres for Cell 4b, and 1.2 acres for

the leachate pond. In addition, approximately 16 acres would be needed for borrow source material and for material laydown and construction staging. These activities would result in the permanent removal of approximately 7.52 acres of jurisdictional drainages and the temporary disturbance of approximately 2.88 acres of jurisdictional drainages (Chambers Group, Inc., 2019). As can be seen on Figure 3, jurisdictional drainages are also present throughout much of Section 27. Thus, construction of Cell 4 in the alternative location in the southwest quarter of Section 27 would also result in the permanent and temporary removal of jurisdictional drainages, although the total area has not been defined since a specific alternative location in the southwest quarter of Section 27 has not been identified.

Runoff from storm events that flows north toward the Project area within the disrupted jurisdictional drainages in Section 33 would need to be diverted around Cell 4. The diversion would be accomplished by construction of a berm around the south and west sides of Cell 4 and the excavation of a ditch or swale along the outer edge of the berm (i.e. the side of the berm away from Cell 4). A similar berm and ditch system exists around the south and west sides of the current disposal cell area (i.e. Cells 1, 2, and 3), as discussed in Section 2.1.2. Along the north side of Cell 4, the diversion ditch would discharge the storm runoff back into the jurisdictional drainages that were truncated by construction of Cell 4. The berm and ditch would be designed to convey the runoff from the Probable Maximum Precipitation without overtopping the berm and at velocities that will not erode the earthen ditches. This would provide a protection level equivalent to that required for a Class I landfill. The diversion ditch system may need to be able to convey approximately 300 cfs, based on the cumulative flows from multiple drainages, as described in Section 2.1.2. The depth and width of the ditch would also need to be sized to convey water at a velocity of no more than six feet per second to prevent erosion of the unlined earthen channels (McDowell & Associates, 2002).

If the Project were to be constructed in an alternative location within the southwest quarter of Section 27, similar diversion of runoff within jurisdictional drainages would need to occur. The total magnitude of runoff has not been calculated at this time, but the diversion would most likely occur using a berm and swales. Due to the configuration of the drainages within the southwest quarter of Section 27, it may not be feasible to reconnect the diverted flows back into the disrupted drainages. Instead the flows would be diverted to different jurisdictional drainages that flow northward along the east and west sides of potential alternative locations. As a result, the alternative Project location may cause storm runoff flow rates to increase in some drainages to the sides of the cell, while flows in the disrupted drainages would be permanently diminished.

DVC would be required to file a NOI to comply with the industrial general permit and to prepare a new or updated I-SWPPP for Cell 4. The new or updated I-SWPPP would identify locations of storm water discharges from the facility, identify appropriate BMPs, and define the monitoring schedule and parameters, similar to the existing I-SWPPP discussed in Section 2.1.2.

A leachate collection pond would also be constructed for Cell 4 as part of the Project. The leachate collection pond would be lined and have adequate capacity to retain the anticipated volume of leachate generated each year. Discharge of leachate to drainages or unlined ground surfaces would not be conducted as part of the Project.

3.2 Groundwater

The Project would have temporary and permanent effects on groundwater quantity and groundwater quality. These effects are expected to be the same, whether Cell 4 was constructed in the preferred location in Section 33 or at an alternative location in Section 27.

Effects on groundwater quantity would be related to water demand. As described in the Water Supply Assessment (EMKO, 2019), Project water demand would include water needed for dust control and construction (e.g. soil compaction) during installation of Cell 4, closure of existing Cell 3, and for subsequent operation of Cell 4. Current Cell 3 and future Cell 4 operational water demand is for dust control and makeup water for soil stabilization polymers applied to the filter cake in the active cell, as required in the CUP.

As discussed in Section 2.2.2, water use for dust control and operation of Cell 3 since 2012 has ranged from 3.58 acre-feet per year to 5.57 acre-feet per year, with a median value over that period of 5.45 acre-feet per year. The historic maximum use for Cell 3 was 8.02 acre-feet in 2010. For the purposes of the evaluation of potential Project effects, it is assumed that water use for dust control and operation of Cell 4 could be twice the median value, or about 11 acre-feet per year.

The water requirement for construction of Cell 4 has been estimated by Veizades & Associates, Inc. (2019). Water would be necessary for moisture conditioning of fill material for the liner and for dust control. Due to the length of time between construction of Cell 4a and Cell 4b, the estimate was prepared for Cell 4a only at this time. Over an approximate 12-month period, it is estimated that the total water demand to construct Cell 4a may range from 25 million to 32 million gallons, or approximately 75 to 100 acre-feet. The average daily water demand is estimated to range from 135,000 to 155,000 gallons per day, while the maximum daily water demand is estimated to range from 155,000 to 180,000 gallons per day. The average daily water demands are

equivalent to pumping rates of about 90 gpm to 105 gpm. The maximum daily water demands are equivalent to pumping rates of about 105 gpm to 125 gpm. These pumping rates assume pumping would occur 24 hours per day and not just during working hours.

Veizades & Associates, Inc. (2019) has also estimated the water requirement for closure of Cell 3. Water would be necessary for moisture conditioning of the cap material and for dust control. Cell closure is estimated to require up to six months to complete. Over that six-month period, it is estimated that 10 million to 13 million gallons, or approximately 30 to 40 acre-feet, of water will be required. The average daily water demand is estimated to range from 85,000 to 110,000 gallons per day, while the maximum daily water demand is estimated to range from 95,000 to 120,000 gallons per day. The average daily water demands are equivalent to pumping rates of about 60 gpm to 75 gpm. The maximum daily water demands are equivalent to pumping rates of about 65 gpm to 85 gpm. These pumping rates assume pumping would occur 24 hours per day and not just during working hours.

Closure of Cell 3 would not occur until after Cell 4a has been constructed and becomes available for use. Thus, pumping to construct Cell 4a would not occur at the same time as pumping to close Cell 3.

The groundwater beneath the site is not potable due to high levels of naturally-occurring salts and other dissolved solids. Thus, otable water for onsite employee needs is currently trucked to the Facility and does not affect groundwater resources at the site. Future potable water for the Project is also anticipated to be trucked to the site.

The total groundwater demand for the project would be 75 to 100 acre-feet during the year that Cell 4a is constructed and 30 to 40 acre-feet during the six-month period while Cell 3 is being closed. The on-going operational water use for dust control and cell operation would be up to 11 acre-feet per year. Comparable water demands are anticipated to occur for equivalent activities at the time Cell 4b is constructed and Cell 4a is closed, and at the time Cell 4b is closed.

As discussed in Section 2.2.2, the existing 605-foot deep, five-inch diameter supply well provides an average of 38 gpm. Based on information from the Well Completion Report (UCM, 2005), at the time the well was drilled, it produced 37 gpm with a drawdown of 22 feet. Since the well is 605 feet deep and the depth to groundwater in the well is about 44 feet deep, the aquifer can sustain substantially greater drawdown and, thus, provide much greater quantities of water. The current pumping rate is probably restricted based on the size of pump that a five-inch diameter well casing can accommodate.

As described in the Water Supply Assessment (EMKO, 2019), an evaluation was conducted to estimate how much water a larger diameter well may be able to produce. At a pumping rate of 250 gpm, or twice the maximum daily rate needed during Cell 4a construction, the evaluation estimates that the drawdown would be approximately 175 feet. Since the total water column in the existing well is over 560 feet (i.e. 605 feet minus 44 feet), a drawdown of 175 feet is not unreasonable during short periods (e.g. a few days at a time) when the maximum construction water demand may occur. To achieve pumping rates of this magnitude, however, a much larger diameter well would need to be drilled so that pumping equipment large enough to produce that volume of water would fit within the well casing. For the preferred Cell 4 location in Section 33, the new well would be located in the existing yard area, near the location of the current well (EMKO, 2019). To minimize drawdown and reduced production from the existing well, any new well drilled at the Facility would be located at least 150 feet from the existing well.

While the new Cell 4 would receive only specific Class II wastes, as described in Section 1.0, the liner system would be designed and constructed to meet Class I waste management unit standards. The new cell would also have a leachate collection and recovery system to remove any leachate that accumulates in the liner system. The leachate would be routed to one or more leachate ponds where it would evaporate. The liner and leachate management systems are intended to prevent impacts to groundwater from the waste disposal activities. The new cell would also include vadose zone monitoring points and groundwater monitoring wells to assess whether the waste disposal activities affect groundwater quality. The liner, leachate management, and monitoring systems installed for Cell 4 are anticipated to be comparable to those that are present at Cell 3.

3.3 Project Permit Needs

In addition to the CUP and related construction permits, the following additional permit requirements related to hydrology and water quality are anticipated to apply to the Project. While they would include some hydrologic components, permits related to the disruption and loss of jurisdictional drainages are addressed under the biological resources evaluation in accordance with the CEQA Guidelines.

3.3.1 Stormwater Management

Prior to commencing any disturbance, a NOI to comply with the construction general stormwater permit would need to be filed with the State Water Resources Control Board

and the Regional Water Quality Control Board and a new or amended C-SWPPP would need to be prepared.

Prior to any waste disposal activity in the newly-constructed Cell 4, a NOI to comply with the Industrial General Stormwater Permit, NPDES No. CAS000001, would need to be filed with the State Water Resources Control Board and the Regional Water Quality Control Board and a new or amended I-SWPPP would need to be prepared.

3.3.2 Well Permit

The water well attachment to CUP 05-0020 allows up to 8.5 acre-feet of groundwater per year to be produced from the supply well. As described in Section 3.2, the water demand to construct Cell 4 would be up to 100 acre-feet over a 12-month period, the water demand to close Cell 3 would be up to 40 acre-feet over a 6-month period, and the on-going operational water demand would increase to as much as 11 acre-feet per year. Thus, a new water well attachment that includes these water uses would need to be a part of the CUP for the Project.

If a new well is installed for the Project, a drilling permit would be required from the Imperial County Public Health Department, Division of Environmental Health.

3.3.3 WDRs and Groundwater Monitoring

Expansion of the facility, construction of Cell 4, and closure of Cell 3 would require modification of the existing Waste Discharge Requirements Order No. R7-2016-0016 or issuance of a new Order. A Report of Waste Discharge (ROWD) would need to be submitted to the Regional Water Quality Control Board. The ROWD would include a completed Form 200 (https://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf) and a Technical Report providing appropriate information about cell construction, waste characterization, and site-specific conditions (https://www.waterboards.ca.gov/publications_forms/forms/docs/form200.doc). The new or revised Order would include changes to the operations and monitoring requirements for Cell 3 and new requirements related to Cell 4.

To ensure timely processing, the ROWD should be submitted at least six to nine months prior to the initiation of any disturbance related to Cell 4 construction.

4.0 CEQA Evaluation Criteria

Section 5.0 of this report evaluates the proposed Project based on the CEQA evaluation criteria for Hydrology and Water Quality. On December 28, 2018, revisions to the CEQA Guidelines (CCR Title 14, Division 6, Chapter 3) were published. The revised CEQA Guidelines now list Hydrology and Water Quality as Section X of the Environmental Checklist and include substantial changes to the evaluation criteria. The five new criteria address whether a Project would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
c) Substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    i. Result in substantial erosion or siltation on- or off-site;
    ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site;
    iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv. Impede or redirect flood flows?
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

5.0 Evaluation of Potential Impacts

Evaluation of the potential impacts of the proposed Project is presented below based on the five CEQA evaluation criteria for Hydrology and Water Quality

a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The proposed Project is an expansion of existing activities at the site. While the disturbance area would change, the same waste disposal, management, and monitoring

practices have been conducted at the site for many years. The current facility operates under WDRs that require compliance with applicable water quality standards. The WDRs are intended to prevent degradation of surface water and groundwater quality.

Stormwater monitoring conducted in February 2019 indicates that the facility meets the numeric action levels for pH, suspended solids, and oil & grease. The total iron concentration exceeded the annual average value for the numeric action level, despite implementation of Level 2 Exceedance Response Actions. It is unknown whether additional qualifying storm events this year could bring the annual average iron level into compliance. The source of the elevated iron is unknown but may be related to naturally-occurring concentrations in soils in the site vicinity and/or windblown dust. In either case, the iron does not appear to be related to waste disposal activities in Cell 3.

The 2016 trend analysis (RPS Iris Environmental, 2016) and 2018 groundwater monitoring results (DVC, 2019a) demonstrate that current operations do not result in any violations of water quality standards in groundwater. Overall, construction of the disposal cells to Class I standards appears to be effective in containing the waste material and preventing impacts to groundwater quality.

LEVEL OF SIGNIFICANCE: Potentially significant with respect to iron impacts to surface water. Less than significant with respect to groundwater. Mitigation measures are described in Section 6.0.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Groundwater use at the Facility has ranged from 3.58 acre-feet/year to 8.02 acre-feet/year. The proposed Project would have an ongoing maximum demand for groundwater of 11 acre-feet per year. In addition to the ongoing operational water demand, short term demands for construction of Cell 4 and closure of Cell 3 would also occur. Construction of Cell 4a would require approximately 75 to 100 acre-feet over a 12-month period. Closure of Cell 3 would require approximately 30 to 40 acre-feet over a six-month period. Construction of Cell 4b in the future is anticipated to require the same amount of water over the same duration as construction of Cell 4a since they would be comparable in size. Closure of Cell 4a and closure of Cell 4b are each anticipated to require a comparable amount of water over a similar duration as closure of Cell 3 due to their similar sizes and capacities.

The Ocotillo-Clark Valley Groundwater Basin has an estimated capacity of 5,800,000 acre-feet of water, with annual recharge in the Ocotillo Valley part of the Basin of 1,100

acre-feet per year. Other groundwater users in the Ocotillo Valley pump a maximum of 300 acre-feet per year, resulting in a remaining sustainable yield of 800 acre-feet per year. The maximum water demand for the Project is well below this value. Therefore, while the Project would require more water than is currently used at the site, the Water Supply Assessment (EMKO, 2019) concluded that there is more than adequate groundwater in the Basin to supply the Project needs during normal, single dry, and multiple dry year periods.

Groundwater recharge occurs primarily due to runoff from the mountains along the north and west sides of the groundwater basin. The Project site is not located within these primary recharge areas. However, some recharge may occur through the soils and existing jurisdictional drainages on the Project site. The total area to be covered by the impermeable soil cover for Cell 4 and the leachate pond is less than 50 acres, which is an extremely small fraction (less than 0.02 percent) of the 233,000-acre Basin area. Therefore, the proposed Project would not interfere with or measurably reduce groundwater recharge.

The Ocotillo-Clark Valley Groundwater Basin is classified as a very low priority basin by DWR, with no evidence of critical conditions of overdraft, for the purposes of the Sustainable Groundwater Management Act. Thus, there are no state-mandated sustainable groundwater management requirements for the Basin. However, Imperial County's comprehensive Groundwater Management Ordinance provides the County with various regulatory tools designed to avoid or minimize the impact of existing and proposed groundwater extraction on groundwater resources and other users. The existing groundwater well at the Facility is permitted in accordance with the County Ordinance. Any new extraction wells installed for the Project would also need to be permitted and comply with the Ordinance.

LEVEL OF SIGNIFICANCE: Less than significant.

c) Would the Project substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

- **i. Result in substantial erosion or siltation on- or off-site;**
- **ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site;**
- **iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**

iv. Impede or redirect flood flows?

The preferred Project location in Section 33 would result in the permanent loss of up to approximately 7.52 acres of jurisdictional drainages while an alternative location in the southwest quarter of Section 27 would result in the loss of an unquantified area of jurisdictional drainages. Stormwater runoff and floodwaters flowing northward toward the Project site would be diverted around Cell 4 using a berm and drainage swale, similar to those that are currently present along the south and west sides of Cell 3. The berm would be designed to prevent overtopping, thus preventing erosion of Cell 4. The swale would be sized so that it could convey the peak flows from a Probable Maximum Precipitation event at velocities that would not result in erosion of the underlying soils.

While the proposed Project would result in an increase in impermeable surfaces, these areas would be small enough that they would not significantly increase the rate or amount of surface runoff, or that would exceed the capacity of the downstream jurisdictional drainages. Implementation of BMPs and compliance with the C-SWPPP and I-SWPPP would prevent erosion and minimize the potential for erosion and the generation of sediment-laden runoff.

While flood flows within the disrupted jurisdictional drainages would be redirected around Cell 4, the constructed drainage swale would be designed to convey the floodwaters without increasing flooding depths and without causing erosion.

Within Section 33, flood flows directed around Cell 4 would be returned to the disrupted jurisdictional drainages on the downstream (north) side of the Project site. These drainages have sufficient capacity to convey the redirected flood flows since they are currently functioning in that manner under the existing environmental setting.

Within the alternative Project location in the southwest quarter of Section 27, the redirected flood flows would most likely be routed to adjacent jurisdictional drainages and not reconnected to the disrupted drainages downstream of the cell. This diversion method could exceed the capacity of the adjacent jurisdictional drainages and potentially result in erosion within those features.

LEVEL OF SIGNIFICANCE: Less than significant for preferred Project location in Section 33. Potentially significant for alternative location in the southwest quarter of Section 27. Mitigation measures are described in Section 6.0.

d) In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to project inundation?

The Project site is not located within a flood hazard, tsunami, or seiche zone.

LEVEL OF SIGNIFICANCE: No Impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The current WDRs were issued in accordance with and to help implement the Water Quality Control Plan for the Colorado River Basin. Updated or new WDRs for the Project would also be issued consistent with the Water Quality Control Plan for the Colorado River Basin. Thus, the proposed Project would be consistent with, and not conflict with or obstruct implementation of, a water quality control plan.

The Ocotillo-Clark Valley Groundwater Basin does not fall within the basin classification that requires implementation of a sustainable groundwater management plan (also known as a groundwater sustainability plan, or GSP, under the Sustainable Groundwater Management Act definitions). However, the County's Groundwater Management Ordinance is intended to minimize the impact of existing and proposed groundwater extraction. The Facility currently operates consistent with the Ordinance by way of an attachment to the current CUP that limits the amount of water that can be produced from the existing well. The new CUP would also include an attachment, as required by the Ordinance, to maintain sustainable conditions within the groundwater basin.

LEVEL OF SIGNIFICANCE: Less than significant.

6.0 Mitigation

Under CEQA, mitigation is only required for potentially significant impacts. Based on the evaluations presented in Section 5.0, the Project may result in two potentially significant impacts related to Hydrology and Water Quality.

Impact H-1: The Project may cause a violation of water quality standards for iron in stormwater runoff during qualifying storm events.

The stormwater sample collected during the qualifying storm event for January 15, 2019 (DVC, 2019b) exceeded the annual numeric action level for iron. The reported

concentration of iron was 2.04 mg/ while the action level is 1.0 mg/L. BMP enhancements had previously been installed as part of Level 2 Exceedance Response Actions. It is unclear based on the available data whether the January 15, 2019 result was an anomaly, whether the overall results could average out over the year to be less than the action level, whether the iron is a natural component of the soils and sediments at the site, or whether there is a source of iron from the site. Based on these uncertainties, an adaptive management approach is recommended.

Mitigation Measure H-1:

DVC shall monitor for iron in qualifying storm events at Cell 4 after initiation of the Project, as required under the Industrial General Permit. If iron concentrations exceed the annual numeric action level for two successive years, DVC shall implement an investigation program that consists of the following:

i. Analyze the stormwater samples for both total and dissolved iron.

If the stormwater analysis indicates that the iron is primarily in suspended (i.e. total iron result) form, then additional BMPs should be installed to minimize the amount of fine sediment present in the qualifying storm event samples, and the I-SWPPP should be revised accordingly.

If the stormwater analysis indicates that the iron is primarily dissolved, then DVC shall conduct the following additional testing:

ii. Analyze soils samples for soluble iron using a deionized water leach (e.g. DI-WET). Samples should be collected from the stormwater swale within the facility boundary, from the liner/cap material at the perimeter of Cell 4, from the stormwater diversion berm installed along the south and west sides of Cell 4, and from the waste material.

Based on the results of the additional testing, DVC shall propose measures to minimize stormwater contact with the specific soil or waste medium that is leaching iron. These measures may include use of a different soil material, where applicable, or covering of the source soils with soils that do not leach iron. These measures should be submitted to the County and to the Regional Water Quality Control Board for review and approval before implementation.

To assist the County in verifying compliance with Mitigation Measure H-1, the qualifying storm event sampling results should be submitted not only to the State Water

Resources Control Board's Storm Water Multiple Application and Report Tracking System (SMARTS) but also to the County for review.

The actions required under this mitigation measure would be in addition to, but could supplement, any requirements for Exceedance Response Actions associated with the industrial stormwater permit.

Impact H-2: Diversion of runoff from jurisdictional drainages at the Project alternative location in the southwest quarter of Section 27 may exceed the capacity of the adjacent jurisdictional drainages, potentially resulting in erosion within these features.

Under CEQA, project alternatives are typically developed to address significant impacts of the proposed Project. In this situation, the proposed Project does not create this impact, but the alternative does. As such, the impacts of the proposed Project are less than the impacts of the alternative, at least with respect to Hydrology and Water Quality. Thus, the proposed Project is environmentally superior to the alternative. No mitigation is needed unless the alternative is selected based on impacts of the proposed Project to other resource areas. In that case, then a mitigation measure would need to be developed for Impact H-2 as part of Conditions of Approval supporting selection of a Project alternative.

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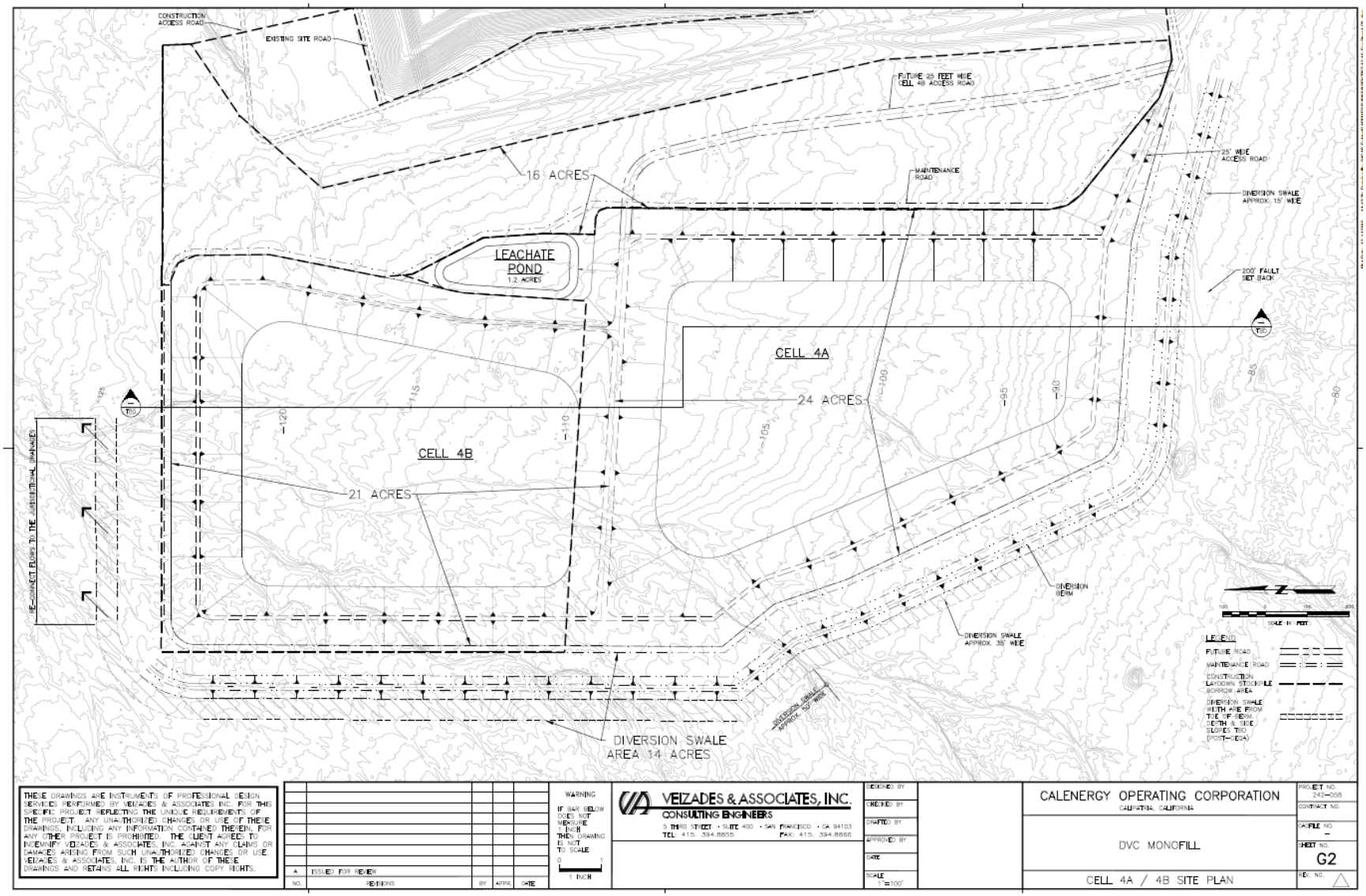
Figure 1. Site Location Map

Figure 2. Cell 4 Siting Map



From Veizades & Associates, Inc.

Figure 3. Jurisdictional Drainages Maps (from Hernandez Environmental Services)

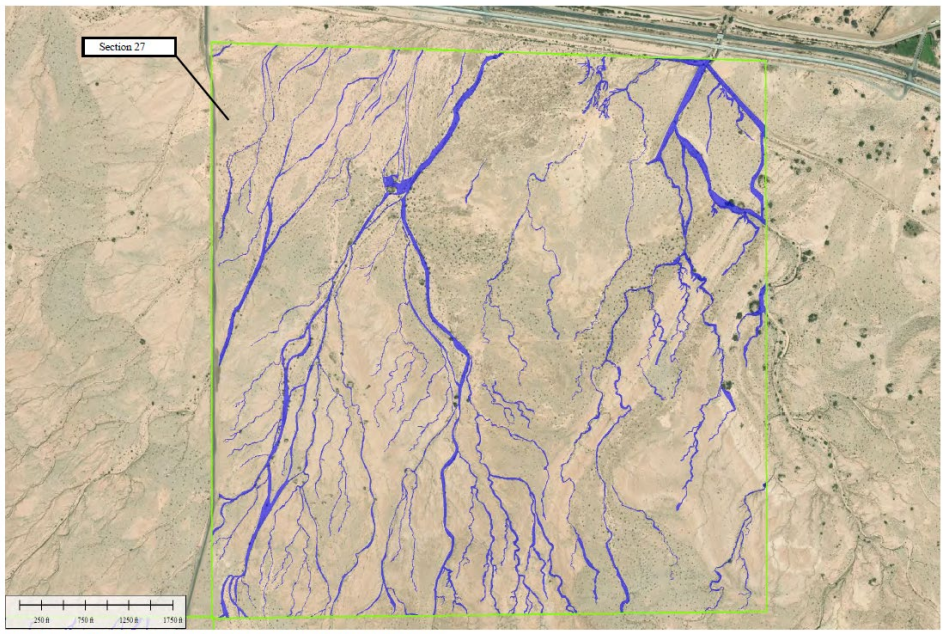


Figure 4 - CDFW Jurisdictional Stream Section 27 Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 27

44.8 Acres of CDFW Jurisdictional Stream

Hernandez Environmental Services

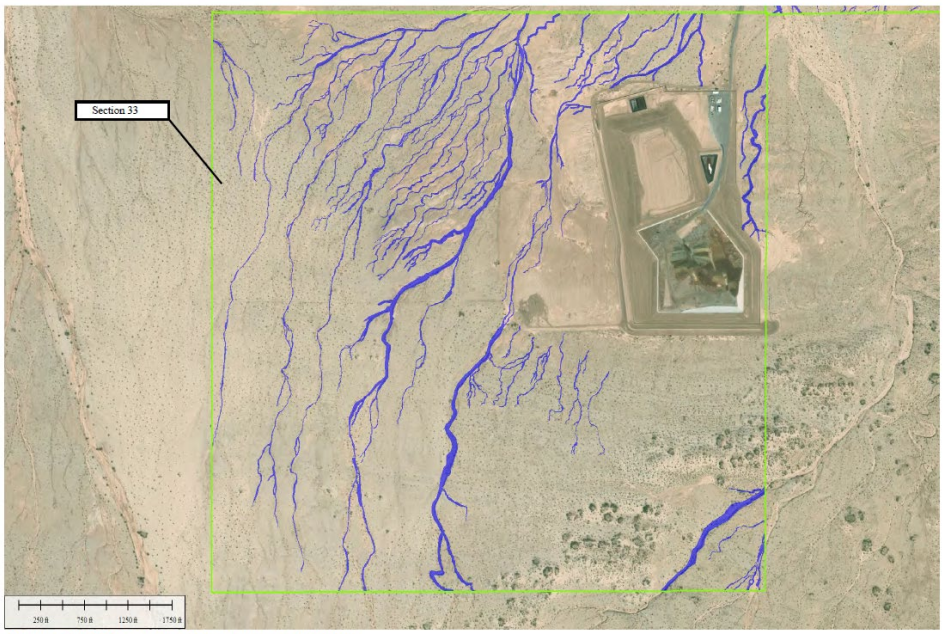


Figure 6 -CDFW Jurisidictional Stream Map

Jurisdictional Delineation
Desert Valley Company
Non-Municipal Solid Waste Landfill Cell 4
Imperial County, California

Legend

Section 33

35.2 Acres of CDFW Jurisidictional Stream

Hernandez Environmental Services

Figure 4. Photographs of Project Site Jurisdictional Drainages (from Hernandez Environmental Services)

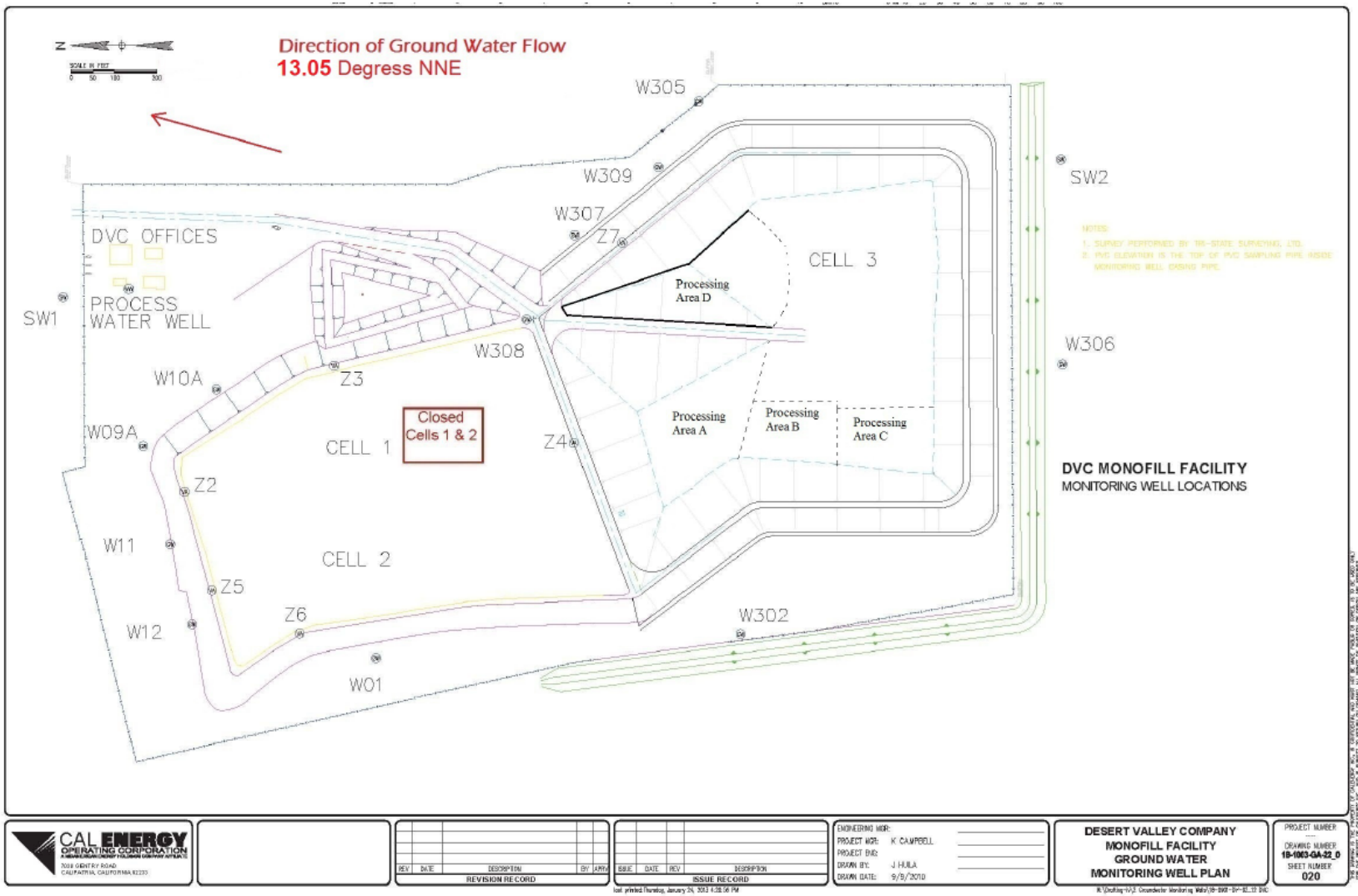
Jurisidictional Delineation
Desert Valley Company
Imperial County, California

Hernandez Environmental Services

Ephemeral streams found on Sections 27 and 33. Not much difference between state and federal jurisidiction.

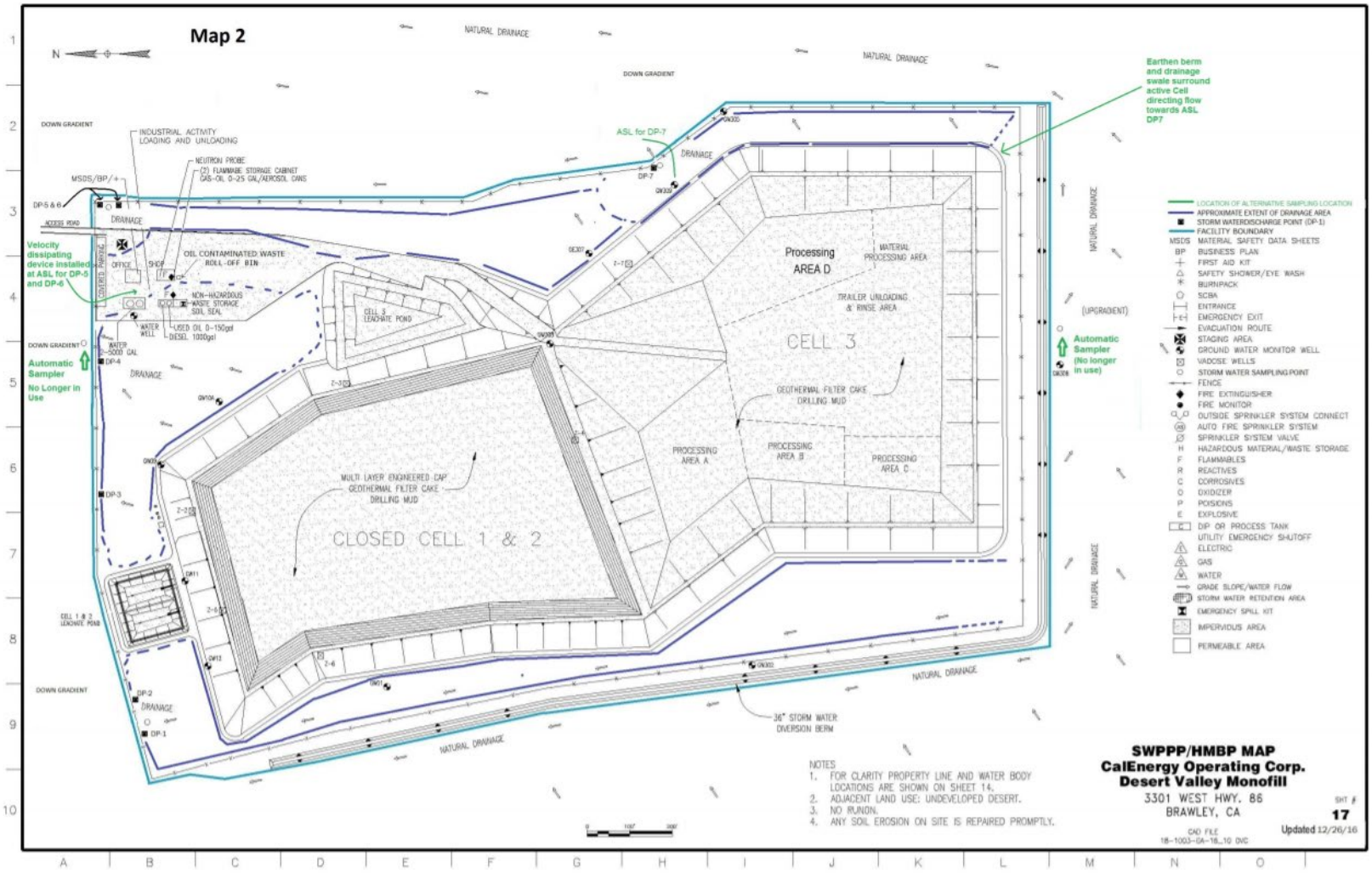
Ephemeral Stream in Section 27.

Figure 5. Location of Berm and Swales around Cell 3 and Groundwater Monitoring Wells Installed at the Existing Facility



From DVC, 2019a

Figure 6. Storm Water Management System at the Current Facility

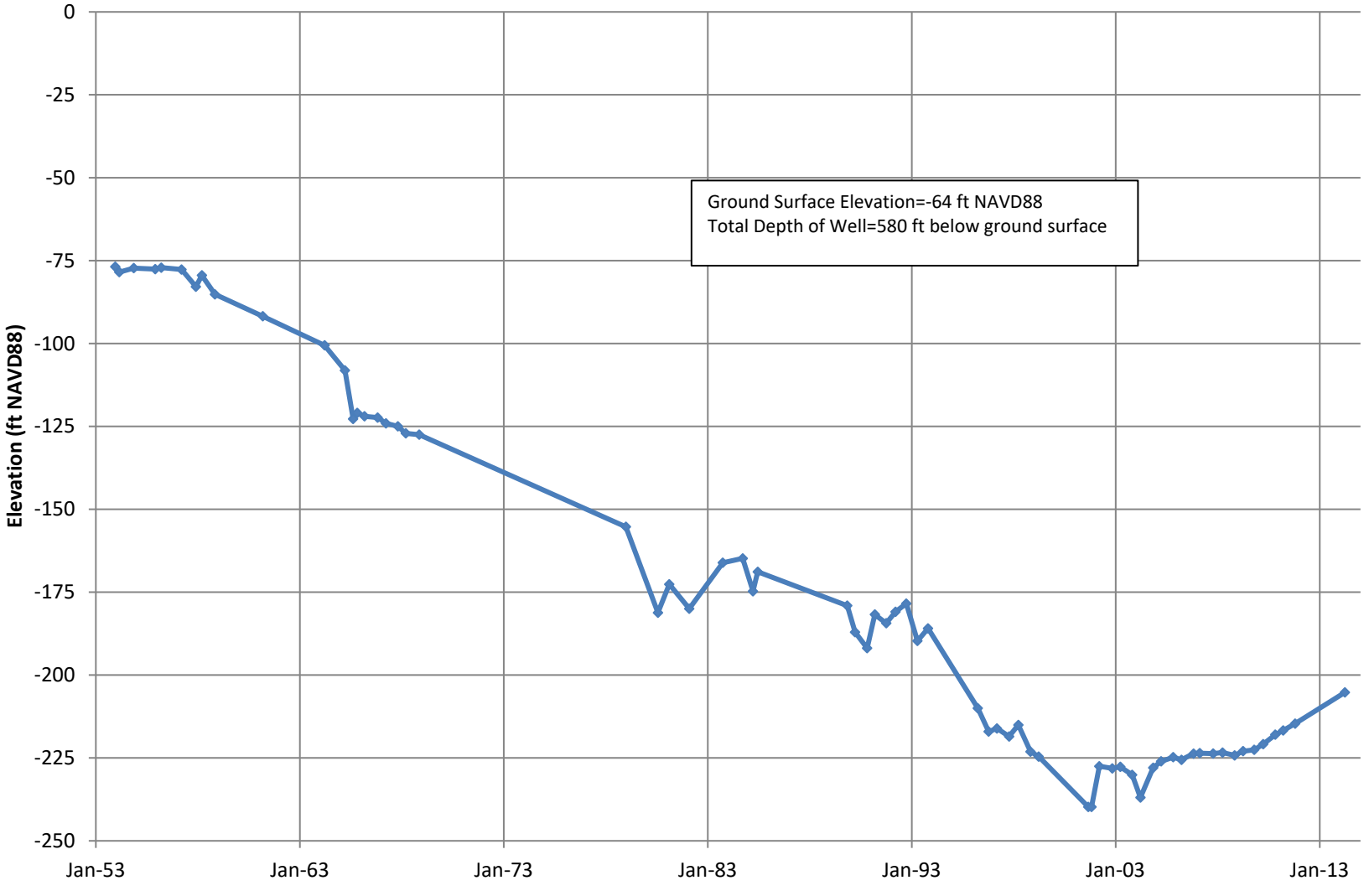


From DVC, 2018a.

Figure 7. Map of Ocotillo-Clark Valley Groundwater Basin

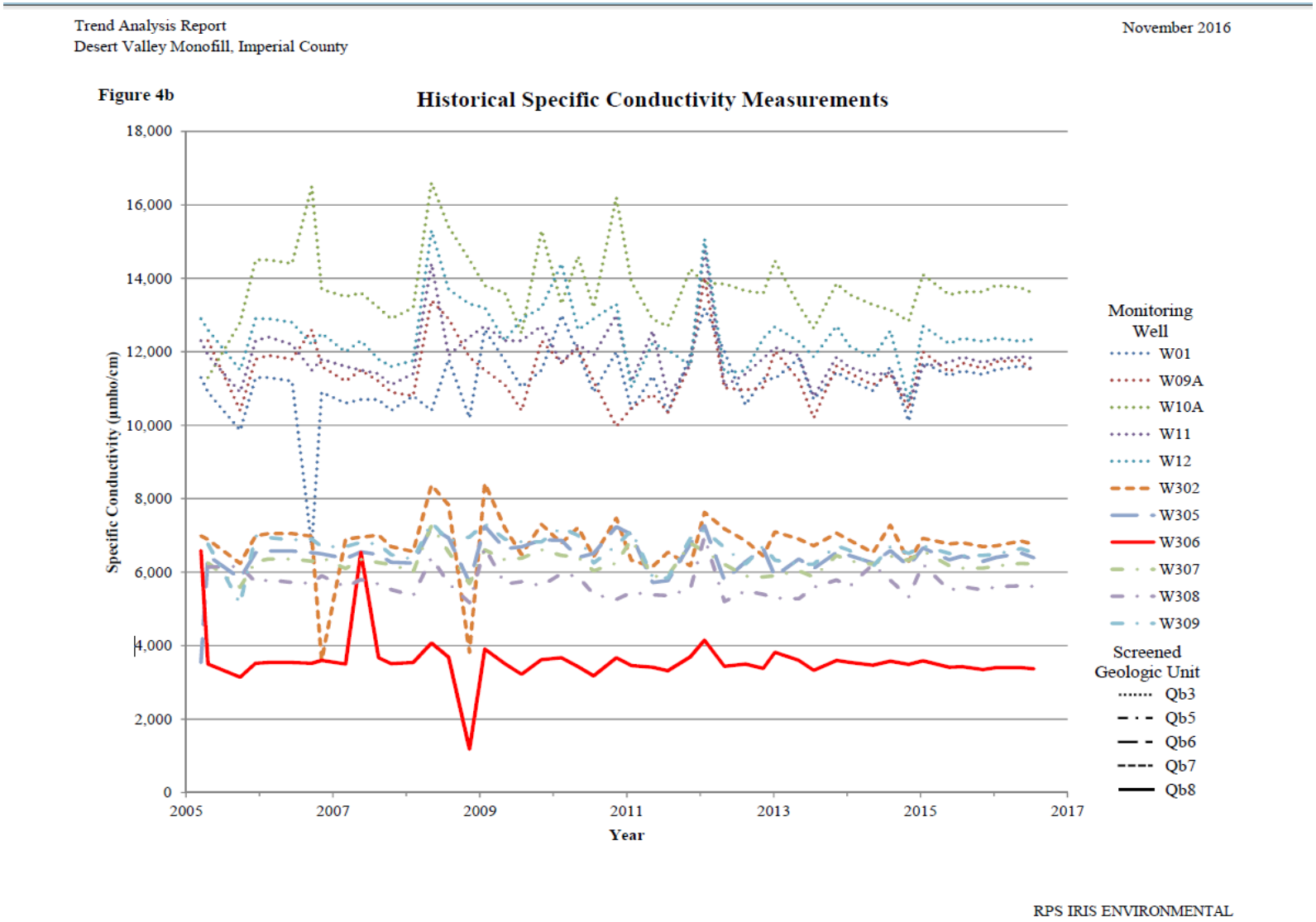
From EMKO, 2019

Figure 8. USGS Groundwater Elevations at Allegretti Farms Well



From EMKO, 2019

Figure 9. Specific Conductance Trend Graph



From RPS Iris Environmental, 2016

Appendix A. First Quarter 2019 WDR Groundwater Monitoring Results

W01						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	6.73	--	--	--	SM 4500-H+ B
Temperature	°C	25.8	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	66.30	--	--	--	AS_100v01
Groundwater Elevation	ft	-179.40	--	--	--	
Specific Conductance	µS/cm	11,810	--	--	--	SM 2510 B
TDS	mg/L	8,245	--	--	--	SM 2540 C
Chloride	mg/L	3,140	--	--	--	EPA 300.0
Sulfate	mg/L	1,840	--	--	--	EPA 300.0
Sodium	mg/L	1,740	--	--	--	EPA 200.7
Arsenic	mg/L	0.00474	--	--	--	EPA 200.8
Barium	mg/L	0.0235	--	--	--	EPA 200.8
Cadmium	mg/L	0.000780	--	--	--	EPA 200.8
Lead	mg/L	0.000420	--	--	--	EPA 200.8
Zinc	mg/L	<0.00642*	--	--	--	EPA 200.8
Turbidity	NTU	0.25	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

W09A						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	6.72	--	--	--	SM 4500-H+ B
Temperature	°C	24.8	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	60.24	--	--	--	AS_100v01
Groundwater Elevation	ft	-180.74	--	--	--	
Specific Conductance	µS/cm	11,880	--	--	--	SM 2510 B
TDS	mg/L	9,035	--	--	--	SM 2540 C
Chloride	mg/L	3,290	--	--	--	EPA 300.0
Sulfate	mg/L	2,190	--	--	--	EPA 300.0
Sodium	mg/L	1,530	--	--	--	EPA 200.7
Arsenic	mg/L	0.0122	--	--	--	EPA 200.8
Barium	mg/L	0.0195	--	--	--	EPA 200.8
Cadmium	mg/L	0.000790	--	--	--	EPA 200.8
Lead	mg/L	0.000290	--	--	--	EPA 200.8
Zinc	mg/L	<0.00642	--	--	--	EPA 200.8
Turbidity	NTU	4.54	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

W10A						
Constituents	**Units**	**1/30/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	6.37	--	--	--	SM 4500-H+ B
Temperature	°C	27.1	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	62.08	--	--	--	AS_100v01
Groundwater Elevation	ft	-180.08	--	--	--	
Specific Conductance	µS/cm	13,940	--	--	--	SM 2510 B
TDS	mg/L	10,250	--	--	--	SM 2540 C
Chloride	mg/L	4,090	--	--	--	EPA 300.0
Sulfate	mg/L	2,200	--	--	--	EPA 300.0
Sodium	mg/L	1,850	--	--	--	EPA 200.7
Arsenic	mg/L	0.00630	--	--	--	EPA 200.8
Barium	mg/L	0.0246	--	--	--	EPA 200.8
Cadmium	mg/L	0.000870	--	--	--	EPA 200.8
Lead	mg/L	0.000310	--	--	--	EPA 200.8
Zinc	mg/L	<0.00642*	--	--	--	EPA 200.8
Turbidity	NTU	5.04	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

W11						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	6.85	--	--	--	SM 4500-H+ B
Temperature	°C	24.8	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	62.40	--	--	--	AS_100v01
Groundwater Elevation	ft	-180.40	--	--	--	
Specific Conductance	µS/cm	11,880	--	--	--	SM 2510 B
TDS	mg/L	8,585	--	--	--	SM 2540 C
Chloride	mg/L	3,240	--	--	--	EPA 300.0
Sulfate	mg/L	2,110	--	--	--	EPA 300.0
Sodium	mg/L	1,560	--	--	--	EPA 200.7
Arsenic	mg/L	0.0526	--	--	--	EPA 200.8
Barium	mg/L	0.0197	--	--	--	EPA 200.8
Cadmium	mg/L	0.000910	--	--	--	EPA 200.8
Lead	mg/L	0.000300	--	--	--	EPA 200.8
Zinc	mg/L	<0.00642	--	--	--	EPA 200.8
Turbidity	NTU	67.5	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

W12						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	6.72	--	--	--	SM 4500-H+ B
Temperature	°C	26.5	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	62.93	--	--	--	AS_100v01
Groundwater Elevation	ft	-180.13	--	--	--	
Specific Conductance	µS/cm	12,480	--	--	--	SM 2510 B
TDS	mg/L	8,925	--	--	--	SM 2540 C
Chloride	mg/L	3,520	--	--	--	EPA 300.0
Sulfate	mg/L	2,040	--	--	--	EPA 300.0
Sodium	mg/L	1,680	--	--	--	EPA 200.7
Arsenic	mg/L	0.0101	--	--	--	EPA 200.8
Barium	mg/L	0.0203	--	--	--	EPA 200.8
Cadmium	mg/L	0.00107	--	--	--	EPA 200.8
Lead	mg/L	0.000240	--	--	--	EPA 200.8
Zinc	mg/L	<0.00642	--	--	--	EPA 200.8
Turbidity	NTU	1.35	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

W302						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.21	--	--	--	SM 4500-H+ B
Temperature	°C	27.0	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	61.14	--	--	--	AS_100v01
Groundwater Elevation	ft	-157.54	--	--	--	
Specific Conductance	µS/cm	6,850	--	--	--	SM 2510 B
TDS	mg/L	4,493	--	--	--	SM 2540 C
Chloride	mg/L	1,790	--	--	--	EPA 300.0
Sulfate	mg/L	969	--	--	--	EPA 300.0
Sodium	mg/L	1,100	--	--	--	EPA 200.7
Arsenic	mg/L	0.00622	--	--	--	EPA 200.8
Barium	mg/L	0.0176	--	--	--	EPA 200.8
Cadmium	mg/L	0.000430	--	--	--	EPA 200.8
Lead	mg/L	0.000120	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	1.77	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

GW305						
Constituents	**Units**	**1/30/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.22	--	--	--	SM 4500-H+ B
Temperature	°C	25.7	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	63.60	--	--	--	AS_100v01
Groundwater Elevation	ft	-168.50	--	--	--	
Specific Conductance	µS/cm	6,480	--	--	--	SM 2510 B
TDS	mg/L	4,135	--	--	--	SM 2540 C
Chloride	mg/L	1,640	--	--	--	EPA 300.0
Sulfate	mg/L	905	--	--	--	EPA 300.0
Sodium	mg/L	1,080	--	--	--	EPA 200.7
Arsenic	mg/L	0.00328	--	--	--	EPA 200.8
Barium	mg/L	0.0168	--	--	--	EPA 200.8
Cadmium	mg/L	0.000350	--	--	--	EPA 200.8
Lead	mg/L	0.000220	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	0.63	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

GW306						
Constituents	**Units**	**1/31/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.65	--	--	--	SM 4500-H+ B
Temperature	°C	26.8	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	59.25	--	--	--	AS_100v01
Groundwater Elevation	ft	-146.95	--	--	--	
Specific Conductance	µS/cm	3,410	--	--	--	SM 2510 B
TDS	mg/L	1,988	--	--	--	SM 2540 C
Chloride	mg/L	814	--	--	--	EPA 300.0
Sulfate	mg/L	324	--	--	--	EPA 300.0
Sodium	mg/L	625	--	--	--	EPA 200.7
Arsenic	mg/L	0.00184	--	--	--	EPA 200.8
Barium	mg/L	0.0242	--	--	--	EPA 200.8
Cadmium	mg/L	<0.00302*	--	--	--	EPA 200.8
Lead	mg/L	0.0002600	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	0.28	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

GW307						
Constituents	**Units**	**1/30/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.16	--	--	--	SM 4500-H+ B
Temperature	°C	25.5	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	63.62	--	--	--	AS_100v01
Groundwater Elevation	ft	-169.02	--	--	--	
Specific Conductance	µS/cm	6,370	--	--	--	SM 2510 B
TDS	mg/L	4,030	--	--	--	SM 2540 C
Chloride	mg/L	1,530	--	--	--	EPA 300.0
Sulfate	mg/L	965	--	--	--	EPA 300.0
Sodium	mg/L	1,020	--	--	--	EPA 200.7
Arsenic	mg/L	0.00322	--	--	--	EPA 200.8
Barium	mg/L	0.0184	--	--	--	EPA 200.8
Cadmium	mg/L	0.000375	--	--	--	EPA 200.8
Lead	mg/L	0.000170	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	1.28	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

GW308						
Constituents	**Units**	**1/30/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.26	--	--	--	SM 4500-H+ B
Temperature	°C	24.7	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	78.28	--	--	--	AS_100v01
Groundwater Elevation	ft	-169.18	--	--	--	
Specific Conductance	µS/cm	5,610	--	--	--	SM 2510 B
TDS	mg/L	3,590	--	--	--	SM 2540 C
Chloride	mg/L	1,380	--	--	--	EPA 300.0
Sulfate	mg/L	824	--	--	--	EPA 300.0
Sodium	mg/L	933	--	--	--	EPA 200.7
Arsenic	mg/L	0.00260	--	--	--	EPA 200.8
Barium	mg/L	0.0199	--	--	--	EPA 200.8
Cadmium	mg/L	0.000395	--	--	--	EPA 200.8
Lead	mg/L	0.000195	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	0.32	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

GW309						
Constituents	**Units**	**1/30/2019**	**2Q19**	**3Q19**	**4Q19**	**Method**
pH	Units	7.21	--	--	--	SM 4500-H+ B
Temperature	°C	26.0	--	--	--	EPA 170.1
Depth to Water from top of casing	ft	63.24	--	--	--	AS_100v01
Groundwater Elevation	ft	-169.14	--	--	--	
Specific Conductance	µS/cm	6,490	--	--	--	SM 2510 B
TDS	mg/L	4,162	--	--	--	SM 2540 C
Chloride	mg/L	1,620	--	--	--	EPA 300.0
Sulfate	mg/L	993	--	--	--	EPA 300.0
Sodium	mg/L	1,070	--	--	--	EPA 200.7
Arsenic	mg/L	0.00389	--	--	--	EPA 200.8
Barium	mg/L	0.0154	--	--	--	EPA 200.8
Cadmium	mg/L	0.000325	--	--	--	EPA 200.8
Lead	mg/L	0.000120	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321*	--	--	--	EPA 200.8
Turbidity	NTU	0.59	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

DUPLICATE QC SAMPLE						
Constituents	**Units**	**GW308**	**--**	**--**	**--**	**Method**
		1/30/2019	**2Q19**	**3Q19**	**4Q19**	
pH		7.27	--	--	--	SM 4500-H+ B
Temperature	°C	25.3	--	--	--	EPA 170.1
Depth of Water from top of casing	ft	78.28	--	--	--	AS_100v01
Groundwater Elevation	ft	-169.18	--	--	--	
Specific Conductance	µS/cm	5,550	--	--	--	SM 2510 B
TDS	mg/L	3,552	--	--	--	SM 2540 C
Chloride	mg/L	1,380	--	--	--	EPA 300.0
Sulfate	mg/L	824	--	--	--	EPA 300.0
Sodium	mg/L	926	--	--	--	EPA 200.7
Arsenic	mg/L	0.00276	--	--	--	EPA 200.8
Barium	mg/L	0.0200	--	--	--	EPA 200.8
Cadmium	mg/L	0.000405	--	--	--	EPA 200.8
Lead	mg/L	0.000105	--	--	--	EPA 200.8
Zinc	mg/L	<0.00321	--	--	--	EPA 200.8
Turbidity	NTU	0.30	--	--	--	EPA 180.1

*"Trace result". - Estimate of constituent concentration falls between the MDL and PQL. Please refer to the complete analytical report in the attachment.

QC = quality control

RSD = root square difference

M Noise Study

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DESERT VALLEY MONOFILL EXPANSION PROJECT

NOISE STUDY

Prepared for:

BRG Consultants, Inc.

Prepared by:

BPG
BIRDSEYE
PLANNING GROUP

October 2020

DESERT VALLEY MONOFILL EXPANSION PROJECT
IMPERIAL COUNTY, CALIFORNIA
Noise Study

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Appendices

Appendix A - Monitoring Sheet and Modeling Files

DESERT VALLEY MONOFILL EXPANSION PROJECT
IMPERIAL COUNTY, CALIFORNIA
NOISE STUDY

This report is an analysis of potential project specific noise impacts associated with the proposed Desert Valley Monofill Expansion Project in unincorporated Imperial County. This report has been prepared by Birdseye Planning Group (BPG) under contract to BRG Consulting, Inc., in the support of the discretionary review process being led by Imperial County and preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA). This study analyzes the potential for temporary impacts associated with construction activity and estimates operational noise levels associated with on-site activities and truck traffic.

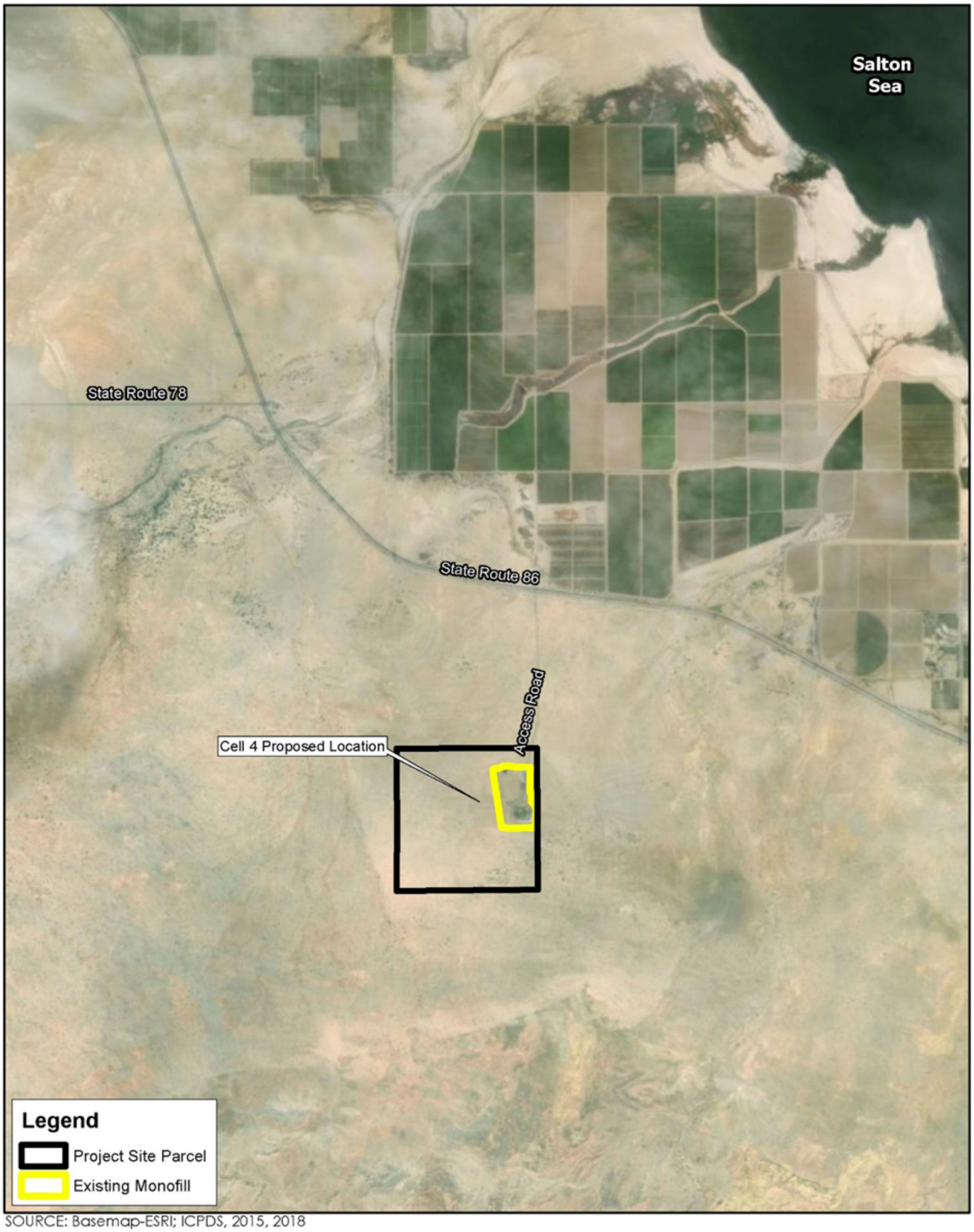
PROJECT DESCRIPTION

The Desert Valley Company Monofill (DVCM) is an active Class II Solid Waste Management Facility (SWMF) used for the disposal of specific geothermal non-hazardous waste streams and byproducts generated by CalEnergy Operating Corporation's (CalEnergy) geothermal power plant operations in Imperial County, California. The Desert Valley Company Monofill Facility is located at 3301 West State Route 86 in Brawley, California (See Figure 1) and is permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility (SWF) Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016.

CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020, a General Plan Amendment and a Zone Change to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure and post-closure of a new waste storage cell (referred to herein as Cell 4). At the current rate of waste disposal, Cell 3 is projected to reach its design capacity in 2025.

The waste stream accepted at the DVCM is limited to non-hazardous geothermal filter cake, drilling mud materials and cuttings, soils containing geothermal materials, and incidental plastic sheeting used as waste transport truck bed liners. These materials contain a number of substances including arsenic, salts, metals, and organic hydrocarbons and Naturally Occurring Radioactive Materials (NORM)[1]. No municipal solid waste is accepted at the DVCM and it is not open for public and/or commercial use at any time. The permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday. The amount of non-hazardous wastes that can be received is limited to a maximum of 750 tons per day and 273,750 tons annually. The current SWFP limits the number of daily truck deliveries to 38 each day. This

[1] The monofill operates in conformance with a "Radiation Monitoring Plan", that requires monitoring of workers stationed at the site to ensure that they are not subject to any impacts from radiation.



SOURCE: Basemap-ESRI; ICPDS, 2015, 2018

N

0 0.75 1.5 Miles

Project Location

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 1

number of trips would not change with the proposed expansion. The DVCM is accessed via a single-lane, 1.25 mile long asphalt paved road that connects to State Route (SR) 86. The current monofill typically employs four (4) full-time staff that are responsible for operating equipment used to grade and compact the materials and generally operate the facility.

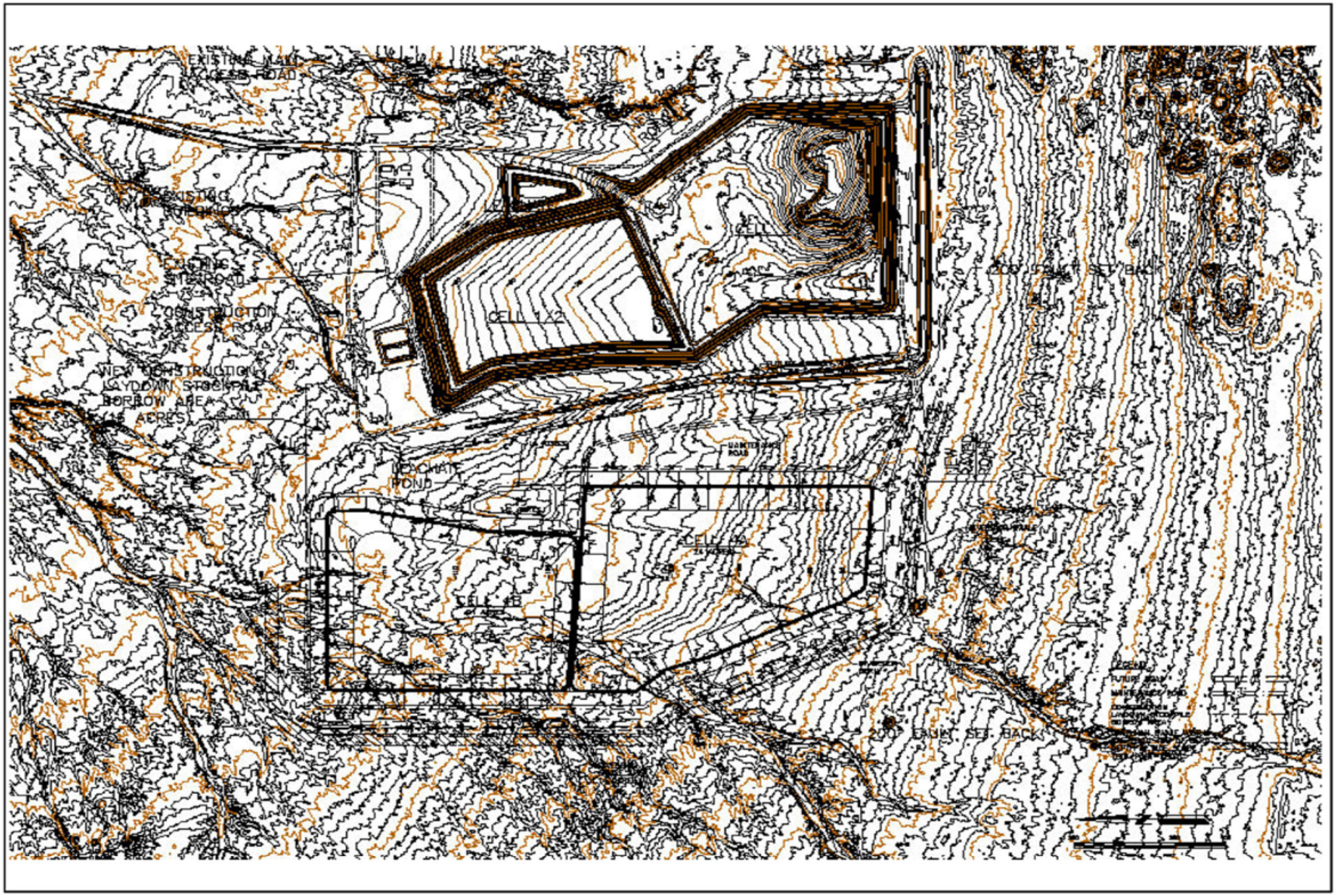
The proposed project would expand the existing Desert Valley Company Monofill with the addition of waste storage Cell 4 and associated facilities that include:

- a new leachate pond for Cell 4 (1.2 acres);
- the construction of new stormwater diversion dikes and the extension of existing stormwater diversion dikes to divert surface water runoff around the Project site;
- minor extensions/modifications to internal access roads to provide access to Cell 4;
- installation of a new water well for use during construction; and,
- Additional air quality particulate sampling stations, and additional groundwater monitoring wells

The proposed site plan is shown on Figure 2.

The new Cell 4 would be built in two (2) phases – Phase 1 and 2, referred to herein as Cells 4A and 4B, respectively. Similar to Cell 3, Cells 4A and 4B would have a combined capacity of approximately 1.3 million cubic yards; a projected lifespan of 28.6 years; and, would occupy a surface area of approximately 50 acres (CalEnergy, 2018). Construction of Cell 4A, with an overall area of 24 acres, would be constructed first and would take approximately 12 months to complete. Cell 4A, upon issuance all required permits, would begin to receive solid waste once Cell 3 reaches capacity. Construction of Cell 4B, with a surface area of 21 acres, would commence when there is demand for additional waste storage capacity (approximately two years prior to Cell 4A reaching capacity). Each cell would include a multi-layer leachate collection and liner system designed and constructed per State of California Title 23, Division 3, Chapter 15, Article 4; Construction Standards for Class I Units.

To prepare the disposal site, required construction activities include internal access road improvements; onsite grading, berm and levee development, soil compaction, installation of two plastic membranes; and other ancillary improvements required for safe operation. To maintain operational integrity, a series of diversion berms would be constructed and/or extended around the south and western perimeter of Cell 4 to divert surface water runoff from multiple existing ephemeral surface water features around the Project site. The surface water flow would be routed around the landfill facilities and allowed to rejoin the existing surface waters downstream. A 50-foot buffer would also be established along the outer edge of Cell 4 and a new leachate pond would be constructed along the eastern edge of Cell 4B. During construction, portable office trailers may be placed on the Project site to accommodate the construction personnel and a new water well would be constructed.



SOURCE: Veizades + Associates, 2019

Site Plan

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 2

The primary source of noise would be heavy equipment operation at the site during construction and operation of the expanded facility as well as the ongoing transport of waste material using a total of 39 daily trucks trips (assumes one vendor trip daily). Operation of the project will not change existing traffic volumes or otherwise relocate stationary sources or heavy equipment operations closer to existing residences. However, for the purpose of this analysis, construction noise levels were calculated for heavy equipment operation on-site. Traffic noise along SR 86 was also estimated.

SETTING

Overview of Sound Measurement

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). Table 1 shows noise levels associated with common sources.

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations. Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (i.e., industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings construction to California Energy Code standards is generally 30 dBA or more (Harris, Miller, Miller and Hanson, 2006).

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance

Table 1
Sound Levels of Typical Noise Sources and Noise Environments

Noise Source (at Given Distance)	Noise Environment	A-Weighted Sound Level (Decibels)	Human Judgment of Noise Loudness (Relative to Reference Loudness of 70 Decibels*)
Military Jet Takeoff with Afterburner (50 ft)	Carrier Flight Deck	140	128 times as loud
Civil Defense Siren (100 ft)		130	64 times as loud
Commercial Jet Take-off (200 ft)		120	32 times as loud **Threshold of Pain**
Pile Driver (50 ft)	Rock Music Concert Inside Subway Station (New York)	110	16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Gas Lawn Mower (3 ft)		100	8 times as loud **Very Loud**
Food Blender (3 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck (150 ft)	Boiler Room Printing Press Plant	90	4 times as loud
Garbage Disposal (3 ft)	Noisy Urban Daytime	80	2 times as loud
Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (10 ft)	Commercial Areas	70	Reference Loudness **Moderately Loud**
Normal Speech (5 ft) Air Conditioning Unit (100 ft)	Data Processing Center Department Store	60	1/2 as loud
Light Traffic (100 ft)	Large Business Office Quiet Urban Daytime	50	1/4 as loud
Bird Calls (distant)	Quiet Urban Nighttime	40	1/8 as loud **Quiet**
Soft Whisper (5 ft)	Library and Bedroom at Night Quiet Rural Nighttime	30	1/16 as loud
	Broadcast and Recording Studio	20	1/32 as loud **Just Audible**
		0	1/64 as loud **Threshold of Hearing**

Source: Compiled by dBF Associates, Inc., 2016

The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the

average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10 p.m. to 7 a.m.) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7 p.m. to 10 p.m. and a 10 dBA penalty for noise occurring from 10 p.m. to 7 a.m. Daytime Leq levels are louder than Ldn or CNEL levels; thus, if the Leq meets noise standards, the Ldn and CNEL are also met.

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Urban areas contain a variety of land use and development types that are noise sensitive including residences, schools, churches, hospitals and convalescent care facilities. The project site is located in a rural area of Imperial County south of SR 86 at the end of a paved 1.25 mile long access road. The only observed sensitive property is the Elmore Desert Ranch located on the north side of SR 86 approximately 2.1 miles northwest of the project site. See Figure 3.

Project Site Setting

The project area is located in a remote area approximately 18 miles northwest of Brawley, California. The most common and primary sources of noise in the project site vicinity are motor vehicles (e.g., automobiles and trucks) on SR 86. Motor vehicle noise is of concern because where a high number of individual events occur, it can create a sustained noise level. Agricultural equipment operates in the area and does contribute to background noise. Aircraft overflights associated with the El Centro Naval Air Station located to the southeast are audible but do not noticeably contribute to the ambient noise environment.

California Department of Transportation 2017 traffic counts on State Route 86 show an average daily trip volumes (ADT) of 1,150 at the intersection with SR 78 northwest of the site and 1,250 ADT at the intersection of Bannister Road southeast of the site. The project will not change traffic volumes on SR 86; thus, no ambient noise measurements were taken.

Regulatory Setting

The Federal Noise Control Act (1972) addressed the issue of noise as a threat to human health and welfare. To implement the Federal Noise Control Act, the U.S. Environmental Protection Agency (EPA) undertook a number of studies related to community noise in the 1970s. The EPA found that 24-hour averaged noise levels less than 70 dBA would avoid measurable hearing

Figure 3—Sensitive Property Location

loss, levels of less than 55 dBA outdoors and 45 dBA indoors would prevent activity interference and annoyance (EPA 1972).

The U.S. Department of Housing and Urban Development (HUD) published a Noise Guidebook for use in implementing the Department's noise policy. In general, HUD's goal is exterior noise levels that are less than or equal to 55 dBA Ldn. The goal for interior noise levels is 45 dBA Ldn. HUD suggests that attenuation be employed to achieve this level, where feasible, with a special focus on sensitive areas of homes, such as bedrooms (HUD 2009).

Title 24 of the California Code of Regulations (CCR) establishes standards governing interior noise levels that apply to all new single-family and multi-family residential units in California. These standards require that acoustical studies be performed before construction at building locations where the existing Ldn exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum Ldn levels to 45 dBA in any habitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an Ldn of 45 as an upper limit on interior noise in all residential units.

In addition, the State of California General Plan Guidelines (OPR 2003), provides guidance for noise compatibility. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Imperial County General Plan Noise Element

Noise Impact Zone. A Noise Impact Zone is an area that is likely to be exposed to significant noise. The County of Imperial defines a Noise Impact Zone as an area that may be exposed to noise greater than 60 dB CNEL or an hourly average of 75 dB Leq(1). The purpose of the Noise Impact Zone is to define areas and properties where an acoustical analysis of a proposed project is required to demonstrate project compliance with land use compatibility requirements and other applicable environmental noise standards. For the purposes of the Noise Element, any property meeting one of the following criteria is defined as being in a Noise Impact Zone:

- Within specified distances from classified roadways;
- Within 1,000 feet of the boundary of any railroad switching yard;
- Within the existing or projected 60 dB CNEL contour of any airport, as shown in the Imperial County Airport Land Use Compatibility Plan (ALUCP) or an approved airport master plan that supersedes the ALUCP; and/or
- Within 0.25 mile (1,320 feet) of existing farmland that is in an agricultural zone.

The project site is zoned Agriculture 2 (A-2). The project itself would not be a noise sensitive use nor would it be located in a Noise Impact Zone. However, because the project will generate noise during construction and operation, a noise impact analysis is required to address potential impacts to sensitive receivers.

Noise/Land Use Compatibility Standards. Land Use compatibility defines the acceptability of a land use in a specified noise environment. When an acoustical analysis is performed, conformance of the proposed project with the Noise/Land Use Compatibility Guidelines is used to evaluate potential noise impacts and to provide criteria for environmental impact findings and conditions for project approval. Noise levels for industrial/utility is considered "normally acceptable" up to 70 dBA CNEL, and noise levels for residential land uses are considered "normally acceptable" up to 60 dBA CNEL and conditionally acceptable up to 70 dBA CNEL. County of Imperial Noise compatibility guidelines are shown in Table 2.

Interior Noise Standards. The California Noise Insulation Standards, CCR Title 24, establishes a maximum interior noise level, with windows closed, of 45 dB CNEL, for exterior sources. This requirement is applicable to residences, hotels and other sensitive properties. The County of Imperial has established additional interior noise standards to be considered in acoustical analyses. The interior noise standard for detached single-family dwellings shall be 45 dB CNEL. The interior noise standard for schools, libraries, offices and other noise-sensitive areas where the occupancy is normally only in the day time is 50 dB averaged over a one-hour period (Leq(1)). Typical residential construction provides at least 15 dB of exterior-to-interior noise attenuation. With the addition of mechanical air ventilation (allowing for closed windows) and windows with a sound transmission class (STC) rating of 26 or higher, up to 30 dB of attenuation can be achieved.

Construction Noise Standards. The Noise Element of the County of Imperial General Plan (Table 2) defines a construction noise impact as noise generated from a single piece of construction equipment or a combination of equipment that exceeds 75 dBA Leq when averaged over an 8-hour period (Leq(8)) and measured at the nearest sensitive receptor (e.g., homes, schools, hospitals, parks, and office buildings, and for certain non-human species, including riparian bird species). In cases of extended-length construction times, the standard may be reduced so as to not exceed 75 dB Leq when averaged over a one-hour period. The Noise Element also limits construction equipment operation to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. Saturday and Sunday.

Significant Increase in Ambient Noise. The Noise/Land Use Compatibility Guidelines are not intended to allow the increase of ambient noise levels up to the maximum without consideration of feasible noise reduction measures. The following guidelines are established by the County of Imperial for the evaluation of a significant noise impact:

Table 2
County of Imperial Noise/Land Use Compatibility Guidelines

Source: County of Imperial. 2003. General Plan: Noise Element.

Key:

- Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
- Normally Unacceptable: New construction and development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- Clearly Unacceptable: New construction or development clearly should not be undertaken.

a. If the noise level after the project is completed would be within the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines (Table 2), but would result in an increase of 5 dB CNEL or greater, the project would have a potentially significant noise impact and mitigation measures must be considered.

b. If the noise level after the project is completed would be greater than the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines (Table 2), a noise increase of 3 dB CNEL or greater shall be considered a potentially significant noise impact and mitigation measures must be considered.

Projects that Generate Offsite Traffic. Noise Implementation Policy Number 6 in the General Plan Noise Element requires that an acoustical analysis be prepared to address potential noise impacts for projects that are expected to generate an acoustically significant amount of offsite traffic. If the analysis finds that the project has the potential to cause a significant noise impact to sensitive receptors along those roadways, noise reduction measures to reduce the impact to less than significant, including reduction of the intensity of the proposed project, construction of noise attenuation walls and/or landscaped earth berms, or other changes in project design or its proposed access, shall be considered. For non-residential projects, reduced hours of operation may also be required.

Property Line Noise Limits. The County of Imperial General Plan Noise Element includes Property Line Noise Limits that apply to noise generation from one property to an adjacent property. Depending on the time of day, the applicable 1-hour average sound level may not exceed 45 to 55 dB in residential zones ranging up to 75 dB in general industrial zones (including agricultural operations).

Imperial County Noise Abatement and Control Ordinance. The Imperial County Noise Abatement and Control Ordinance also includes property line noise limits that are consistent with those found in the Noise Element and shown in Table 3. Imperial County Code, Section 90702.00, Subsection A, states that it is unlawful for any person to cause noise by any means to the extent that the applicable one-hour average sound level shown in Table 3 is exceeded, at any location in the County of Imperial, on or beyond the boundaries of the property on which the noise is produced. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line are subject to these noise level limits, as measured at or beyond 6 feet from the boundary of the easement upon which the equipment is located. These standards imply the existence of a sensitive receptor on the adjacent, or receiving, property. In the absence of a sensitive receptor, an exception or variance to the standards may be appropriate. These standards do not apply to construction noise. As shown in Table 3, operational noise is prohibited from exceeding 70 dBA Leq on or at the property line of industrial, manufacturing, utility and related uses which is presumed to include the existing facility. As stated above, the 70 dBA Leq noise

Table 3
County of Imperial Noise Ordinance Sound Level Limits

Land Use Zone	Time of Day	1-Hour Average Sound Level (dBA)[1]
Residential (R-1)	7:00 am to 10:00 pm	50
	10:00 pm to 7:00 am	45
Residential (R-2)	7:00 am to 10:00 pm	55
	10:00 pm to 7:00 am	50
Residential (R-3, R-4 and all other residential)	7:00 am to 10:00 pm	55
	10:00 pm to 7:00 am	50
All Commercial	7:00 am to 10:00 pm	60
	10:00 pm to 7:00 am	55
Manufacturing, all other industrial including agricultural and extraction industry	Anytime	70
General Industrial	Anytime	75

Source: County of Imperial Code, Section 90702.00, Subsection A

[1] - The sound level limit between two zoning districts (different land uses) shall be measured at the property line between the properties

level limit would apply at a distance of 6 feet from the equipment easement where sensitive receptors are located on abutting properties.

As referenced, the project site is zoned A-2; thus, the general industrial/agricultural noise property line limit of 70 (dBA) would apply to the proposed project.

Vibration Standards

Vibration is a unique form of noise as the energy is transmitted through buildings, structures and the ground whereas audible noise energy is transmitted through the air. Thus, vibration is generally felt rather than heard. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels.

The County of Imperial Code and General Plan Noise Element do not provide vibration standards. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (September 2018) uses a threshold of 65 VdB for buildings where low ambient vibration is essential for interior operations. These buildings include hospitals and recording studios. A threshold of 72 VdB is used for residences and buildings where people normally sleep (i.e., residences and hotels). A threshold of 75 VdB is used for institutional land uses where activities occur primarily during the daytime (i.e., churches and schools). The threshold used for the proposed project is 72 VdB as a single-family residence is the nearest sensitive receptor to the well field.

Construction activities such as blasting, pile driving, demolition, excavation and drilling have the potential to generate ground vibrations near structures. With respect to ground-borne vibration impacts on structures, the FTA states that ground-borne vibration levels in excess of 100 VdB would damage fragile buildings and levels in excess of 95 VdB would damage extremely fragile historic buildings. No historic buildings occur on the site or are known to occur near the site; thus, 100 VdB is used to quantify potential vibration impacts to neighboring structures. Construction activities referenced above that would generate significant vibration levels are not proposed. However, to provide information for use in completing the CEQA evaluation, construction-related vibration impacts are evaluated using the above referenced criteria.

IMPACT ANALYSIS

Methodology and Significance Thresholds

Construction noise estimates are based upon noise levels reported by the Federal Highway Administration for construction equipment and the distance between sensitive properties and SR 86. Reference noise levels are used herein to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 3 dBA for line sources such as haul roads and 6 dB per doubling of distance (line-of-sight method of sound attenuation) for stationary sources and construction equipment. As referenced, the project would not increase traffic volumes from baseline conditions nor would operation of the facility change with the project. The only noise associated with the proposal that is not part of the ambient condition would be construction of the new facility. However, for the purpose of CEQA review, noise levels along SR 86 are estimated based on 2017 traffic counts

The impact analysis provided below is based on the following CEQA Guidelines, as listed in Appendix G of the CEQA Guidelines. An impact is considered significant if the project would:

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generate excessive groundborne vibration or groundborne noise levels?

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not located in proximity to an airport or private airstrip. The Salton Sea Airport is located approximately 17 miles northwest of the project area. The Cliff Hatfield Airpark is located approximately 18 miles to the east in Calipatria. Threshold **c** above does not apply and is not discussed further in this report.

Temporary Construction Noise

The primary main noise source during construction activities would be associated with site preparation, grading, excavation and movement of soil material to/from the borrow area. This would include use of excavators, graders, loaders, compressors, generators, and various trucks for mobilizing crews, transporting construction material and debris, line work, and site watering. Table 4 shows typical noise levels associated with heavy construction equipment. As shown, average noise levels associated with the use of heavy equipment at construction sites can range from about 81 to 95 dBA at 25 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (Hanson, Towers, and Meister, May 2006).

Table 4
Typical Construction Equipment Noise Levels

Equipment Onsite	Typical Level (dBA) 25 Feet from the Source	Typical Level (dBA) 50 Feet from the Source	Typical Level (dBA) 100 Feet from the Source
Air Compressor	84	78	64
Generator	85	81	75
Backhoe	84	78	64
Bobcat Tractor	84	78	64
Excavator	87	81	75
Concrete Mixer	85	79	73
Mobile Crane	89	83	77
Bulldozer	88	82	76
Jack Hammer	95	89	83
Grader	91	85	79
Pavement Roller	86	80	74
Street Sweeper	88	82	76
Man Lift	81	75	69
Dump Truck	82	76	70

Source: Hanson, Towers and Meister, 2006.
Noise levels based on actual maximum measured noise levels at 50 feet (Lmax).
Noise levels assume a noise attenuation rate of 6 dBA per doubling of distance.

The nearest noise-sensitive use near the project site are single-family residences located on the Elmore Desert Ranch approximately 2.1 miles northeast of the site. Table 4 shows typical maximum construction noise levels at various distances from construction activity, based on a standard noise attenuation rate of 6 dBA per doubling of distance. The noise level used to estimate the maximum noise level that could occur is based on use of an excavator, grader and dump truck. The combined noise from an excavator, grader and dump truck operating in proximity to one another would generate approximately 81 decibels at 100 feet. Actual noise

levels will fluctuate throughout the day and may periodically exceed 81 dBA at 100 feet from the sources depending on the type and location of equipment used simultaneously in the same area. However, construction noise levels would attenuate to the 70 dBA criterion at approximately 400 feet from the source. Noise received at the property line of a residence is limited to 50 dBA Leq in the daytime and 45 dBA Leq at night. Based on projected attenuation, construction related noise would not exceed the referenced noise standards at the nearest residence or otherwise cause an adverse impact. Noise impacts would be **less than significant** for threshold **a**.

Noise Sensitive Bird Habitat. The proposed project area is located in within the Pacific Flyway, a north-south flyway for migratory birds. Further, the Sonny Bono Salton Sea National Wildlife Refuge is located at the south end of the Salton Sea. This is an 826-acre area comprised of manageable wetland units providing habitat for resident and migratory bird species including waterfowl, shorebirds and wading birds. The refuge area is located approximately 10 miles northeast of the project area.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) is an international treaty that makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Wildlife Code prohibit the take, possession, or destruction of birds, their nests, or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or loss of habitat upon which the birds depend could be considered "take" and constitute a violation of the MBTA.

As referenced, the Noise Element of the County of Imperial General Plan defines a construction noise impact as noise generated from a single piece of construction equipment or a combination of equipment that exceeds 75 dBA Leq when averaged over an 8-hour period (Leq(8)) and measured at the nearest sensitive receptor (e.g., homes, schools, hospitals, parks, and office buildings, and for certain non-human species, including riparian bird species).

Construction-related noise levels shown in Table 4 above are estimated to be 81 dBA 100 feet and 70 dBA at 400 feet. No known nest sites or nesting habitat (i.e., shrubs/trees) occur on or in proximity to the project site or construction area nor is the site located in proximity to the Salton Sea National Wildlife Refuge. No mitigation would be required to address nesting birds prior to construction.

Temporary Construction-Related Vibration

As referenced, the closest sensitive property to the site is located approximately 2.1 miles northeast of the construction area. Based on the information presented in Table 5, vibration levels will attenuate to approximately 69 VdB at 200 feet from the source assuming a grader and excavator are the heaviest pieces of equipment used during grading or site clearing. As discussed, 100 VdB is the threshold where minor damage can occur in fragile buildings.

Table 5
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	87	81	79	77	75
Loaded Trucks	86	80	78	76	74
Jackhammer	79	73	71	69	67
Small Bulldozer	58	52	50	48	46

Source: Federal Railroad Administration, 1998

Vibration levels are projected to be under this threshold; thus, structural damage is not expected to occur as a result of construction activities associated with the proposed project. Vibration levels would be below the groundborne velocity threshold level of 72 VdB for residences and/or buildings where people sleep as discussed above at the property line. Vibration would not be perceptible at the nearest receiver. Vibration-related impacts would be **less than significant.**

Long-Term Operational Noise Exposure

Long-term operation of the proposed project was evaluated for potential exterior traffic related impacts caused by operation of the heavy equipment, truck trips and employee/vendor traffic along SR 86.

Exterior Traffic. Employee and construction-related support vehicle traffic and ongoing haul trips are the primary noise source that would be generated by the proposed project. As referenced, the 38 daily truck trips occur under baseline conditions and will continue with the project. A total of four (8 two-way) employee trips occur daily and various vendor trips occur throughout a typical week. For the purpose of evaluating traffic noise, it was assumed that all employees/contractors, vendor and truck haul trips are included in existing traffic counts for SR 86. Based on these assumptions, project-related traffic on SR 86 contributes to an ambient noise level of 62.3 dBA at 100 feet from the center line of SR 86 in proximity to the project. This is within the compatibility limits shown in Table 2 for residential receivers. Existing conditions are, and would remain, within the compatibility range required by Imperial County Code for traffic sources. The project would have no effect on noise levels at noise sensitive receivers.

Operation of the facility would require the ongoing use of heavy equipment. Assuming a similar mix of equipment is used on-site during operation, noise levels would attenuate to 70 dBA or less at 400 feet from the work area. This would be inaudible at the nearest receiver. Thus, no significant permanent increase in noise levels would occur as a result of the project per **threshold b.**

CONCLUSION

The proposed project is not expected to have adverse construction or operational noise impacts. Construction-related noise levels generated at the site would attenuate to 70 dBA or below at approximately 400 feet from the work area during both construction and operation of the new cells. Based on projected attenuation, construction related noise would not exceed the referenced noise standards at the nearest residence or otherwise cause an adverse impact.

Project-related traffic on SR 86 would not change with the project. Noise levels would remain at approximately 62.3 dBA during the peak hour at approximately 100 feet from the centerline of SR 86 segment that fronts the site. The proposed project would have no adverse impact on noise levels within or adjacent to the project site.

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N Water Supply Assessment

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Water Supply Assessment
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

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Water Supply Assessment
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

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Water Supply Assessment
For the Desert Valley Company Monofill Facility
Cell 4 Waste Storage Area
Imperial County, California

1.0 INTRODUCTION

This Water Supply Assessment has been prepared for CalEnergy Operating Company of Calipatria, California for the proposed Cell 4 Waste Storage Area (the "Project") at the Desert Valley Company (DVC) Monofill Facility in Imperial County, California (Figure 1). The overall Project entails a modification to DVC's Conditional Use Permit (CUP) No. 05-0020 issued by Imperial County for the Monofill Facility located at 3301 Highway 86 in Brawley, California. The facility is permitted to receive Class 2 non-hazardous waste streams and by-products from CalEnergy's geothermal power plant operations in Imperial County, California under an existing Solid Waste Facility Permit.

Water Code Sections 10910 through 10915 were amended by Senate Bill 610 (SB 610) in 2002. SB 610 requires that under specific circumstances, as detailed below, an assessment of available water supplies must be conducted. The purpose of the assessment is to determine if available water supplies are sufficient to serve the demand generated by the Project, as well as the reasonably foreseeable demand in the region over the next 20 years under average normal year, single dry year, and multiple dry year conditions. Water Code Section 10910 was further amended by SB 1262 on September 24, 2016 to require a Water Supply Assessment to include additional information regarding the groundwater basin designation and adjacent water systems. This report provides the information required for a Water Supply Assessment (WSA), as described in the October 2003 *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 to Assist Water Suppliers, Cities, and Counties in Integrating Water and Land Use Planning*, published by the California Department of Water Resources (DWR Guidebook) along with the additional information required by SB 1262.

2.0 PROJECT DESCRIPTION

The DVC Monofill Facility includes two closed cells, Cell 1 and Cell 2, and a currently active cell, Cell 3. The Project involves the permitting and construction of a new cell, Cell 4. CUP No. 05-0020 limits the facility to Class 2 waste disposal activities such that only certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy's geothermal power plant operations in Imperial County, California can be accepted. Solid Waste Facility Permit No. 13-AA-0022 specifies the wastes that can be accepted at the facility:

- Geothermal drilling muds and cuttings;
- Geothermal filter cake;
- Soils contaminated with geothermal material; and
- Incidental plastic sheeting (truck bed liners)/materials.

The above wastes must be generated within Imperial County and no materials from outside of the County are permitted to be disposed at the facility.

Cell 4 will be constructed in two phases. Each phase will have a capacity of approximately 1.3 million cubic yards, which is comparable to the size of Cell 3. Phase 1 of Cell 4 (also referred to as Cell 4a) will begin receiving waste when the existing Cell 3 reaches or nears its capacity, at which time Cell 3 will be closed. Phase 2 of Cell 4 (also referred to as Cell 4b) will have a capacity similar to Phase 1 and will be constructed when there is a demand for additional waste storage capacity. Phase 1 is estimated to have a surface area of approximately 25 acres. The preferred location for Cell 4 is within Section 33. However, an alternative location in the south half of Section 27 has also been considered.

The projected life of each phase of Cell 4 is based on the estimated design capacity of approximately 1.3 million cubic yards and a projected disposal rate of approximately 60,000 tons per year. The geothermal waste materials disposed of at the site have an empirically determined airspace utilization factor of 1.32 tons per cubic yard. Thus, the annual volumetric disposal rate is approximately 45,455 cubic yards per year. The approximate life span of each phase of Cell 4 is 28.6 years, based on the total volumetric capacity of 1.3 million cubic yards divided by the average annual disposal rate of 45,455 cubic yards per year.

The design and construction of Cell 4 will be consistent with Cell 3, where the liner system will be designed to Class I hazardous waste standards and other criteria will conform to Class 2 designated waste standards and other permit requirements. Other aspects of the proposed Cell 4 waste storage area, such as operations, maintenance, monitoring, recordkeeping and financial assurance, will also be consistent with those of the existing DVC Monofill Facility

Waste material composition and disposal operations for Cell 4 will be the same as for existing Cell 3. Water would be supplied from an existing groundwater well that is currently used for site water needs. Project water demand would include water needed for dust control and construction (e.g. soil compaction) during installation of Cell 4, closure of existing Cell 3, and for subsequent operation of Cell 4.

3.0 WATER SUPPLY PLANNING UNDER SB 610 and SB 1262

SB 610, effective January 1, 2002, amends Sections 10910 through 10915 of the Water Code by requiring preparation of a WSA for development projects subject to CEQA and other criteria, as discussed below. SB 610 also amends Section 10631 of the Water Code, which relates to Urban Water Management Plans (UWMPs). The WSA process under SB 610 is designed to rely on the information typically contained in UWMPs, where available.

On September 24, 2016, SB 1262 further amended Section 10910 of the Water Code to require additional information related to adjacent public water systems and the status of the groundwater basin. These amendments provide additional consistency with the Sustainable Groundwater Management Act of 2014, as discussed further in Section 4.4.

The first steps in the WSA process are to determine whether SB 610 applies to the proposed Project. If so, then documentation of available water supplies, anticipated Project demand, and the sufficiency of supplies must be conducted. These issues are summarized by the following questions, as outlined in the DWR Guidebook:

1. Is the proposed Project subject to CEQA?
2. Is the proposed Project a "Project" under SB 610?
3. Is there a public water system that will service the proposed Project?
4. Is there a current UWMP that accounts for the project demand?
5. Is groundwater a component of the supplies for the Project?
6. Are there sufficient supplies to serve the Project over the next twenty years?

Each of these issues are discussed in the following sections as they relate to the proposed Project.

3.1 Is the Proposed Project Subject to CEQA?

The first step in the SB 610 process is to determine whether the proposed project is subject to CEQA. Water Code Section 10910(a) states that any city or county that determines that an application meets the definition of "project", per Water Code Section 10912 (see Section 3.2, below), and is subject to CEQA, shall prepare a water supply assessment for the project. CEQA applies to projects requiring issuance of a discretionary permit by a public agency, projects undertaken by a public agency, or projects funded by a public agency. The proposed modifications to CUP No. 05-0020, as described in Section 2.0, require discretionary approval by Imperial County, a public

agency. Therefore, the Project is subject to CEQA. This WSA has been prepared to support the environmental review that will be conducted by Imperial County under CEQA.

3.2 Is the Proposed Project a "Project" Under SB 610?

The second step in the SB 610 process is to determine if the proposed Project meets the definition of "project" under Water Code Section 10912(a). Under Section 10912(a) a "project" is defined as meeting any of the following criteria:

1. a proposed residential development of more than 500 dwelling units;
2. a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
3. a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
4. a proposed hotel or motel, or both, having more than 500 rooms;
5. a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
6. a mixed-use project that includes one or more of the projects defined above; or
7. a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The proposed construction of Phase 1 of Cell 4 would occupy approximately 50 acres. As a result, the Project will include an industrial site that is larger than 40 acres and thus this WSA is being prepared in accordance with category 5, above.

3.3 Is There a Public Water System That Will Service the Proposed Project?

Section 10912(c) of the Water Code identifies a public water system as a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. There are no public water systems that serve the Project site, or that are located within more than one mile of the Project site. As described below, the project provides its own water needs through an onsite groundwater well. In addition, the Project will not be connected to a water system, such that the Project would not result in an existing water system becoming a public water system as a result of the project (per SB 1262 modifications to Water Code Section 10910(b)).

3.4 Is There a Current Urban Water Management Plan That Accounts for the Project Demand?

The Water Code requires that all public water systems providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre feet per year, must prepare an UWMP. The DWR Guidebook (page iii) states that SB 610 repeatedly refers to the UWMP as a planning document that can be used to meet the standards set forth in the statute, and that UWMPs act as a foundation to fulfill the requirements of the statute. There are no public water systems within the vicinity of the Proposed project, and thus there is not an UWMP that accounts for the Project demand.

Since there is no UWMP for the Project area, this WSA is based upon available and relevant information, including public records, the technical studies and assessments submitted with the application for the proposed project, and other relevant documents, as cited in Section 8.0. Since this WSA has been prepared for use by the CEQA lead agency, this document includes an evaluation of whether the total projected water supplies, determined to be available during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses, in accordance with Water Code § 10910(c)(4). As noted in Section 2.0, however, at the projected disposal rates Phase 1 of Cell 4 is expected to have a life span of over 28 years once it is constructed.

3.5 Is Groundwater a Component of the Supplies for the Project?

Water Code Section 10910(f), paragraphs 1 through 5, must be addressed if groundwater is a source of supply for the proposed Project. The DVC Monofill Facility currently obtains water from an onsite supply well. The same well, or additional wells, are also anticipated to serve the water needs for Cell 4. Therefore, an assessment of groundwater conditions is included in this document.

Water Code Section 10910(f) paragraphs 1 through 5, as modified by SB 1262, state:

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

> (1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.
>
> (2) (A) A description of any groundwater basin or basins from which the proposed project will be supplied. (B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to

comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. (C) For a basin that has not been adjudicated that is a basin designated as high- or medium priority pursuant to Section 10722.4, information regarding the following: (i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924; and (ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan. (D) For a basin that has not been adjudicated that is a basin designated as low- or very-low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Pursuant to paragraph 1, there is not an urban water management plan that addresses the Project demand, or the adjacent and surrounding properties, as discussed in Section 3.4. Therefore, the information and evaluations presented in this WSA are based primarily on other publicly-available reports and documents from the California Department of Water Resources, groundwater studies conducted for other sites and projects in the region, and site-specific groundwater studies previously conducted at the Project site.

Paragraph 2 is addressed in Section 4.1, below, including a description of the groundwater basin and groundwater conditions.

As previously discussed, there is not an urban water management plan that covers the project area. To address the items described in Paragraph 3, Section 5.0 presents available information regarding current and future water consumption at the Project site.

To address paragraph 4, Section 4.2 includes a discussion of the amount and location of groundwater pumping and recharge that may occur in the groundwater basin. Section 5.0 presents available information regarding current and future water consumption at the Project site.

The Paragraph 5 requirement to provide an analysis of the sufficiency of the groundwater basin to meet the projected water demand associated with the proposed project is addressed in Section 6.0, below.

3.6 Are There Sufficient Supplies to Serve the Project Over the Next Twenty Years?

Water Code Section 10910(c)(4) requires the WSA to "*include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and future planned uses, including agricultural and manufacturing uses.*"

The sufficiency of water supply for the proposed Project is addressed in Section 7.0, below.

4.0 PROJECT WATER SUPPLY

Water for existing operations at Cell 3 is provided by an onsite groundwater supply well. For the proposed Project, water would be supplied by the same well, or a new well or wells to be installed for the Project. Overall conditions within the groundwater basin are described in Section 4.1. Details regarding the existing supply well and volumes of water currently pumped are provided in Section 4.2. Section 4.3 identifies the available groundwater supply within the basin. The potential implications of the Sustainable Groundwater Management Act of 2014 and future regulatory requirements are discussed in Section 4.4, as required by SB 1262.

4.1 Groundwater Basin

The DVC Monofill Facility is located within the Ocotillo-Clark Valley Groundwater Basin (Basin Number 7-25), as defined by DWR (2004), as shown on Figure 2. The basin is bounded by the Santa Rosa Mountains to the north and northeast, Coyote Creek and Superstition Mountain faults to the west and south, and the Salton Sea and surface drainage divides to the east. The total surface area is approximately 223,000 acres (348 square miles), while the estimated groundwater storage capacity of the Ocotillo Valley part of the groundwater basin is 5,800,000 acre-feet (DWR, 2004). Clark Valley drains toward Clark Dry Lake, to the northeast of Borrego Springs (see Figure 2). The eastern part of the groundwater basin drains toward the Salton Sea. The basin is an alluvial filled valley of stream, alluvial fan, lake and aeolian deposits[1] (DWR, 2004). Recharge occurs due to runoff from the mountains along the north and west sides of the basin and is estimated to be 1,200 acre-feet per year for the Clark Valley part of the basin and 1,100 acre-feet per year for the Ocotillo Valley part of the basin (DWR, 2004). The Ocotillo-Clark Valley Groundwater Basin has not been adjudicated.

Two aquifers are present within the Ocotillo Valley area of the groundwater basin (Todd Engineers, 2013). Northwest of San Felipe Creek, shallow groundwater is encountered at depths ranging from 40 feet to 90 feet below ground surface, with depths generally increasing toward the west (Ericsson-Grant, 2014). The depth to groundwater in the lower aquifer is approximately 100 feet deeper than that in the shallow aquifer (Ericsson-Grant, 2014). Thus, in the area west of San Felipe Creek, the shallow groundwater zone is generally unconfined and perched, while the lower aquifer is confined. Groundwater from the shallow zone may discharge at springs along Fish Creek and San Felipe Creek (Todd Engineers, 2013), suggesting that groundwater flow is toward the east-southeast in the western area of the Ocotillo Valley part of the groundwater basin. In the area of the basin west of San Felipe Creek, the total dissolved solids (TDS) content of the deeper groundwater ranges from 1,200 milligrams per liter (mg/L) to 1,800 mg/L, while the TDS in the shallow groundwater is reported to be three to four times higher (Ericsson-Grant, 2014).

At the Project site, shallow groundwater is present at depths ranging from 50 feet to 60 feet below ground surface (Balderman, 2002). The shallow groundwater flows toward the northeast with a hydraulic gradient of approximately 0.0164 ft/ft and at a velocity of approximately 3.86 feet per year (DVC, 2019). While the lower aquifer is not encountered until a depth of approximately 490 feet below ground surface, the static

[1] Aeolian deposits are those that are transported and deposited by wind, such as dune sands and wind-blown silt deposits.

water level is approximately 44 feet below ground surface, indicating that the lower aquifer is under confined conditions (UCM, 2005). The TDS in the deeper groundwater is approximately 1,200 mg/L (UCM, 2005), whereas the TDS in the shallow groundwater ranges from 3,500 mg/L to 11,000 mg/L (Balderman, 2002).

Groundwater from all areas of the Ocotillo Valley part of the groundwater basin ultimately discharges to the Salton Sea (DWR, 2004).

4.2 Existing Supply Well and Historic Water Volumes Pumped

In 2005, DVC installed a new water supply well for operation of Cell 3. The information provided below for the supply well is from UCM (2005). The well was drilled to a total depth of 605 feet and completed with 5-inch Schedule 80 PVC casing. The screened interval extends from 490 feet to 600 feet below ground surface, but the filter pack sand extends from 340 feet to 605 feet below ground surface. After installation, a series of pumping tests were conducted with a temporary pump set at various depths to identify the optimal placement of a permanent pump. Based on these tests, a three-horsepower, three-phase submersible pump was installed at a depth of 461 feet. The pump provides up to 38 gallons per minute of groundwater from the deeper aquifer zone. Two 5,000-gallon water tanks are used to store pumped groundwater before use onsite. The produced water from the supply well has a TDS level of 1,200 mg/L, a pH of 7.9, and a temperature of 95 degrees F (35 degrees C).

The water well attachment to CUP 05-0020 allows up to 8.5 acre-feet of groundwater per year to be produced from the supply well. Over the past decade, the maximum annual water use reported by DVC was 8.02 acre-feet in 2010. Since 2012, the peak annual water use has been 5.57 acre-feet while the minimum annual water use has been 3.58 acre-feet. The median water use over the past seven years has been 5.45 acre-feet per year.

4.3 Available Groundwater Supply

As stated in Section 4.1, the estimated groundwater storage capacity of the Ocotillo Valley part of the groundwater basin is 5,800,000 acre-feet (DWR, 2004). However, the actual volume of groundwater currently in storage is unknown. Historically, the largest groundwater user in the basin was Allegretti Farms, located approximately 10 miles west-northwest of the Project site (see Figure 2). From the 1950s into the 2010s, irrigation for agricultural production occurred on land areas ranging from 320 acres up to 2,000 acres (Todd Engineers, 2013). The estimated groundwater pumping ranged from over 10,000 acre-feet per year in 1978, decreasing to 2,800 acre-feet per year, on

average, from 1996 to 2009 (Todd Engineers, 2013). In 2010 and 2011, groundwater pumping decreased to 208 acre-feet and 224 acre-feet per year, respectively.

The Seville Solar Farm has largely supplanted agricultural use of the Allegretti Farms property (Ericsson-Grant, 2014). Estimated annual water demand for the property now ranges from 140 acre-feet to 300 acre-feet (Todd Engineers, 2013).
Groundwater levels have been monitored by the U.S. Geological Survey in a lower-aquifer well at Allegretti Farms since 1953 (USGS, 2019). Figure 3 shows the water levels in the well monitored by USGS. The data demonstrate that from 1953 to 2001, groundwater levels decreased from a depth of approximately -75 feet relative to the 1988 North American Vertical Datum (ft NAVD88) to about -240 ft NAVD88. However, as shown on Figure 3, since 2001 the groundwater level has recovered by approximately 35 feet.

As discussed in Section 4.1, the estimated rate of recharge in the Ocotillo Valley part of the groundwater basin is 1,100 acre-feet per year (DWR, 2004). Thus, pumping at rates in excess of this amount would result in overdraft and declining groundwater levels. The more recent groundwater pumping rates reported by Todd Engineers (2013) at the Allegretti Farms property are less than the estimated recharge rate, and may account for the slow recovery in groundwater levels. Based on the maximum projected water use for the Seville Solar Farm of 300 acre-feet per year (Todd Engineers, 2013), up to 800 acre-feet of groundwater per year are available for other users in the Ocotillo Valley part of the groundwater basin, without causing further overdraft. The currently-permitted maximum use of 8.5 acre-feet per year at the DVC Monofill Facility is just slightly more than one percent of the available sustainable supply in the groundwater basin.

4.4 Groundwater Sustainability

A series of three bills passed by the California legislature were signed by Governor Brown on September 16, 2014. These three bills, Assembly Bill (AB) 1739, SB 1168, and SB 1319, together comprise the Sustainable Groundwater Management Act of 2014 (SGMA). SGMA provides a structure under which local agencies are to develop a sustainable groundwater management program. SGMA focuses on basins or subbasins designated by DWR as high- or medium priority basins, and those with critical conditions of overdraft.

The Ocotillo-Clark Valley Groundwater Basin (DWR Basin 7-25) is classified as a very low priority basin with no significant declining groundwater levels (i.e. no evidence of critical conditions of overdraft), according to the SGMA Basin Prioritization Dashboard

(https://gis.water.ca.gov/app/bp2018-dashboard/p1/, accessed February 20, 2019). As such, the general requirements of SGMA do not apply to the basin.

In 1998, the County adopted, and in 2015 amended, a comprehensive Groundwater Management Ordinance to preserve and manage groundwater resources within the County (Imperial County, 1998). The Groundwater Ordinance, codified as Division 22 of Title 9 of the Imperial County Code, is implemented by the Planning Commission acting upon the direction of the Board of Supervisors. The Groundwater Ordinance provides the County with various regulatory tools that are designed to avoid or minimize the impact of existing and proposed groundwater extraction activities on groundwater resources and other users, such as overdraft or excessive drawdown. The Groundwater Ordinance requires that existing extraction facilities be permitted and registered with the County. The existing groundwater well at the DVC Monofill Facility is permitted and regulated by an attachment to CUP 05-0020, which sets site-specific conditions for the onsite well.

5.0 PROJECT WATER DEMAND

Project water demand would include water needed for dust control and construction (e.g. soil compaction) during installation of Cell 4, closure of existing Cell 3, and for subsequent operation of Cell 4. Current Cell 3 and future Cell 4 operational water demand is for dust control and makeup water for soil stabilization polymers applied to the filter cake in the active cell, as required in the CUP. Water would be supplied from the existing groundwater well, as described in Section 4.2, above. Potable water for employee drinking water and sanitary needs is brought to the site and stored separately from the pumped groundwater.

Water use for dust control and operation of Cell 3 since 2012 has ranged from 3.58 acre-feet/year to 5.57 acre-feet/year, with a median value over that period of 5.45 acre-feet/year, as discussed in Section 4.2. The historic maximum use for Cell 3 has been 8.02 acre-feet in 2010. For the purposes of the evaluation presented in this Water Supply Assessment, it is assumed that water use for dust control and operation of Cell 4 could be twice the median value, or about 11 acre-feet/year.

The water requirement for construction of Cell 4 has been estimated by Veizades & Associates, Inc. (2019). Water would be necessary for moisture conditioning of fill material for the liner and for dust control. Due to the length of time between construction of Cell 4a and Cell 4b, the estimate was prepared for Cell 4a only at this time. Over an approximate 12-month period, it is estimated that the total water demand to construct Cell 4a may range from 25 million to 32 million gallons, or approximately 75

to 100 acre-feet. The average daily water demand is estimated to range from 135,000 to 155,000 gallons per day, while the maximum daily water demand is estimated to range from 155,000 to 180,000 gallons per day. The average daily water demands are equivalent to pumping rates of about 90 gpm to 105 gpm. The maximum daily water demands are equivalent to pumping rates of about 105 gpm to 125 gpm. These pumping rates assume pumping would occur 24 hours per day and not just during working hours.

The water requirement for closure of Cell 3 has also been estimated by Veizades & Associates, Inc. (2019). Water would be necessary for moisture conditioning of the cap material and for dust control. Cell closure is estimate to require up to six months to complete. Over that six-month period, it is estimated that 10 million to 13 million gallons, or approximately 30 to 40 acre-feet, of water will be required. The average daily water demand is estimated to range from 85,000 to 110,000 gallons per day, while the maximum daily water demand is estimated to range from 95,000 to 120,000 gallons per day. The average daily water demands are equivalent to pumping rates of about 60 gpm to 75 gpm. The maximum daily water demands are equivalent to pumping rates of about 65 gpm to 85 gpm. These pumping rates assume pumping would occur 24 hours per day and not just during working hours.

Closure of Cell 3 would not occur until after Cell 4a has been constructed and becomes available for use. Thus, the water demand to construct Cell 4a and to close Cell 3 would not occur simultaneously.

According to the American Water Works Association (http://www.drinktap.org/consumerdnn/Home/WaterInformation/Conservation/WaterUseStatistics/tabid/85/Default.aspx), water use in a commercial setting (i.e. toilets and faucets using water-efficient fixtures) is approximately 20 gallons per worker per day. Approximately eight persons are employed at the project site. Therefore, the anticipated potable water demand is anticipated to be 160 gallons per day for 250 days per year, which is about 0.12 acre-feet/year.

Based on the above information, the total water demand for the project will be 75 to 100 acre-feet during the year that Cell 4a is constructed and 30 to 40 acre-feet during the six-month period while Cell 3 is being closed. The on-going operational water use for dust control and cell operation will be up to 11 acre-feet/year, while the on-going potable water use will continue to be 0.12 acre-feet/year. Based on these values, the maximum annual water use would be up to 111.12 acre-feet/year during the year that Cell 4a is constructed. The on-going long-term water demand, once cell construction and closure construction are completed, will be up to 11.12 acre-feet/year.

6.0 DRY YEAR SUPPLY

To evaluate the amount and sustainability of dry-year water supply for the project, historical rainfall data and groundwater levels were evaluated. Publicly-available rainfall data from the DWR California Data Exchange Center (CDEC) (2019) and the Western Regional Climate Center (WRCC, 2019), as cited in Section 8.0 and discussed below, were obtained for this evaluation.

The nearest locations to the Project site from which long-term precipitation data are available include:

- City of Imperial, approximately 22 miles southeast of the Project site (CDEC Station IMP) with data available from 1967 to 2019 (DWR, 2019);
- Ocotillo Wells, approximately 18 miles west-northwest of the Project site (WRCC Station 46383) with consistent data available from 1949 to 1974 (WRCC, 2019);
- Ocotillo Wells 2W, approximately 22 miles west-northwest of the Project site (WRCC Station 46386) with consistent data available from 2003 to 2019 (WRCC, 2019);
- Mecca Fire Station, approximately 37 miles northwest of the Project site (WRCC Station 45502) with consistent data available from 1946 to 2019 (WRCC, 2019); and
- Thermal airport, approximately 42 miles northwest of the Project site (WRCC Station 48892) with data available from 1950 to 2019 (WRCC, 2019).

Table 1 provides a summary of the rainfall data for the five stations described above. the data from the Ocotillo Wells and Ocotillo Wells 2W stations have been combined for the purposes of calculating summary statistics due to their close proximity, relatively shorter period of record, and the lack of overlap for the period of record. As can be seen in Table 1, despite the wide area encompassed by the data stations, the average annual rainfall does not vary appreciably between the locations, ranging from 2.47 inches at the Ocotillo Wells locations to 2.86 inches at the Thermal Airport. Although the annual averages for each station are very similar, the maximum annual rainfall amount varies from 5.73 inches at Imperial to 10.16 inches at Mecca. The wettest years during the period evaluated were 1976 and 1983. At each station, there were years where very little or no rainfall was recorded. The driest year at all of the stations was 2006.

Figure 4 shows the total annual rainfall amounts for each of the five stations from 1953 through 2018. Figure 4 is intentionally plotted immediately below Figure 3 to illustrate the lack of relationship between rainfall and groundwater elevations. While periods with above average rainfall may appear to slow the rate of groundwater decline from 1953 to 2001, the persistent and substantial decline in groundwater levels during that period cannot be attributed to rainfall conditions. It is much more likely that pumping for agricultural purposes caused the long-term decline, as discussed in Section 4.3, above. As such, the more recent slow recovery in the groundwater levels can be attributed to the reduction in groundwater pumping for irrigation.

Table 2 summarizes the single driest and multi-year dry periods for each of the stations described above in this section. The multi-year dry periods listed are those where the annual rainfall each year was below the average and the dry period lasted more than two years. The multi-year dry period at each location that had the least amount of rain compared to the average for that same duration is highlighted in yellow on Table 2. As discussed above, the driest year at all locations was 2006. At all locations except the Ocotillo Wells stations, the driest multi-year periods either occurred after 2001 or spanned that year. This is of significance because 2001 is the year that the long-term decline in groundwater levels shown on Figure 3 ended and the groundwater level began to recover.

Comparison of groundwater levels (Figure 3) with the rainfall data as presented on Figure 4 and summarized in Tables 1 and 2, demonstrates that individual dry years or multi-year dry periods do not restrict the available groundwater supply if pumping does not exceed the long-term average recharge rate. As discussed in Section 4.3, the long-term sustainable supply in the basin is in the range of 800 acre-feet per year. The maximum single-year water demand for the Project of 111.12 acre-feet per year during Cell 4a construction and the ongoing water demand of 11.12 acre-feet per year are both well below the long-term sustainable supply of 800 acre-feet per year. Thus, there is more than adequate groundwater to supply the Project water needs during normal, single dry, and multiple dry year periods.

7.0 FINDINGS and DISCUSSION

This WSA has been prepared in accordance with SB 610 and SB 1262 to support the CEQA environmental review for the proposed Project and provides an assessment of water supply adequacy for the project in accordance with Water Code Sections 10910 through 10915. The water demand for the proposed Project will consist of water needed to construct Cell 4a, water needed to operate Cell 4, water needed to close Cell 3, and the water needed for employee potable water demand.

The ongoing water demand over the next 20 years will be up to 11.12 acre-feet per year for operational dust control and employee potable water needs. Construction of Cell 4a and closure of Cell 3 will result in temporary increases in water demands for periods of 12 months and six months, respectively. The peak demand during the year that Cell 4a is constructed will be up to 111.12 acre-feet. The peak demand for the full year period during which the six-month closure of Cell 3 would occur will be up to 51.12 acre-feet. Evaluation of conditions in the groundwater basin indicates that the long-term sustainable supply is approximately 800 acre-feet per year. Consideration of groundwater levels during wet and dry periods demonstrates that the amount of water available does not vary appreciably with climatic cycles. Therefore, there will be sufficient water available for the Project during single dry year and multiple dry year periods over at least the next 20 years.

As discussed in Section 4.2, the existing 605-foot deep, five-inch diameter supply well provides an average of 38 gpm. Based on information from the Well Completion Report (UCM, 2005), at the time the well was drilled, it produced 37 gpm with a drawdown of 22 feet. Since the well is 605 feet deep and the depth to groundwater in the well is about 44 feet deep, the aquifer can sustain substantially greater drawdown and, thus, provide much greater quantities of water. The current pumping rate is probably restricted based on the size of pump that a five-inch diameter well casing can accommodate. To evaluate how much water a larger diameter well may be able to produce, an analytical model is based on the Theis equation (Domenico and Schwartz, 1990) was used. At a pumping rate of 250 gpm, or twice the maximum daily rate during Cell 4a construction (see Section 5.0), the analytical model predicts that the drawdown would be approximately 175 feet. Since the total water column in the existing well is over 560 feet (i.e. 605 feet minus 44 feet), a drawdown of 175 feet is not unreasonable during short periods (e.g. a few days at a time) when the maximum construction water demand may occur. To achieve pumping rates of this magnitude, however, a much larger diameter well would need to be drilled so that pumping equipment large enough to produce that volume of water can fit within the well casing.

If construction of a new well will be considered for the Project, the geologic conditions within the aquifer may provide some guidance for selection of potential drilling locations. As discussed in Section 4.1, the deep aquifer consists of a mix of stream deposits, such as sand and gravel, along with lake-bed deposits. The stream deposits originate from the mountain-front areas to the southwest and west, whereas the lake-bed deposits originate from ancient predecessors to the Salton Sea, toward the northeast. As a result, the geologic deposits within the aquifer will tend to be more coarse-grained toward the southwest and finer-grained toward the northeast. Since coarse-grained deposits generally provide appreciably greater quantities of water than fine-grained deposits, a new well drilled in Section 33 would be expected to be more productive than

an equivalent well drilled in Section 27. To minimize drawdown and reduced production from the existing well, any new well drilled at the Facility should be located at least 150 feet from the existing well.

The diameter, depth, and location of a new well may affect the amount of groundwater that can be produced locally from that well. Those factors, however, do not affect the amount of water that can be sustainably produced from a regional aquifer. As such, the discussions above regarding the potential production from and location of a new well at the site do not affect the findings of this Water Supply Assessment that sufficient water would be available for the Project during single dry year and multiple dry year periods over at least the next 20 years.

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Western Regional Climate Center (WRCC), 2019, http://www.wrcc.dri.edu/cgi-bin/cliMONtpre.pl?calive, accessed February 21, 2019.

Table 1
Rainfall Summary for Five Stations
1953-2018

Station	Average Annual Rainfall	Maximum Annual Rainfall	Minimum Annual Rainfall
Imperial	2.64	5.73	0.07
Ocotillo/2W	2.47	6.73	0
Mecca Fire Sta	2.64	10.16	0
Thermal Airport	2.86	8.67	0.23

All values in inches

Table 2

Single Driest Year and Multiple-Year Dry Periods

1953-2018

Station	Single Driest Year	Multiple-Year Dry Periods (3 years or longer)						
Imperial	2006	1970-1975	1987-1990	1999-2003	2006-2009	2014-2018		
Ocotillo/2W	2006	1953-1957	1966-1974	2013-2015				
Mecca	1990, 2006	1960-1962	1968-1975	1984-1986	1988-1990	1998-2004	2006-2009	2013-2015
Thermal	2006	1953-1957	1959-1962	1966-1973	1999-2003	2011-2015		

Driest multi-year period highlighted

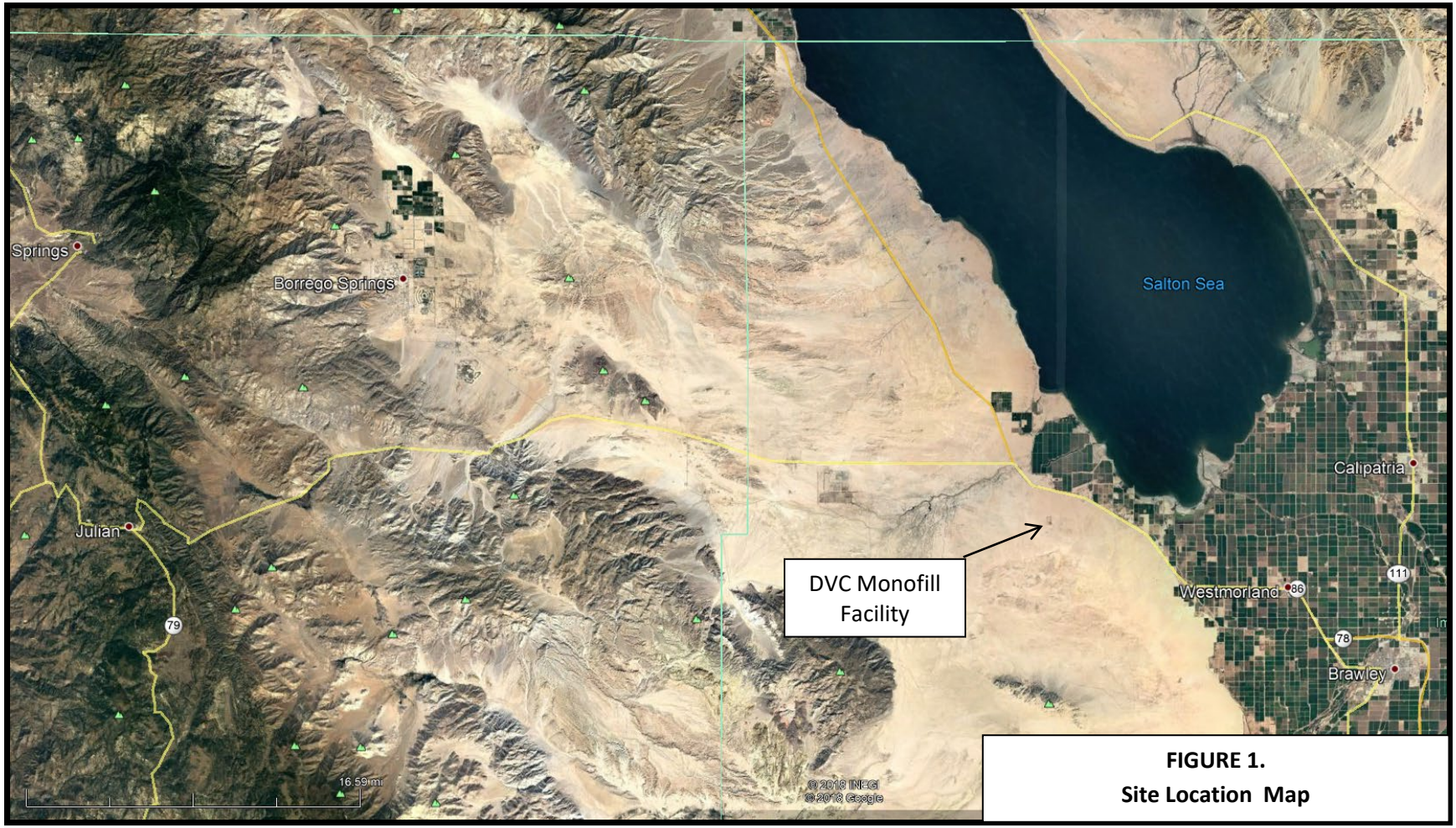

FIGURE 1.
Site Location Map

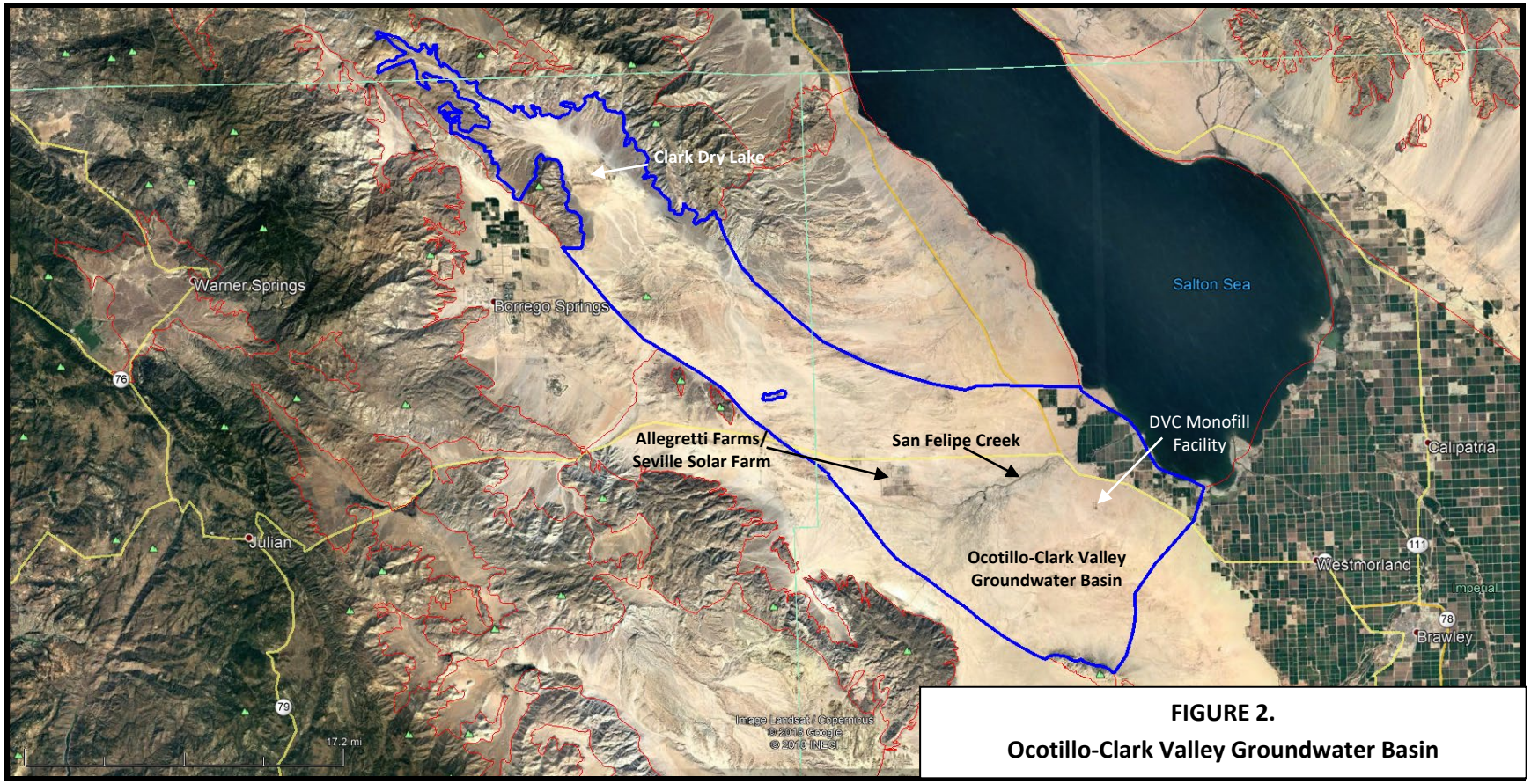

FIGURE 2.
Ocotillo-Clark Valley Groundwater Basin

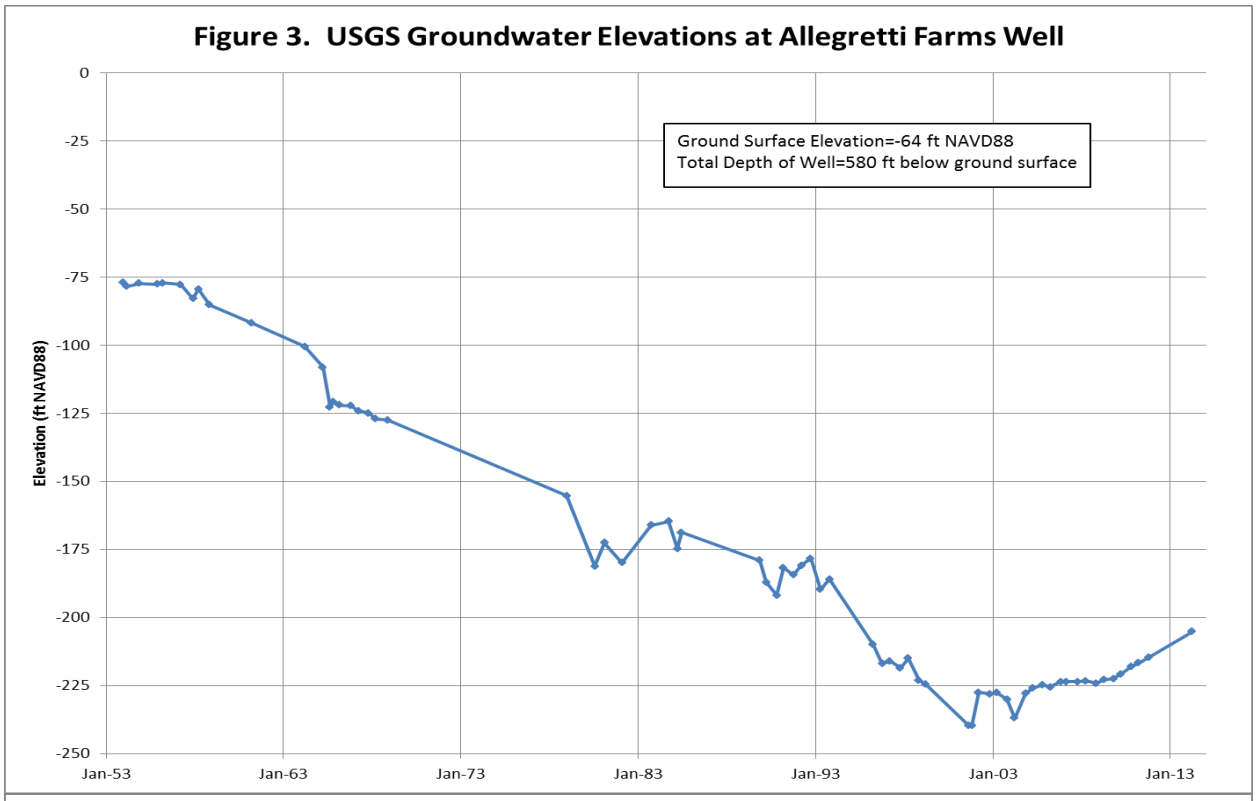
Figure 3. USGS Groundwater Elevations at Allegretti Farms Well
Ground Surface Elevation=-64 ft NAVD88
Total Depth of Well=580 ft below ground surface
Elevation (ft NAVD88)
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
Jan-53
Jan-63
Jan-73
Jan-83
Jan-93
Jan-03
Jan-13

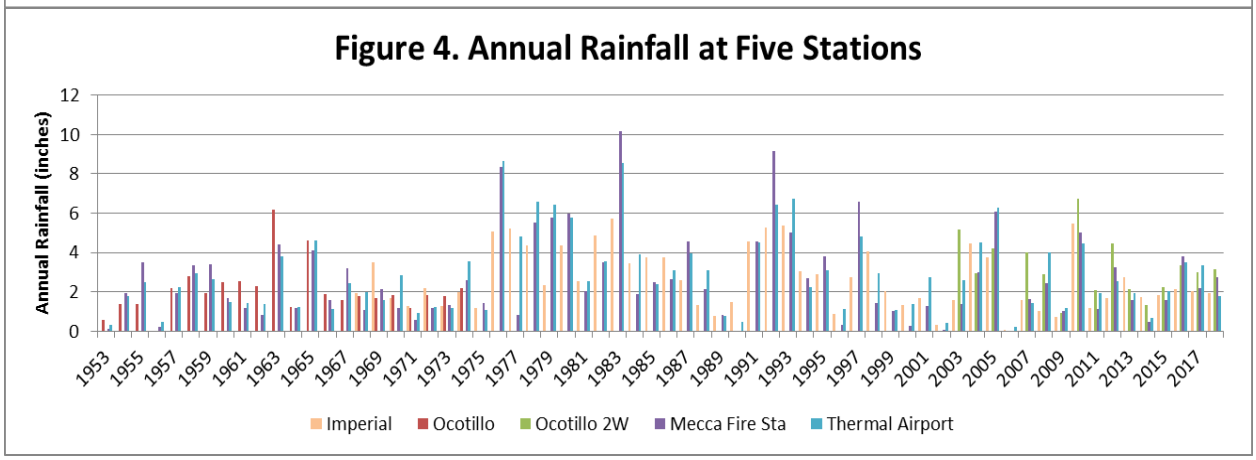
Figure 4. Annual Rainfall at Five Stations
Annual Rainfall (inches)
12
10
8
6
4
2
0
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
Imperial
Ocotillo
Ocotillo 2W
Mecca Fire Sta
Thermal Airport

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O Rare Plant Survey, Section 27

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Fugro Project No. 04.72170065
Document No. 04.7217065-L-005 (Rev.0)
August 3, 2018

CalEnergy
7030 Gentry Road
Calipatria, California 92233

Attention: Ms. Yanqiu Wu

Re: DVC Cell 4 Project: Transmittal of Rare Plant Survey

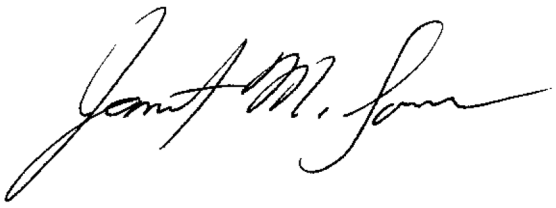
Dear Ms. Wu,
Fugro is pleased to deliver the attached rare plant survey of Section 27, prepared in support of the DVC Cell 4 siting studies. This constitutes the final deliverable for Task 5: Rare Plant Survey, under CalEnergy Purchase Agreement #245885.

The survey shows an absence within Section 27 of plant species that require special protection. A single sensitive species, the Salton milk vetch, was identified in two locations. This species is a “List 4.3 plant” (California Rare Plant Ranking system), and is not normally afforded special protection or consideration in environmental reviews.

The survey was conducted by a qualified botanist working under subcontractor Hernandez Environmental Services, Inc.

Please do not hesitate to contact me if you have questions. We look forward to continuing to support CalEnergy on the DVC Cell 4 project.

Sincerely,
Fugro USA, Inc.



Janet M. Sowers, Ph.D, P.G
Associate Geologist

Attachment: Botanical Survey for the Desert Valley Company Expansion Project, July 2018

Botanical Survey

For the Desert Valley Company Expansion Project
Imperial County, California

Prepared for

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

Prepared by

Ricardo Montijo
926 South Prospero Drive
Glendora, CA 91740

July 2018

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Appendix B. Site Photographs

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1 INTRODUCTION

Hernandez Environmental Services (HES) was retained to conduct biological surveys and studies that support a facilities expansion project in near the Salton Sea, Imperial County, California. The approximately 668-acre property occurs on portions of sections 22 and 27 of the Township 12 South, Range 11 East of the Kane Spring USGS 7.5-minute Quadrangle.

A review of available information from the California Native Plant Society (CNPS), the California Consortium of Herbaria (CCH) and the California Natural Diversity Database indicates that the sensitive and protected plants in Table 1 can occur on or near the property and may be of concern to the project:

Table 1. List of Sensitive Plants Potentially Occurring on the Project Site or its Vicinity

Abronia villosa var. *aurita*	Yellow hairy sand verbena
Astragalus crotalariae	Salton milk vetch
Astragalus insularis var. *harwoodii*	Harwood's milk vetch
Astragalus sabulonum	Gravel milk vetch
Berberis nevinii	Nevin's barberry
Castela emoryi	Crucifixion thorn
Chaenactis carphoclinia var. *peirsonii*	Peirson's pincushion
Crossosoma californicum	Catalina crossosoma
Cryptantha costata	Ashen forget me not
Cylindropuntia wolfii	Wolf's opuntia
Euphorbia abramsiana	Abrams' spurge
Euphorbia platysperma	Flat-seeded spurge
Grusonia parishii	Matted cholla
Johnstonella costata	Ribbed cryptantha
Lycium torreyi	Torrey's box thorn
Opuntia wigginsii	Wiggins's cholla
Pholisma sonorae	Sand food
Pilostyles thurberi	Thurber's pilostyles
Psorothamnus arborescens var. arborescens	Mojave indigo bush
Xylorhiza orcuttii	Orcutt's woody aster

The following report summarizes the results of the 2018 botanical survey on the 668-acre project site.

1.1 Property Description

1.1.1 Geographic Setting

The property (project site or site) is located southwest of the Salton Sea, Imperial County, California (Figure 1). It is relatively flat, with a slight north-facing slope ranging from -200 to -140 feet above average mean sea level (AMSL). Drainage from the property is, therefore, to the north and is evidenced by several incised drainage features that cross the property and that are oriented in a roughly southwest to northeast direction (Appendix B, Photograph 1).

1.1.2 Adjacent Lands

The property is situated south of Highway 86. Although there is no developed land to the east, west and south immediately adjacent to the property, there are expansive agricultural fields to the north of the property opposite of Highway 86.

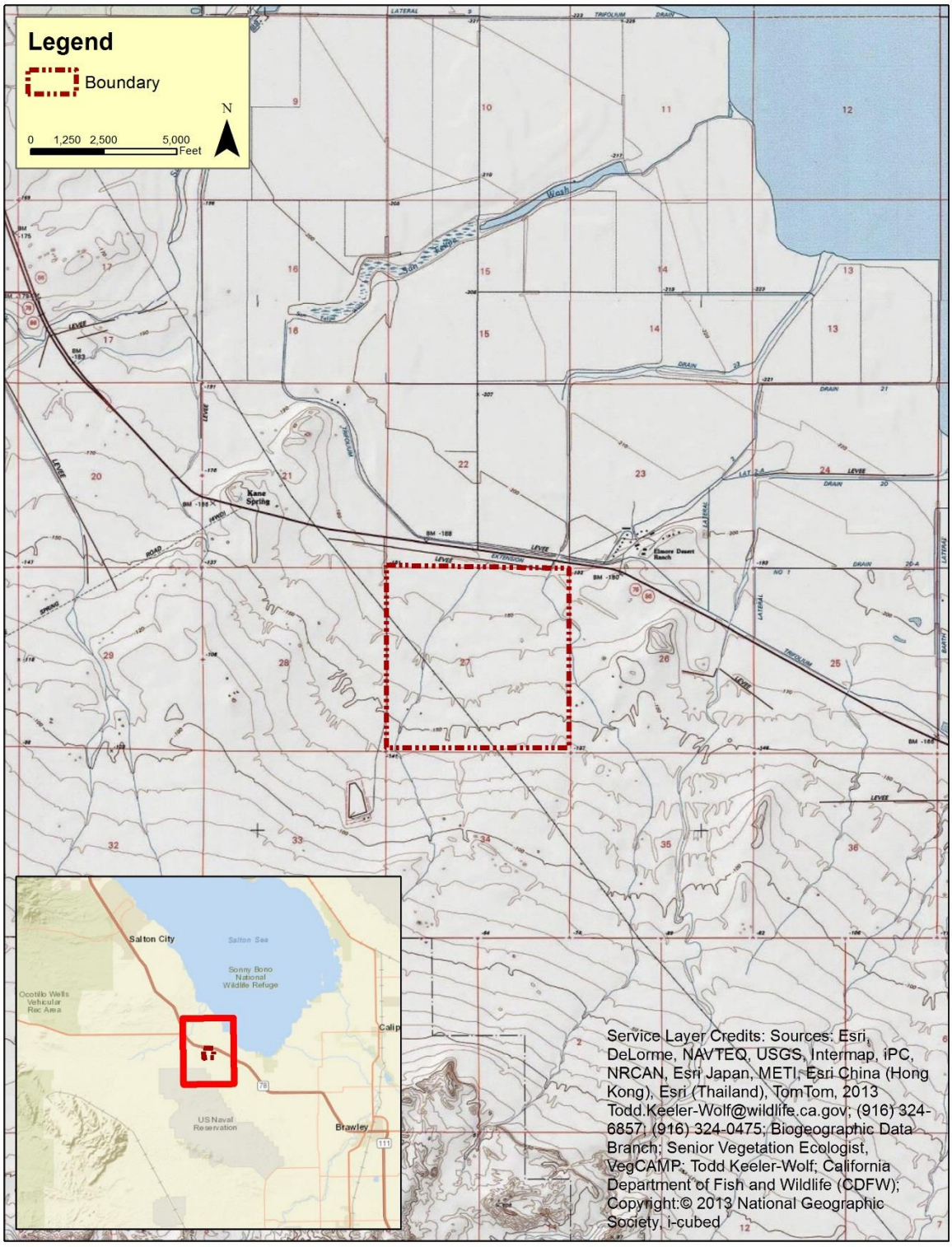
1.1.3 Geology, Hydrology, Soils and Climate

Geology, hydrology, soils and climate determine the natural botanic composition at a given site. Many plants of limited geographic distribution are associated with specific soil types. The project is in south of the Salton Sea and in within the Salton Trough geological area.

The project site and region are in the Salton Trough, a tectonically complex area that is the northernmost and landward extension of the Gulf of Mexico. It marks the boundary between the Pacific and North America tectonic plates. Volcanic rocks and substrates are common, and they define the present-day rift zone (Norton and Hulen, 2006). Tertiary sedimentary substrate deposition occurred in the region prior to rift basin development and geologically recent alluvial sediments originate from the uplands adjacent to the rift basin.

Colorado River has drained the interior of the North American plate since before the formation of the current rift zone and the historically recent and modern sediment deposition has increased during Colorado River flood events. The occurrence of the Colorado River delta sediments keeps the Gulf of California from inundating the Salton Trough, which is below sea level. Light-

Figure 1. Location and Vicinity Map



colored calcium carbonate deposits along Imperial Valley-adjacent cliffs suggest that the shoreline was once 40 feet above sea level (Mendenhall, 1909).

Soils on the site are of three origins:

1. Erosional soils on lacustrine deposits
2. Alluvial soils on alluvial fans, channel bottoms, flood plains, and terraces
3. Eolian soils on windblown sand and silt.

Although the soils on the site have not been mapped in their entirety, two soil types, Glenbar and Niland, dominate and typify the soils on the project site. The Glenbar series consists of very deep, well drained soils that formed in stratified stream alluvium. They occur on flood plains and alluvial fans and have slopes of 0 to 3 percent. The Niland series is a member of the sandy over clayey, mixed (calcareous), hyperthermic family of Typic Torrifluvents. Typically, Niland soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches (NRCS 2018).

Several drainages flow from the southern portion of the property to the northeast and toward the Salton Sea. The drainages are deeply incised, in places (Appendix B. Photograph 1). Waterflow over the site originates as rainfall.

The project region's climate is characterized by mild and dry winters with daily maximum temperatures in the 65 to 75ºF (18- 24ºC). Summers are hot with daily maximum temperatures of 104 to 115ºF (40-46ºC). The annual rainfall is just over 3 inches (7.5 cm) with most of it coming in late summer or midwinter (Ramboll Environ US Corp. 2017).

2 METHODS

2.1 Background Analysis

Pertinent plant records were reviewed prior to undertaking field surveys. The analysis included a review of records from the following sources:

- A review of collection records from participating herbaria in California available through the Consortium of California Herbaria, 2018;

Figure 2. Project Site Map

- Documented rare plant occurrences compiled in the California Natural Diversity Data Base (CNDDB) by the California Department of Fish and Wildlife, 2018;
- A review of documented occurrences of common and rare plants for California in Calflora, 2018;
- Species descriptions from the Jepson Online Interchange, 2018;
- Geological maps available from the US Geological Survey (i.e., Kennedy and Morton 2003);
- Soils data from the Natural Resources Conservation Service and available from the Web Soil Survey, 2018; and,
- Aerial photographs from Google Earth, ESRI, Digital Globe, GeoEye, US Department of Agriculture, US Geological Survey, i-cubed, Aerogrid and Getmapping.

The background analysis yielded data that were compiled in a Geographic Information System (GIS) using ArcMap 10.6. These data were modified and uploaded to a Trimble Juno GNSS device for use in the field as reference and for collecting field data. Several paper maps were also made from the data, which were printed for use during the surveys. Subsequent mapping for this report was also done in ArcGIS 10.6.

2.2 Field Surveys

Biologists Ricardo Montijo and Karen Kirtland and technical assistant Gregorio Pacheco conducted botanical surveys on one day during the 2018 growing season. Rainfall has been far below normal for the nine (9) months prior to the survey. The deficit is about 7% of normal annual rainfall (Table 1).

Table 2. Rainfall totals from July 2017 to April 2018 compared to known average rainfall for each month from 1942 to 2005.[1]

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Season Average	**0.01**	**0.27**	**0.27**	**0.25**	**0.35**	**0.21**	**0.43**	**0.34**	**0.28**	**0.08**	**2.49***
2017-2018	0.12	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.18

The biologists conducted the botanical survey accompanied by assistant Gregorio Pacheco on 20 March 2018. The team noted weather and site conditions and recorded plants detected. Plants not readily identified in the field were collected and pressed and keyed out later. The day was partly cloudy. Temperatures peaked at approximately 91° Fahrenheit (F). The project site was systematically surveyed by walking all accessible portions ensuring that all habitats were afforded sufficient coverage to be properly inventoried. The greatest focus was in areas likely to support target species. Thus, scrubby areas and drainages and the property's northern boundary (near where special status species have been recorded before) were carefully searched for rare annuals and perennials.

A complete list of plants observed is included as Appendix A of this report. All plant nomenclature in this report follows Baldwin *et al.* (2012).

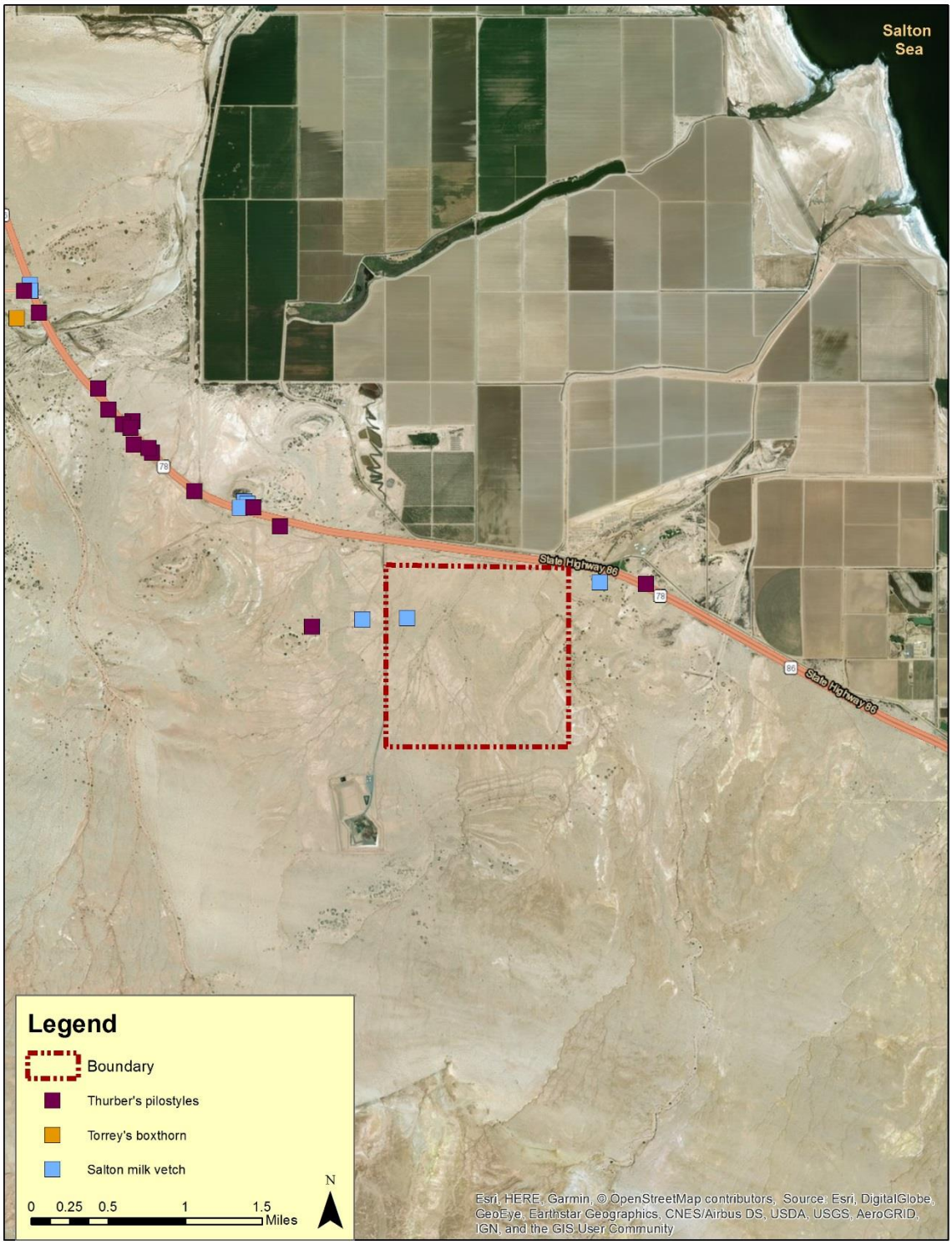
3 RESULTS

3.1 Preliminary Analysis

The preliminary analysis of known and documented occurrences of the species evaluated in the study revealed populations of several sensitive plants near the property and possible occurrences on the property based on past field collections and investigations (Figure 3). The soil texture is like areas known to support rare plants on adjacent lands and is derived from common parent

[1] https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?caimpe+sca

Figure 3. Special Status Plants within the Site's Vicinity



materials. The following are descriptions of plants compiled from distribution and biological data that were used to evaluate the potential presence of the species during the preliminary analysis. Table 2 summarizes the results of this analysis.

3.1.1 Summary of Rare Plant Findings

Conditions on the site were not conducive to finding flowering plants due to the extended low-rainfall preceding the surveys. Annual plants and herbaceous perennials were desiccated, and most were lacking flowers or other distinguishable features.

Most plants from Table 1 were eliminated from further analysis due to absence of suitable habitat. Table 3 summarizes potential occurrence of rare plants further evaluated for the site. Their CNPS status is included in the text and an explanation of the CNPS classification scheme is provided in Appendix C.

Table 3. Preliminary Analysis Results Summary

Species	Likelihood of Occurrence
Salton milk vetch	Present
Gravel milk vetch	Marginally suitable conditions exist for this species.
Ashen forget me not	Marginally suitable conditions exist for this species.
Torrey's box thorn	Suitable conditions exist for this species but is unlikely to occur.
Thurber's pilostyles	May occur. Suitable conditions exist for this species.
Mojave indigo bush	Unlikely to occur.

3.1.1.1 Salton Sea Milk Vetch

Salton sea milk vetch (*Astragalus crotalariae*) is a perennial herb that occurs in California, Arizona and northern Baja California. It grows in valleys, washes foothills and open sandy gravelly areas. The shrubby plant grows to 24 inches and is often found with honey mesquite (*Prosopis glandulosa*), creosote bush (*Larrea tridentata*), and alkali goldbush. This species produces distinctive purple and white flowers. The fruit, like other members of the genus,

consists of an inflated papery pod with a fine net-like pattern (Wojciechowski and Spellenberg, 2012). Salton sea milk vetch produces flowers from January to May.

Past occurrences overlap the project site according to the CCH and remnants of the species were detected in two drainages during the survey (Figure 4). Salton Sea milk vetch is a CNPS List 4.3 plant (plants with a California Rare Plant Rank of 4 are of limited distribution or infrequent throughout a broader area in California). List 4.3 plants are not normally afforded special protection or consideration in environmental reviews unless they comprise an isolated population or are at the fringe of the species' range.

3.1.1.2 Gravel Milk Vetch

Gravel milk vetch (*Astragalus sabulonum*) is a low-growing annual plant that occurs in California, Utah, New Mexico and northern Mexico. It grows in creosote bush scrub on sandy and gravelly soils to a height of about 12 inches. It has a silky stem and leaves and hairy fruit and produces creamy white flowers that are often tinged purple. It flowers from February to July.

Gravel milk vetch has been collected on the western side of the Salton Sea at the junction of U.S. 99 and State Highway 78 and near San Felipe Creek at its confluence with Carrizo Wash (CCH 2018). Gravel milk vetch is CNPS list 2B.2 and is considered rare, threatened, or endangered in CA, but common elsewhere. No observations were made, but generally suitable conditions for this species exist on the project site.

3.1.1.3 Ashen Forget Me Not

Ashen forget me not (*Cryptantha costata*) is a small annual herb that grows to about 8 inches tall. It grows in creosote bush scrub on fine sandy deposits (dunes and other wind-blown soils) in California, southern Nevada, Arizona, and Baja California (Kelley et al. 2012). Like most cryptanthas, this species has tiny white flowers and like many it has stiff white hairs throughout the stems, leaves, and fruits. It flowers from January to May.

There are no recorded observations of this species in the project vicinity, and marginally suitable conditions exist there. Like Salton Sea milk vetch, ashen forget me not is a List 4 plant and is not

normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.4 Torrey's Box Thorn

Torrey's box thorn (*Lycium torreyi*) is a perennial shrub of the Nightshade (tobacco, potato, tomato and others) Family that grows in sandy and rocky washes, streambanks, and desert valleys dominated by creosote bush scrub. According to Benson and Darrow (1981) it reaches height of up to 9 feet and prefers river bottoms and alluvial flats. It typically flowers from March to May.

Torrey's box thorn has been collected on the western side of the Salton Sea at the junction of State Highway 78 and San Felipe Creek opposite the U.S. Customs and Border Protection checkpoint (CCH 2018). It was not found during the survey and likely does not occur there. Torrey box thorn is a CNPS List 4.2 plant and, like other List 4 plants discussed here, is not normally afforded special protection or consideration in environmental reviews except under special conditions (see Section 3.1.1.1).

3.1.1.5 Thurber's Pilostyles

Thurber's pilostyles (*Pilostyles thurberi*) is a perennial parasitic plant that grows inside the stems of indigo bush (*Psorothamnus* spp.) and particularly dyebush (*P. emoryi*). It is often associated with Sonoran Desert scrubs in California, but it occurs in Arizona, California, Nevada, New Mexico, Texas and northern Mexico (Yatskievych 2012). It produces flowers on the stems of its host in January.

Thurber's pilostyles has been recorded less than a half mile east and west of the project site (Figure 3). These observations are described as 0.9-mile northwest of Westmorland and 0.8-mile southeast of Kane Spring per specimen records as reported by the CCH (2018). Dyebush was collected by on the project site by Peter Raven in 1961 and 1962, but it was not found during this survey perhaps because survey timing and rainfall conditions were unsuitable for the species. Thurber's pilostyles is a CNPS list 4.3 species.

3.1.1.6 Mojave Indigo Bush

Mojave indigo bush (*Psorothamnus arborescens*) is a large perennial shrub that grows to less than 3 feet, normally in riparian or wash scrub. In California, it has a spotty distribution from Mono County to Imperial County (Benson and Darrow 1981). It produces deep purple, sometimes abundant, showy flowers from March to May.

There are no records of Mojave indigo bush near the project site. The closest record is from Chuckwalla Valley, 10 miles north of Chuckwalla Spring. It is a CNPS List 4.3 species.

3.2 Field Surveys

3.2.1 Vegetation Types

Vegetation on the property is mostly confined to drainages and adjacent areas and nearly completely devoid of annual plants at least partly due to the lack of rainfall. A map depicting vegetation on the site and superimposed on the property is shown in Figure 4.

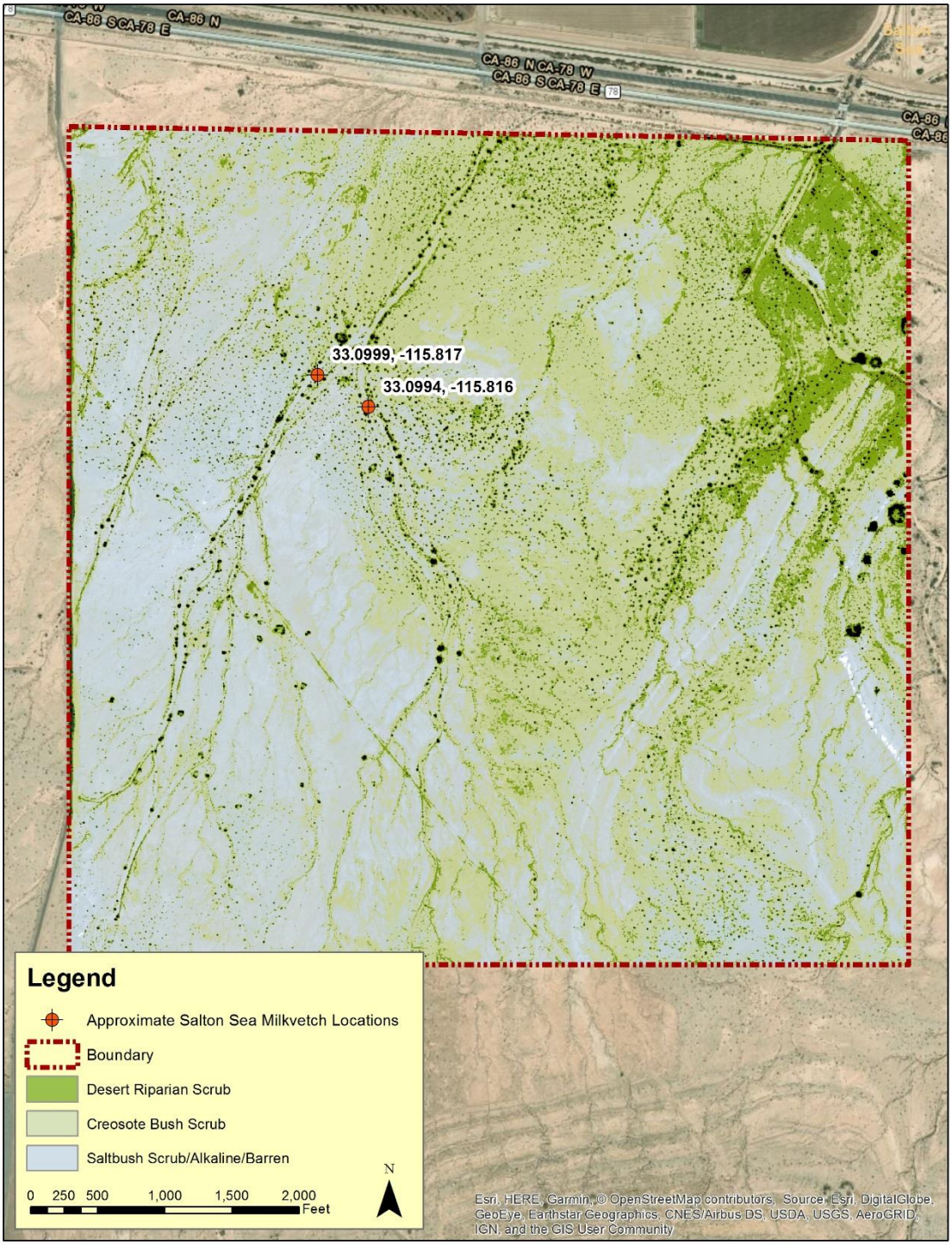
3.2.1.1 Sonoran Creosote Bush Scrub

Creosote Bush Scrub is the most common vegetation type in the region. It grows in areas where sands have accumulated and is dominated by the namesake plant creosote bush. Other common associates include burro bush (*Ambrosia dumosa*) and longleaf jointfir (*Ephedra trifurca*) (Appendix B, Photograph 2). Few annuals were growing at the time of the survey, but remnant plants from the prior-year include globe mallows (*Spaeralcea* spp.), Emory's indigo bush (*Psorothamnus emoryi*), desert plantain (*Plantago ovata*) and rigid spiny herb (*Chorizanthe rigida*)

3.2.1.2 Desert Riparian Scrub

Desert riparian vegetation consist of groves of low-growing trees or tall shrubs to woodlands of small to medium-sized trees. Such vegetatuib is normally found adjacent to permanent or ephemeral surface water and create a sharp transition with adjacent open low scrub desert habitats. Desert riparian scrub on within the study area includes several tall shrubs and

Figure 4. Vegetation types overlapping the Property generated by field mapped values and unsupervised image classification in GIS.



phreatophytic trees such as western honey mesquite (*P. glandulosa* var. *torreyana*) and the introduced saltcedar (*Tamarix ramosissima*) and Chinese tamarisk (*Tamarix chinensis*).

3.2.1.3 Saltbush Scrub and Alkaline Barrens

Saltbush vegetation occurs in alkaline and semi alkaline soils. Historically the terms halophytic phase and arid (or xerophytic) saltbush scrub have been used to describe the vegetation in areas of relatively high and low salinity, respectively. Perennial plant species of the xerophytic phase include four-winged saltbush (*Atriplex canescens*).

3.2.2 Rare Plants

The surveys were conducted in a below-rainfall year (see Table 1). Only one list 4 species, Salton milk vetch was found. Although conditions on the property are suitable for most of the remaining rare species on the list, none was detected during the 2018 survey. Survey results are summarized in Table 4.

Table 4. Field Survey Results Summary

Species	Field Survey Result
Salton milk vetch	Present
Gravel milk vetch	Not found
Ashen forget me not	Not found
Torrey's box thorn	Not found
Thurber's pilostyles	Not found
Mojave indigo bush	Not found

Low rainfall and survey timing for 2018 yielded few and inconclusive results for the botany on site.

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APPENDIX A

Flora Observed

Scientific Name	Common Name	Type	Native	Family
Ambrosia dumosa	Burro weed	Shrub	native	Asteraceae
Baileya pauciradiata	Lax flower	Annual herb	native	Asteraceae
Geraea canescens	Hairy desert sunflower	Annual herb	native	Asteraceae
Isocoma acradenia var. eremophila	Solitary leaved alkali goldenbush	Shrub	native	Asteraceae
Pluchea sericea	Arrow weed	Shrub	native	Asteraceae
Brassica tournefortii	Mustard	Annual herb	invasive non-native	Brassicaceae
Atriplex canescens	Hoary saltbush	Shrub	native	Chenopodiaceae
Ephedra trifurca	Long leafed ephedra	Tree, Shrub	native	Ephedraceae
Astragalus crotalariae	Salton milk vetch	Perennial herb	native	Fabaceae
Prosopis glandulosa var. torreyana	Honey mesquite	Tree, Shrub	native	Fabaceae
Psorothamnus emoryi	Emory's indigo bush	Shrub	native	Fabaceae
Sphaeralcea orcuttii	Carrizo mallow	Annual, Perennial herb	native	Malvaceae
Plantago ovata	Desert plantain	Annual herb	native	Plantaginaceae
Aristida adscensionis	Three awn	Annual grass	native	Poaceae
Cynodon dactylon	Bermuda grass	Perennial grass	invasive non-native	Poaceae
Chorizanthe rigida	Rigid spiny herb	Annual herb	native	Polygonaceae
Eriogonum deserticola	Colorado desert buckwheat	Shrub	native	Polygonaceae
Oligomeris linifolia	Leaved cambess	Annual herb	native	Resedaceae
Tamarix chinensis	Chinese tamarisk	Shrub	invasive non-native	Tamaricaceae
Tamarix ramosissima	Tamarisk	Tree, Shrub	invasive non-native	Tamaricaceae
Phoradendron californicum	California mesquite mistletoe	Shrub (parasitic)	native	Viscaceae
Larrea tridentata	Creosote bush	Shrub	native	Zygophyllaceae

APPENDIX B

Site Photographs

Photograph 1. The above-photograph, taken facing roughly east, shows a drainage feature (in the foreground) oriented roughly northeast. In the drainages are mesquite and other species typical of the site.

Photograph 2. This photograph shows *Ephedra trifurca* near the north end of the survey area.

Photograph 3. The above photograph illustrates tamarisk (foreground) and mesquite (background) found in drainages during the survey.

APPENDIX C

CNPS List Definitions

1A Plants presumed by CNPS to be extinct in California

1B Plants considered by CNPS to be rare or endangered in California and elsewhere

2P Plants considered by CNPS to be rare, threatened or endangered in California, but which are more common elsewhere.

3 Review list of plants suggested by CNPS for consideration as endangered but about which more information is needed.

4 Watch list of plants of limited distribution whose status should be monitored

Threat Code extensions and their Meanings:

1. Seriously endangered in California
2. Fairly endangered in California
3. Not very endangered in California

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P Traffic Impact Study

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Desert Valley Monofill

TRAFFIC IMPACT STUDY
IMPERIAL COUNTY, CALIFORNIA

Prepared By:

October, 2020

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1.0 INTRODUCTION

Background

The Desert Valley Company Monofill (DVCM) is an active Class II Solid Waste Management Facility (SWMF) used for the disposal of certain geothermal non-hazardous waste streams and byproducts generated by CalEnergy Operating Corporation's (CalEnergy) geothermal power plant operations in Imperial County, California. These operations are permitted under Conditional Use Permit (CUP) No. 05-0020, Solid Waste Facility (SWF) Permit No. 13-AA-0022, and Waste Discharge Requirements (WDR) R7-2016-0016.

The SWMF is located on private lands north of Superstition Hills and south of State Route 86 (Highway 86), approximately 12 miles west of the City of Westmoreland and 4 miles south of the Salton Sea in the County of Imperial, California. The Desert Valley Company Monofill Facility is located at 3301 West State Route in Brawley, California

CalEnergy (Applicant) is requesting an amendment to CUP No. 05-0020, a General Plan Amendment and a Zone Change to facilitate expansion of the existing Desert Valley Company Monofill for construction, operation, closure and post-closure of a new waste storage cell (referred to as Cell 4). At the current rate of waste disposal, Cell 3 is projected to reach its design capacity in 2025 and will cease operations. A new Cell will be needed to continue operations beyond that year.

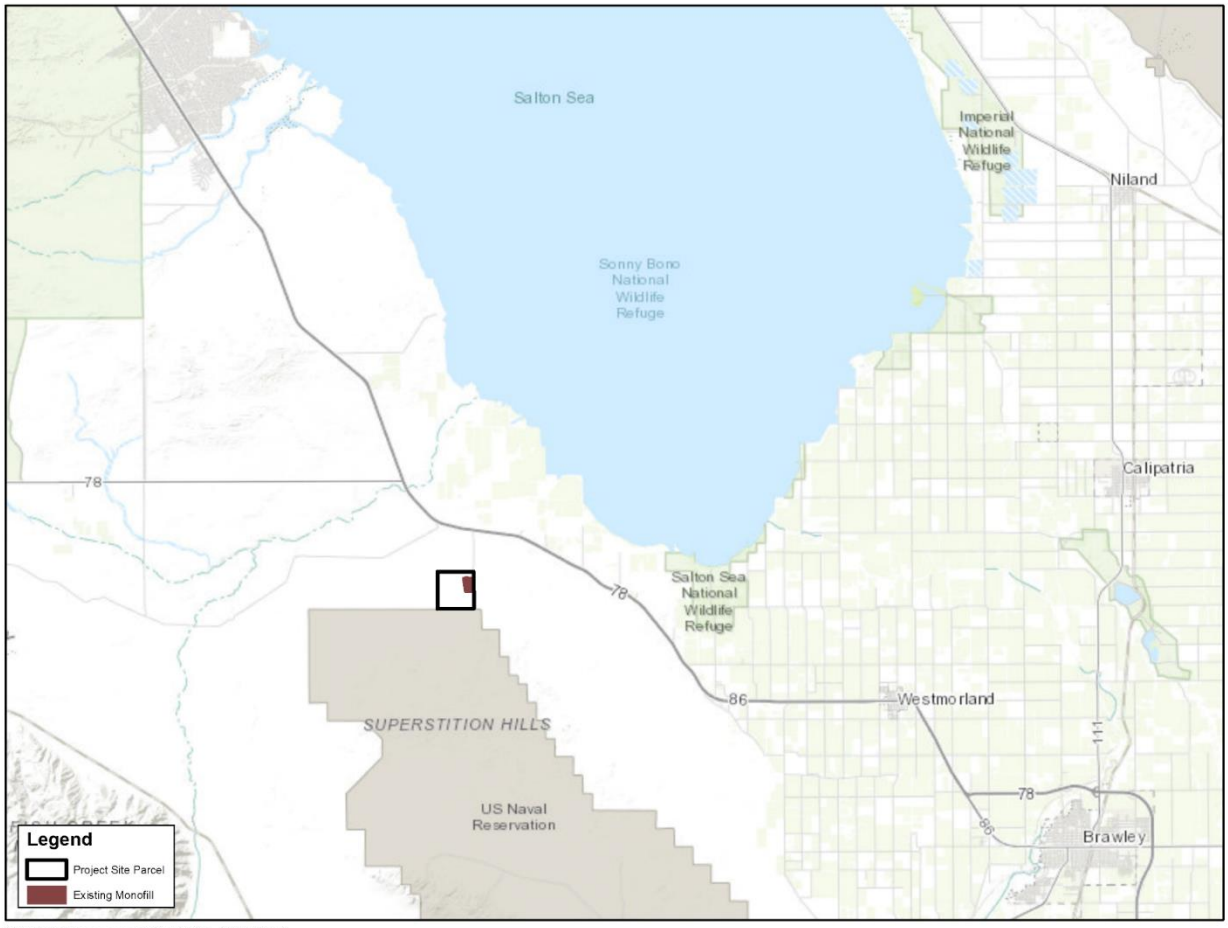
The Project

The project location is shown in Figure 1. The expansion of the existing Desert Valley Company Monofill includes the addition of waste storage Cell 4 and associated facilities:

- a new leachate pond for Cell 4 (1.2 acres);
- the construction of new stormwater diversion dikes and the extension of existing stormwater diversion dikes to divert surface water runoff around the Project site;
- minor extensions/modifications to internal access roads to provide access to Cell 4;
- installation of a new water well for use during construction; and
- air quality particulate sampling stations, and additional groundwater monitoring wells

The addition of Cell 4 will be constructed in two phases (Cell 4A and Cell 4B) with the construction traffic identified for construction of Cell 4A and Cell 4B will be similar. The construction of Cell 4A would commence in 2022. The construction of Cell 4B would commence when Cell 4A is nearing capacity that is anticipated in approximately 2040.

FIGURE 1 PROJECT LOCATION



Traffic Impact Analysis Requirements

This traffic impact analysis memorandum has been prepared to describe the traffic related to the construction and operations of Cell 4. Traffic study methodologies are based on the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007 ("Traffic Study and Report Policy"). The criteria for completing a traffic study is provided on page 4 of that report and states the following:

a. If a project adds more that 8% of traffic to adjacent street system. **Criteria requiring TIS not met.**

The daily project volume is currently 194 passenger car equivalent (PCE) for operations. New daily construction trips are estimated to be 63 (PCE) for a total of 257 daily trips. The 2018 daily traffic count on the adjacent street system roadway of SR-86 was 13,900, equal to 1.8% of total trips.

b. Project generates more than 800 industrial daily trip ends or 200 peak hour trip ends. **Criteria requiring TIS not met.**

   With both project operation and construction, the project will generate 49 peak hour trips.

c. Project intensifies usage of the site above the currently allowed CUP. **Criteria requiring TIS not met.**

   The project will not intensify site usage above the currently allowed CUP. However, the project life will be extended from 2024 for 28 years for Cell 4A and 28 additional years with Cell 4B.

The expansion of the site will not impact vehicle or truck trip generation. The type of waste, the amount in tons, the maximum number of truck trips and hours of operation are specifically identified in CUP No. 05-0020 and SWFP Permit No. 13-AA-0022. None of the following would be changed under the proposed expansion:

- The waste stream accepted at the DVCM is limited to geothermal filter cake, drilling mud materials and cuttings, soils containing geothermal materials, and incidental plastic sheeting used as truck bed liners by the waste transport trucks.
- The amount of non-hazardous wastes that can be received is limited to a maximum of **750 tons per day** and **273,750 tons annually** in accordance with current CUP and SWFP.
- The current SWFP limits the number of daily truck deliveries to **38 trucks per day**. This will not change when Cell 4A or Cell 4B are in operation.
- The permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday.

Based on the criteria stated in the Traffic Study and Report Policy, a full traffic impact analysis is not required. However, an analysis of site operation and site construction is presented in the following section in order to describe the traffic volumes associated with the operation, construction and site access of the solid Waste Management Facility for Cell 4A and for Cell 4B during each phase's construction year.

2.0 CURRENT AND PROPOSED PROJECT OPERATIONS

This section describes the trip generation and the routes used by trucks that are currently used and would continue to be used when the Cell 4A and Cell 4B would be constructed.

Existing Roadway Conditions

Each of the key roadways, as well as associated study intersections within the study area, are discussed below.

Roadway Facilities

Routes used by truck accessing the Monofill include:

- *State Route 86/78 (SR-86/78)* is a four lane divided highway and a posted speed limit of 65 mph near the project site.
- *Bannister Road* is a two-lane minor local collector roadway with no median and a posted speed limit of 55 mph. No sidewalks or bicycle facilities are present on either side of the roadway. The width of the roadway is generally 24 feet.
- County Road 30 is classified as a major collector and includes Forrester Road, O Brian Road and Gentry Road. These are two lane roadways with shoulders that are well maintained by the County.
- Lack Road is a two lane minor collector roadway with shoulders.
- *Site access driveway* is a two-lane paved roadway.

Trip Generation

Trip generation is a measure of the number of trips that begin or end at the project site. The traffic generated is a function of the extent and type of development of the site. For site operation, these are the trips that are currently taking place and are allowed under the CUP. Typically there are no or few employees at the site. For the calculations, two employees were included. There are also a maximum 38 in-bound and 38-outbound truck trips per day as per the CIP. A factor of 2.5 was used to convert truck trips to passenger car equivalent (PCE) trips for the traffic analysis. The trip generation associated with the existing and currently on-going operations of the site is shown in Table 1.

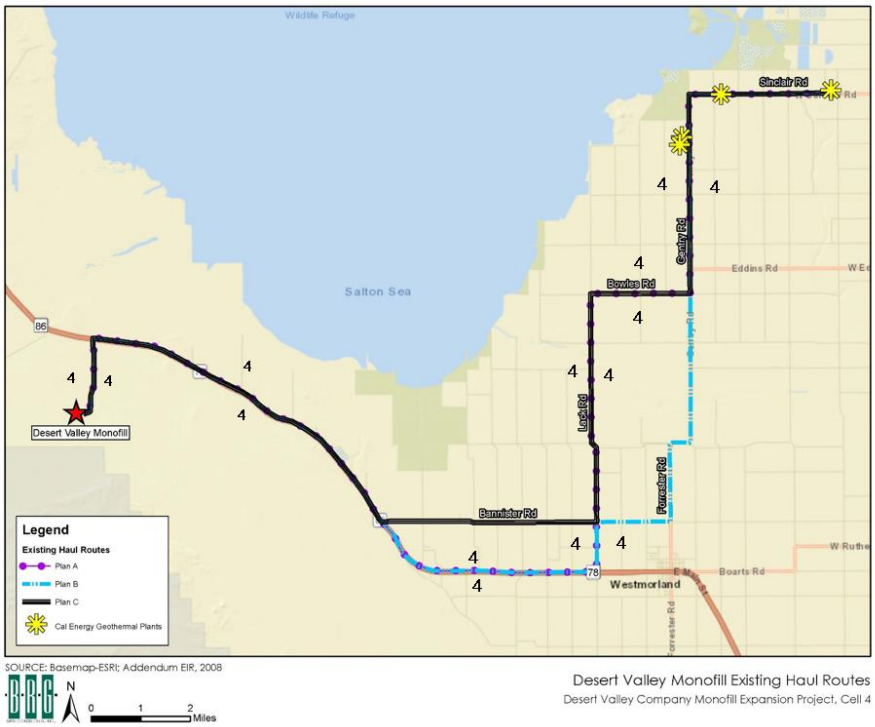
TABLE 1 PROJECT OPERATIONS TRIP GENERATION (EXISTING)

	Intensity	Unit	Daily Rate (1)	Daily Trips (PCE)		AM Peak Hour			PM Peak Hour		
						Total	In	Out	Total	In	Out
Waste Storage Workers	2	Employee	2	4	Rate	1.00	100%	0%	1.00	0%	100%
					Trips	2	2	0	2	0	2
Truck trips	38	Truck	2	190	Rate	0.11	50%	50%	0.11	50%	50%
					Trips	21	11	11	21	11	11
Total				194	Trips	23	13	11	23	11	13
*Ttruck passenger car equivalent = 2.5											

Trip Distribution

Solid waste materials are delivered to the Monofill by truck. The current covered loads are transported from the Salton Sea area, via a designated truck haul route that includes Sinclair Road, Gentry Road, Bowles Road, Lack Road and State Route 86/78. The routes used and the typical hourly volumes are shown in Figure 2. The current SWFP limits the number of daily truck deliveries to **38 trucks per day, which is approximately 4 inbound and 4 outbound per hour**. This number of trips would not be changed under the proposed expansion. The DVCM is accessed via a single lane road that connects to SR 86/78 The access road is approximately 1.25 miles long and is asphalt surfaced.

FIGURE 2 TRUCK TRIP ROUTES AND VOLUME (FOR TYPICAL HOUR OF OPERATION)



X- Truck Volume - by direction per hour

3.0 CONSTRUCTION ACTIVITIES

Construction of the proposed project is anticipated to begin after receipt of all required approvals and will continue for approximately 12 months. The construction workers employed for the project will consist of laborers, electricians, supervisory, support, and management personnel. Grading of the project will occur over approximately three weeks. Disturbed surfaces that are not stabilized will be watered, as needed, for dust control.

The new Cell 4 would be built in two (2) phases – Phase 1 and 2, referred to herein as Cells 4A and 4B, respectively. Similar to Cell 3, Cells 4A and 4B would have a combined capacity of approximately 1.3 million CY; a projected lifespan of 28.6 years; and, would occupy a surface area of approximately 50 acres (CalEnergy, 2018). Construction of Cell 4A, with an overall area of 24 acres, would be constructed first and would take approximately 12 months to complete. Cell 4A, upon issuance all required permits, would begin to receive solid waste once Cell 3 reaches capacity, which is anticipated in the year 2025. Cell 4B construction would begin in the year 2040.

Equipment that will be used to grade the cells, roads and drainage diversion/swale will be typical grading equipment including dozers, compacters, loaders, earthmoving scrapers and water trucks. The list of equipment that is anticipated for construction is listed below.

Quantity	**Grading Equipment**
1-3	Tractor/Scraper
1-2	Paddle Wheel Scraper
1	CST 140H Motor Grader
1	CAT D9 Dozer
1	CAT D6 Dozer
1-2	4000-GAL Water Truck
1	8000-GAL Water Pull
1	825C Sheepsfoot Compactor
1	CAT CP 433E Vibratory Sheepsfoot Compactor
1	Deere 210 LE Loader
1	CAT 430D Backhoe Loader
	Paving Equipment
1	CAT AP -1055B Asphalt Paving machine
1-2	SAKAI SW-850 Asphalt Compactor
1	CAT PS-200B Rubber Tire Compactor
1	IR DD-22 Vibratory Drum Compactor

Construction employee parking needs will be minimal with an average approximately 15 people on-site and a peak of approximately 25 people. Construction parking will be provided in the area immediately to the north of the project site. A majority of the equipment will be remain on site during the construction phase, with a minimal amount of truck movement occurring on a typical day.

Trip Generation

Trip generation for site construction has been estimated for a typical day and for the AM and PM peak hours. The construction workforce will include an average 15 people on-site with a peak of 25 employees

on site. Work hours will be between the hours of 8:00 a.m. and 5:00 p.m. Monday through Friday. The trips generated during the connection phase have been converted into passenger equivalent volumes (PCE) using a PCE factor of 2.5. There are 63 daily PCE construction trips with 26 of the trips occurring in each peak hour.

TABLE 2 CONSTRUCTION TRIP GENERATION

		Intensity	Unit	Daily Rate (1)	Daily Trips (PCE)		AM Peak Hour			PM Peak Hour		
							Total	In	Out	Total	In	Out
Peak Construction Workers		25	Employee	2	50	Rate	1.00	100%	0%	1.00	0%	100%
						Trips	25	25	0	25	0	25
Equiptment Deliveries and Construction Truck Trips (PCE)		5	truck trips/day	1	13	Rate	0.13	75%	25%	0.13	25%	75%
						Trips	1	1	0	1	0	1
	Total				63	Trips	26	26	0	26	0	26
	*T truck passenger car equivalent = 2.5											

Trip Distribution and Assignment

Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will likely affect. The trip distribution was estimated based on using logical travel paths between the project and local origins during the construction phase. The trip distribution is based upon the existing population distribution of cities in Imperial County for 90% of the trips, with the remaining 10% coming from Riverside County. The population distribution is shown in Table 3.

TABLE 3 POPULATION DISTRIBUTION USED FOR IMPERIAL COUNTY TRIP DISTRIBUTION

City	Population	Percentage of Total	Percentage of Employees (90% of Total)
Calipatria	4,426	3.0%	3%
Westmoreland	2,382	1.6%	1%
Brawley	25,959	17.3%	16%
Imperial	16,931	11.3%	10%
El Centro	43,932	29.3%	26%
Holtville	6,355	4.2%	4%
Calexico	39,953	26.7%	24%
Salton City	5,487	3.7%	3%
Heber	4,273	2.9%	3%
Total	149,698	100.0%	90%

The trip distribution percentage for the construction related trips is shown in **Figure 3**. Construction project trips are distributed as shown in **Figure 4.** As shown in the figure, the peak hour construction traffic will only add a maximum of 26 PCE trips to entrance of the site, and fewer trips to other segments or intersections in the street network.

FIGURE 3 CONSTRUCTION TRIP DISTRIBUTION

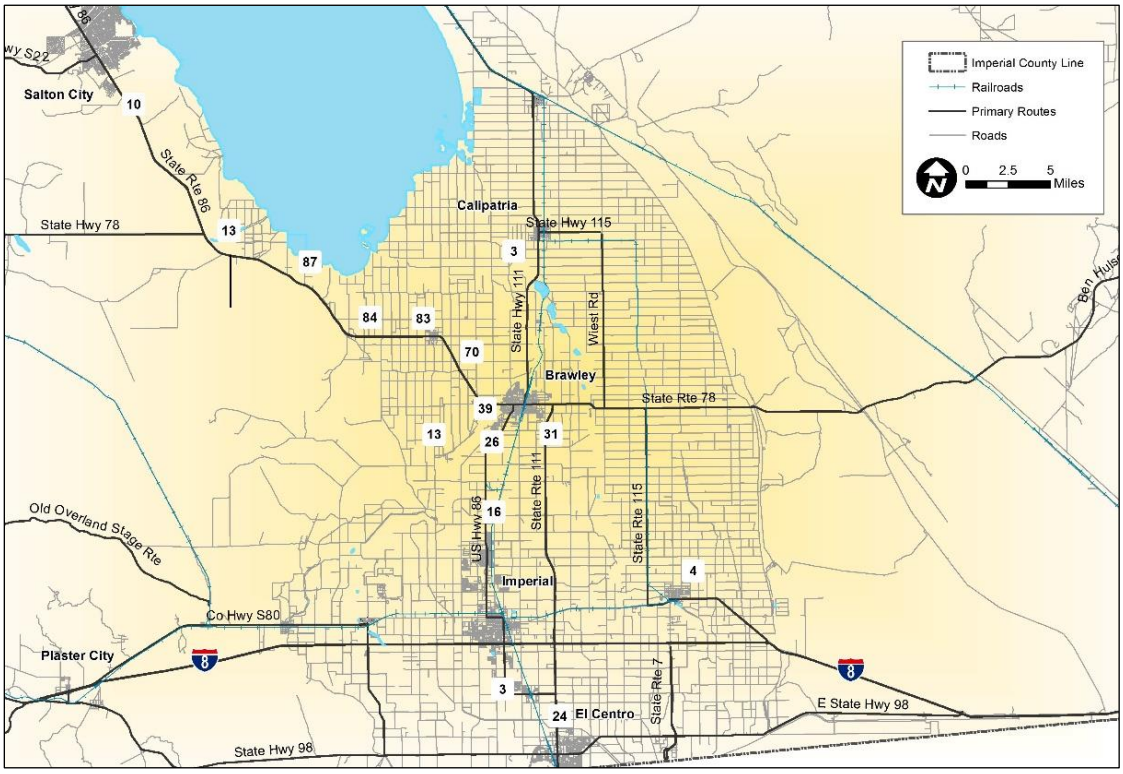
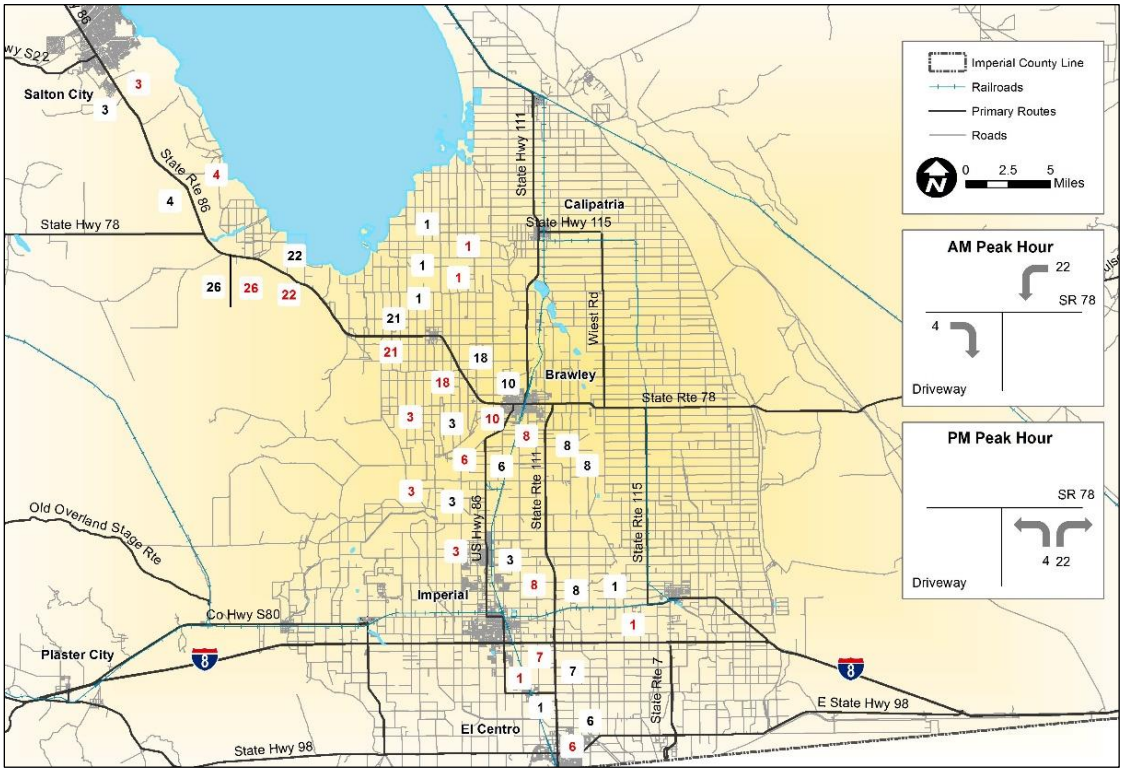


FIGURE 4 CONSTRUCTION TRIP ASSIGNMENT



Total Trips

The operations and construction phase will operate concurrently for a one-year period. The total trips (PCE) are shown in Table 4 for operations and for new construction trips.

TABLE 4 TOTAL TRIPS TO THE SITE (CONSTRUCTION AND OPERATION)

	Daily Trips	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Existing Operations Trips	194	23	13	11	23	11	13
New Construction Trips	63	26	26	0	26	0	26
Total Trips	257	49	39	11	49	11	39

4.0 TRAFFIC OPERATIONS ANALYSIS

Traffic operations for the entrance to the site from SR 86/78 were analyzed for the construction years of 2022 and 2040. In order to reflect pre-Covid traffic conditions, traffic count data used for the analysis was taken from the Caltrans 2018 traffic census and using site traffic generation to estimate turning movements to and from the site driveway.

Construction Year 2022

This section documents the addition of construction traffic for Cell 4A plus existing operations onto year 2022 conditions to document the scenario with both construction and operations traffic occurring simultaneously. An annual ambient growth of 2.0% was utilized to account for traffic growth between the year of traffic counts (2018) and the construction year of 2022.The segment analysis was completed for the segment of SR 86/78 at the site entrance. The intersection analysis was completed at the intersection of the site drive and SR 86/78. The segment analysis is shown in Table 5 and intersection analysis in Table 6. Level of service worksheets are provided in the appendix.

TABLE 5 2022 CONSTRUCTION YEAR ROADWAY SEGMENTS

Scenario	Roadway Segment	Lanes/ Class	LOS E Capacity*	Existing		
				ADT	V/C	LOS
Background	SR 86	State Hwy (4D)	57,000	15012	0.26	A
Background + Construct	SR 98	State Hwy (4D)	57,000	15,075	0.26	A

**Source: Imperial County Circulation and Scenic Highways Element 2008 and Imperial County Long Range Transportation Pan 2013 Update*

TABLE 6 CONSTRUCTION PLUS CONSTRUCTION TRAFFIC AT SITE ACCESS INTERSECTION (YEAR 2022)

Scenario	Intersection	Control	AM Peak Hour				PM Peak Hour			
			NB		WB LT		NB		WB LT	
			Delay (Sec.)	LOS	Delay (Sec.)	LOS	Delay (Sec.)	LOS	Delay (Sec.)	LOS
Background	Site Driveway/ SR 86	SSS	13.2	B	10	A	12.3	B	8.8	A
Back + Constr	Site Driveway/ SR 86	LT	13.4	B	10.1	B	12.4	B	8.8	A

SSS- Side Street Stop
LT- Uncontrolled left turn

Construction Year 2040

This section documents year 2040 construction traffic for the construction of Cell 4B. An annual ambient growth of 2.0% was utilized to account for traffic growth between the year of traffic counts (2018) and 2040. The intersection analysis was completed at the intersection of the site drive and SR 86/78. The segment analysis is shown in Table 7 and intersection analysis in Table 8. Level of service worksheets are provided in the appendix.

TABLE 7 CONSTRUCTION YEAR ROADWAY SEGMENTS (YEAR 2040)

Scenario	Roadway Segment	Lanes/ Class	LOS E Capacity*	Existing		
				ADT	V/C	LOS
Background	SR 86	State Hwy (4D)	57,000	21489	0.38	A
Backgound + Construct	SR 98	State Hwy (4D)	57,000	21,552	0.38	A

**Source: Imperial County Circulation and Scenic Highways Element 2008 and Imperial County Long Range Transportation Plan 2013 Update*

TABLE 8 CONSTRUCTION PLUS CONSTRUCTION TRAFFIC AT SITE ACCESS INTERSECTION (YEAR 2040)

Scenario	Intersection	Control	AM Peak Hour				PM Peak Hour			
			NB		WB LT		NB		WB LT	
			Delay (Sec.)	LOS	Delay (Sec.)	LOS	Delay (Sec.)	LOS	Delay (Sec.)	LOS
Background	Site Driveway/ SR 86	SSS	18.1	C	12	B	14	B	9.8	A
Back + Constr	Site Driveway/ SR 86	LT	12.3	B	13.2	B	16.4	C	9.8	A

SSS- Side Street Stop
LT- Uncontrolled left turn

5.0 SITE ACCESS

Access to the site from SR 86/78 is shown in Figure 5. The access to and from SR 86/78 is well designed with separate right turn and left turn lanes provided with sufficient deceleration, storage distance and sight distance. The access is sufficient to accommodate existing and future Monofill operations.

FIGURE 5 SITE ACCESS AT SR-86/78

6.0 FINDINGS AND RECOMMENDATIONS

The Monofill site operates within current CUP agreement that limits truck trips. The operation of truck traffic will not change with the proposed project.

The Cell 4A portion of the project would be constructed beginning in 2022, begin operation in 2024 and reach capacity in 2042. The Cell 4B portion of the project would begin construction in the year 2040, begin operation in 2042 and would operate until the year 2070.

The level of traffic generated by project construction phase will not result in traffic generation that would require a more extensive traffic study, as the daily volumes and peak hour volumes are below the study thresholds set by Imperial County Public Works.

This traffic study did address construction impacts for the project for both year 2022 and year 2040. The traffic analysis analyzed trip generation and trip distribution of construction trips. A traffic capacity analysis of the site entrance with SR 86/78 was completed in order to determine impacts of construction for both construction periods of 2022 and 2040. The results of the capacity analysis of segments and intersections indicate that the construction phases will not result in traffic impacts.

APPENDIX A CALTRANS TRAFFIC CENSUS (2018) FOR SR-86

CALTRANS Traffic Count

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Q
	DIST	RTE	RT	CNTY	PM	PM	PM	DESCRIPTION	BACK_PI	BACK_PI	BACK_A	AHEAD_I	AHEAD_I	AHEAD_A	AADT	
	12	001		ORA	R	0.129		DANA POINT, JCT. RTE. 5				4250	42000	38900		
06	11	086		IMP	R	22.882		KALIN ROAD	980	12000	11400	450	5500	5100		
07	11	086		IMP	R	24.057		JCT. RTE. 78	450	5500	5100	830	10000	9500		
08	11	086		IMP	R	27.211		WESTMORLAND, B STREET	830	10000	9500	830	9500	8900		
09	11	086		IMP		27.510		WESTMORLAND, CENTER STREET	830	9500	8900	1100	14300	13600		
10	11	086		IMP		27.760		WESTMORLAND, WEST CITY LIMITS/ H STREET	1100	14300	13600	1150	13600	12900		
11	11	086		IMP		28.006		MARTIN ROAD	1150	13600	12900	1150	14800	13000		
12	11	086		IMP	R	29.005		LACK ROAD	1150	14800	13000	1300	20100	18300		
13	11	086		IMP	R	33.757		BANNISTER ROAD	1300	20100	18300	1200	15700	13900		
14	11	086		IMP		43.559		NORTH JCT. RTE. 78	1200	15700	13900	1100	13300	11800		
15	11	086		IMP		53.900		AIR PARK DRIVE	1100	13600	12100	2250	19900	18300		
16	11	086		IMP		56.120		SALTON CITY, SOUTH MARINA DRIVE	2250	19900	18300	2200	20100	18400		
17	11	086		IMP		63.630		SALTON SEA BEACH ROAD	2200	20100	18400	1650	18900	16400		
18	11	086		IMP		66.143		DESERT SHORES DRIVE	1650	18900	16400	1500	18900	16400		
19	11	086		IMP		67.824		IMPERIAL/RIVERSIDE COUNTY LINE	1500	18900	16400					
10	08	086		RIV		0		IMPERIAL/RIVERSIDE COUNTY LINE				1550	19000	16500		
11	08	086		RIV		1.710		LINCOLN ST - RT	1550	19000	16500	1550	19000	16500		
12	08	086		RIV	R	3.484		81ST AVENUE	1550	19000	16500	1550	19000	16500		
13	08	086		RIV	R	11.031		JCT. RTE. 195	1550	19000	16500	1400	18600	16500		
14	08	086		RIV	R	12.477		JCT. RTE. 111	1400	18600	16500	1600	21400	19000		
15	08	086		RIV	R	16.744		AIRPORT BLVD	1950	26000	23000	2450	32500	29000		
16	08	086		RIV	R	22.157		DILLON ROAD	2450	32500	29000	2800	37000	33000		
17	08	086		RIV	R	23		JCT. RTE. 10	2800	37000	33000					
18	04	087		SCL		0		SAN JOSE, JCT. RTE. 85				9600	125000	122500		
19	04	087		SCL		1.340		CAPITOL EXPRESSWAY	9600	125000	122500	10600	140000	136900		
20	04	087		SCL		2.826		CURTNER AVENUE	10600	140000	136900	10200	135000	131700		
21	04	087		SCL		3.563		ALMADEN EXPRESSWAY	10200	135000	131700	11600	160000	153300		
22	04	087		SCL		4.350		SAN JOSE, LELONG STREET	11600	160000	153300	13200	181000	173900		

APPENDIX B LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	2	11	563	1	10
Future Vol, veh/h	844	2	11	563	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	917	2	12	612	1	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	919	0	1247	459
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	330	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	738	-	166	549
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	738	-	163	549
Mov Cap-2 Maneuver	-	-	-	-	163	-
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	738	-
HCM Lane V/C Ratio	0.026	-	-	0.016	-
HCM Control Delay (s)	13.2	-	-	10	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	563	1	10	844	2	11
Future Vol, veh/h	563	1	10	844	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	612	1	11	917	2	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	613	0	1093	306
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	481	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	962	-	209	690
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	962	-	207	690
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	508	-	-	962	-
HCM Lane V/C Ratio	0.028	-	-	0.011	-
HCM Control Delay (s)	12.3	-	-	8.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	5	33	563	1	10
Future Vol, veh/h	844	5	33	563	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	917	5	36	612	1	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	922	0	1295	459
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	378	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	736	-	154	549
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	663	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	736	-	146	549
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	631	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	-	-	736	-
HCM Lane V/C Ratio	0.027	-	-	0.049	-
HCM Control Delay (s)	13.4	-	-	10.1	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	563	1	10	844	5	33
Future Vol, veh/h	563	1	10	844	5	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	612	1	11	917	5	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	613	0	1093	306
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	481	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	962	-	209	690
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	962	-	207	690
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	528	-	-	962	-
HCM Lane V/C Ratio	0.078	-	-	0.011	-
HCM Control Delay (s)	12.4	-	-	8.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1206	2	11	804	1	10
Future Vol, veh/h	1206	2	11	804	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1311	2	12	874	1	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1313	0	1772	656
Stage 1	-	-	-	-	1311	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	523	-	74	408
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	523	-	72	408
Mov Cap-2 Maneuver	-	-	-	-	72	-
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	286	-	-	523	-
HCM Lane V/C Ratio	0.042	-	-	0.023	-
HCM Control Delay (s)	18.1	-	-	12	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	804	1	10	1206	1	11
Future Vol, veh/h	804	1	10	1206	1	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	874	1	11	1311	1	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	875	0	1552	437
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	678	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	767	-	104	567
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	767	-	103	567
Mov Cap-2 Maneuver	-	-	-	-	103	-
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	459	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	412	-	-	767	-
HCM Lane V/C Ratio	0.032	-	-	0.014	-
HCM Control Delay (s)	14	-	-	9.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1206	5	33	804	1	10
Future Vol, veh/h	1206	5	33	804	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1311	5	36	874	1	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1316	0	1820	656
Stage 1	-	-	-	-	1311	-
Stage 2	-	-	-	-	509	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	521	-	69	408
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	521	-	64	408
Mov Cap-2 Maneuver	-	-	-	-	64	-
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	530	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	274	-	-	521	-
HCM Lane V/C Ratio	0.044	-	-	0.069	-
HCM Control Delay (s)	18.7	-	-	12.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	804	1	10	1206	5	33
Future Vol, veh/h	804	1	10	1206	5	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	400	400	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	874	1	11	1311	5	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	875	0	1552	437
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	678	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	767	-	104	567
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	767	-	103	567
Mov Cap-2 Maneuver	-	-	-	-	103	-
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	459	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	356	-	-	767	-
HCM Lane V/C Ratio	0.116	-	-	0.014	-
HCM Control Delay (s)	16.4	-	-	9.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-