3.0 EXISTING FACILITIES AND OPERATIONS

3.1. Project Location

The Desert Valley Company Monofill (DVCM or Monofill) 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 (**Figure 3-1, Regional Location**). The Desert Valley Company Monofill facilities are located on 181.5 acres of private land at 3301 West State Route 86 in Brawley, near the southwest corner of the Salton Sea, southwest of Highway 86 and northwest of the cities of Westmorland and Brawley (**Figure 3-2, Project Location**).

3.2. Project Background

3.2.1. History of the Desert Valley Company Monofill

The DVC owns and operates the Desert Valley Company Monofill. The DVC is a wholly owned subsidiary of the CalEnergy Operating Corporation located at 7030 Gentry Road, Calipatria, CA 92233. Both the DVC and CalEnergy are owned by Magma Power Company.

The Monofill is a Class II Solid Waste Management Facility (SWMF) used for the disposal of nonhazardous "filter cake" solids from geothermal brine used for power generation at geothermal facilities in Imperial County owned and operated by 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 is permitted under Solid Waste Facility (SWF) Permit No. 13-AA-0022 [(1)]; Conditional Use Permit (CUP) No. 05-0020 [(2)]; and Waste Discharge Requirements (WDR) R7-2016-0016 [(3)].

The Desert Valley Company Monofill, 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. Construction of Cell 3 began in the summer of 2004 and was completed in June 2005. With a design capacity of approximately 1.3 million cubic yards (cy), Cell 3 is the only active cell currently

[1] Issued by the Imperial County Public Health Department, Division of Environmental Health (DEH) in 2020 (as modified). DEH is the Local Enforcement Agency (LEA) for the California Dept. of Resources, Recycling and Recovery (CalRecycle)

[2] Issued by the Imperial County Planning and Development Services Department in December 2005 (as modified).

[3] Issued the California Regional Water Quality Control Board, Colorado River Basin Region 7 (as modified).

receiving waste. The maximum permitted elevation of Cell 3 is 59 feet below mean sea level (bmsl) with a maximum sub grade depth of 39 feet below ground surface (bgs).

3.2.2. Previous Environmental Review

In 1990, an Environmental Impact Report (SCH No. 89032206) for the Desert Valley Monofill Facility was prepared for Cells 1 and 2, encompassing an area of 160 acres. In 2002, a Negative Declaration was prepared for the expansion of the M-2 Zone to allow for construction of Cell 3 and to increase annual tonnage to facilitate current and future geothermal plant waste (SCH No. 2002121138). An Addendum to the Final Environmental Impact Report for the Desert Valley Company Monofill Facility (SCH No. 89032206) was prepared to allow use of alternative truck routes for deliveries to the monofill along with the use of an alternative truck scale at 701 North Sorenson Avenue in Calipatria, California. As of 2020, Cell 3 had a remaining capacity of 590,546 cubic yards and a remaining lifespan of 7.8 years (Desert Valley Company, 2020). Based on current projections Cell 3 will reach capacity in 2027.

Existing improvements at the Monofill are listed on **Table 3-1**.

TABLE 3-1: EXISTING MONOFILL IMPROVEMENTS

Monofill Cells 1, 2 and 3 (a)	Meteorology Collection Station
Private single-lane road from Highway 86/SR-86	Four (4) Air Quality Total Particulate Sampling Stations
Office and Administration Building	Six (6) 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 Highway 86/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) Aboveground Water Storage Tanks	Chain-Link Fencing (d)
Eleven (11) Groundwater Monitoring Wells	

Notes:

(a) Cells 1 and 2 Closed in May 2008. Cell 3 is the only active cell currently receiving waste.

(b) Six additional radon monitoring probes are planned for Cell 3 upon closure.

(c) Provides non-potable water to the office/administrative building. Also used for mixing the soil stabilizer.

(d) Chain-link fencing surrounds the entire monofill facility

3.3. Current Operations

As identified in CUP No. 05-0020 and SWFP Permit No. 13-AA-0022, the waste stream accepted at the Monofill 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)[4]. No municipal solid waste is accepted at the Monofill 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 volume 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 the current CUP and SWFP. Information regarding the existing regulatory permits and plans that govern Monofill operations are shown in **Table 3-2.**

3.3.1. Site Access

The DVM is accessed from Highway 86/SR-86 by all vehicles entering and leaving the facility. A maximum of 38 waste transporting vehicles per day are allowed in accordance with the CUP, SWF, and WDR Permits, The private single lane road between Highway 86/SR-86 and the DVM facility is approximately 1.25 miles in length, is asphalt surfaced, and runs south from State highway to the facility. The following signs are posted at the entrance of the DVM:

- Entrance sign which states “Warning: All Vehicles Shall Remain on Designated Roadways”
- Proposition 65 Warning Sign
- Facility identification sign - “Desert Valley Company”

3.3.2. Ancillary Facilities (Buildings, Fencing, Leachate Ponds)

Existing facilities at the Monofill are presented on **Figure 3-3, Existing Monofill**. Ancillary facilities include three leachate storage ponds; two of which are located north of closed Cells 1 and 2, and one used by Cell 3 that is located between Cell 3 and closed Cells 1 and 2 (See **Figure 3-3, Existing Monofill**). The Monofill also includes a covered and lighted employee parking area as well as a single-story office/administration building and an equipment storage building just inside the fence in the northeast corner of the site. The administrative building is equipped with a cellular telephone system.

Additional facilities include one water well, two (2) 5,000-gallon above ground water storage tanks; a 1,000-gallon above ground diesel fuel storage tank; and a 90-gallon used lubricating oil above ground storage tank.

4 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.

TABLE 3-2. EXISTING REGULATORY PERMITS, LICENSES AND PLANS

Permit	Number	Issuing Agency
Conditional Use Permit	05-0020	Imperial County Planning and Development Services
Water Well Conditional Use Permit	05-0020	Imperial County Planning and Development Services
Solid Waste Facility (SWF) Permit	13-AA-0022	Imperial County Public Health Department
Authority to Construct & Permit to Operate	2120 B-3	Imperial County Air Pollution Control District
National Pollution Discharge Elimination System General Permit	CAS000001	State Water Resource Control Board
Waste Discharge Requirements (WDR)	R7-2016-0016	Regional Water Quality Control Board, Region 7
License	**Number**	**Issuing Agency**
Radioactive Material License (2)	5663-13	California Department of Public Health
Plan Document	**Number**	**Issuing Agency**
Certified Unified Program Certificate (1)	FA0000598	Department of Toxic Substances Control (DTSC) – Certified Unified Program Agency (CUPA)
Hazardous Material Business Plan	N/A	Department of Toxic Substances Control – Certified Unified Program Agency (CUPA)
Employee Training Plan	SWF Permit No. 13-AA-0022	Imperial County Public Health Department
Operation Plan		
Joint Technical Document		
Preliminary Closure and Post-Closure Plan Cell 3		
Stormwater Pollution Prevention Plan	CAS000001	California State Water Resources Control Board

Notes
(1) Identifies DVM's hazardous waste generator class (less than one ton)
(2) Authorizes the use of Americium-241 for use at the monofill as components of gauges, CPN International Division of InstroTek, Inc., Models MC or 500 series, for determination of moisture/density in engineering materials.
CUPA: Certified Unified Program Agency, For Imperial Valley
ICPDSD: Imperial County Planning and Development Services Department.
DTSC: Department of Toxic Substances Control
SWPF: Solid Waste Permit Facility
Source: CalEnergy, 2018. (Appendix C-1).

3.3.3. Water and Wastewater Facilities

The office/administration building contains an employee lavatory, changing, and shower facilities. Sewage and wastewater from these facilities are routed to an on-site septic tank and leach field that handles the disposal of sanitary waste generated by site personnel. Drinking water for on-site personnel and for sanitary use at the office/administration building is provided by a water delivery service and stored in the aboveground water storage tank described above. Non-potable water for

dust control, and for mixing the acrylic polymer stabilization/sealant for use on the monofill working surface is obtained from the on-site well. In accordance with CUP#05-0020, the well is 4-inches in diameter and is permitted to use up to 8.5 acre-feet per year.

3.3.4. Personnel and Equipment

The Monofill currently employs eight (8) full-time staff, including but not limited to a Supervisor, Site Coordinator, Senior Monofill Technician II and Monofill Technician. Equipment used at the DVM is listed below.

TABLE 3-3: EQUIPMENT IN USE AT THE MONOFILL

Equipment	Count	Use
Water Truck	1	Dust control and daily soil seal cover
Front Loader	1	Operations
Polaris Ranger	1	Site use
Pickup Truck	2	Site use
Hauling Trucks	6	Transporting filter cake & other geothermal wastes

3.3.5. Landfill Operations

As identified in CUP No. 05-0020 and SWFP Permit No. 13-AA-0022, the Monofill's permitted hours and days of operation are 6:00 AM to 6:00 PM, Monday through Sunday during daylight hours. The facility receives nonhazardous waste streams associated with geothermal energy production from four (4) CalEnergy facilities in the Salton Sea Known Geothermal Resources Area: Elmore, Leathers, Salton Sea 1, and Salton Sea 2. Waste streams associated with the geothermal facilities consist of geothermal filter cake, drilling mud materials, geothermal contaminated soils and materials, and plastic liners used to line the truck trailers that are used to transport the waste to the DVM. These materials contain a number of substances including arsenic, salts, metals, and organic hydrocarbons and Naturally Occurring Radioactive Materials (NORM)[5]. No municipal solid waste is accepted at the Monofill and it is not open for public and/or commercial use. The volume 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 the current CUP and SWFP.

Information on the CalEnergy geothermal plants that use the monofill for waste disposal, including the volumes of geothermal waste shipped to the monofill daily, is presented on **Table 3-4**. The chemical composition of typical filter cakes produced at this plants is provided on **Table 3-5**.

5 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.

TABLE 3-4. CALENERGY GEOTHERMAL PLANTS, FILTER CAKE GENERATION/DISPOSAL RATES

CalEnergy Power Plant	Filter Cake Generation Rate (tons/day)	Number of Production Wells	Brine Production Flow, nominal (Klbs/hr)	Number of Turbines	Gross Electric Generation (MW)
Region 1	150	7	15,800	7	197.3
Region 2	72	6	8,200	4	75.5
Elmore	40	4	4,000	1	35.8
Leathers	40	5	4,500	1	35.8
TOTAL	**302**	**22**	**32,500**	**13**	**344.4**

Source: CalEnergy, 2018. (Appendix C-1).

TABLE 3-5. TYPICAL FILTER CAKE COMPOSITION

Major Elements	Probable Compound	Percentage
PSilicon (Amorphous)	(Si02 + Silicates)	62
Iron	(Fe304 + FeSi04)	15
Barium	(BaS04 + BaC12)	4
Calcium	(CaS04 + CaC03)	3
Minor Components	**Probable Compound**	**(ppm)**
Sodium	(NaC1)	6,000
Strontium	(SrS04)	6,000
Manganese	(MnS04)	3,500
Potassium	(KC1)	1,300
Arsenic	(AsS2 + FeAs2)	300
Copper	(CuS)	250
Zinc	(Zns)	130
Trace Components	**Probable Compound**	**(ppm)**
Lead	(PbS)	30
Antimony	(SbS)	10
Beryllium	(BeS)	10
Cobalt	(CoS2)	4
Nickel	(NiS)	1.5
Chromium	(CrS)	1
Silver	(AgS)	0.4
Cadmium	(CdS)	0.2

Notes: ppm = parts per million.
Source: CalEnergy, 2018. (Appendix C-1).

Truck Haul Routes

Truck haul routes used to transport the waste stream to the monofill are described on **Table 3-6** and depicted on **Figure 3-4, Designated Haul Routes**. Filter cake transport trailers are weighed using scales located at the CalEnergy plants and are then delivered to the DVM by truck. The covered loads are transported from the Salton Sea area, via a designated truck haul route (Designated Route A) that includes Sinclair Road, Gentry Road, Bowles Road, Lack Road and State Routes 78 / 86 and the Monofill Access Road. The use of alternate truck routes for deliveries to the DVM is authorized under the existing permits and Alternate Routes "B" and "C" include Forrester Road and Bannister Road.

In the event CalEnergy Scales are out-of-service, scales at the Double Eagle Scale and Fuel company, located at 701 N Sorensen Ave, Calipatria, can be used. Under this scenario, trucks would use the Alternate Route For Weighing Trailers to access the DVM. As shown on **Table 3-6**, the one way distance of the haul routes from the geothermal plants to the monofill range from 28 to 38 miles in length.

TABLE 3-6. EXISTING TRUCK HAUL ROUTES

Designated Route "A"	Alternate Route "B"	Alternate Route "C"	Alternate Route for Weighing Trailers (Double Eagle Scale & Fuel Inc.) (1) (2)
Haul Routes			
• Sinclair Road • Gentry Road • Bowles Road • Lack Road • State Routes 78 & 86 • Monofill Access Road	• Sinclair Road • Gentry Road • Forrester Road • Bannister Road • Lack Road • State Routes 78 & 86 • Monofill Access Road	• Sinclair Road • Gentry Road • Bowles Road • Bannister Road • Lack Road • State Routes 78 & 86 • Monofill Access Road	• Gentry Road • Sinclair Road • State Route 111 • Eddins Road • Gentry • Bowles • Lack Road • State Routes 78 & 86 • Monofill Access Road
Travel Distance (One Way)			
28 miles	30 miles	27 miles	38 miles

Notes:

(1) Double Eagle Scale & Fuel, Inc. is located at 701 N Sorensen Ave, Calipatria, CA.

(2) DVCM would use this route to weigh filter cake trailers in the event CalEnergy scales at the Region 2 Geothermal Power Plant are out of service.

Source: County of Imperial, 2008a.

In 2017, the number of daily truck deliveries ranged from a low of six (6) to a maximum of 38 per day; each with an approximate filter cake load capacity of less than 25 tons. Daily tonnage averages 250 tons per day and cannot exceeded 750 tons per day.

Waste Acceptance, Hazardous Screening, and Placement Procedures

Prior to being transported to the Monofill, all waste materials are analyzed by a California Certified Laboratory to document the non-hazardous designation of the material. The results of the analyses are submitted to the Imperial County Health Services and the Regional Water Quality Control Board, Region 7, in a monthly report.

Trucks arriving at the Monofill are inspected prior to off-loading. Each load of waste that is transported to the Monofill is accompanied by a numbered non-hazardous waste data form. The "generators" portion of the data form is completed, signed, and dated by the power plant authorized agent or representative. The "transporters" portion of the data form is completed by the transporter. A permanent weigh station located in front of the Region 2 Geothermal Power Plant is used for weighing materials conveyed to the Monofill.

Each truck, prior to traveling to the Monofill, is weighed, and the weight is recorded on a weight slip that is given to the Monofill operator upon arrival. The weight information is entered into a computer-based log system. The Monofill operator monitors the total weight of materials received on a daily basis to ensure compliance with permitted limits. The Monofill operator also inspects the waste to ensure that it is acceptable (i.e., geothermal mud, filtercake). Because all waste material received for disposal must be dry, each load is inspected and sampled for free liquids by Monofill personnel using the paint filter test (EPA Method 9095). If the waste material fails, it is considered too wet for disposal and is returned to the source for further drying.

Once the waste is accepted, the trucks are cleared for access to the operational cell and offloaded. The transporter is directed to stay inside the truck with the windows closed while inside the Monofill unless required to release the tailgate for unloading.

Trucks are unloaded of filtercake and then tarped at all times, except when being filled or emptied, to prevent any filtercake residue from exiting the transport trucks. Plastic liners are used as necessary to prevent filtercake residue from remaining in the truck. After unloading, the truck moves away from the off-loaded material and is inspected to ensure that materials are not tracked from the Monofill area. Wastes are unloaded as close to the "toe" of the working face as possible. Movement of the discharged waste to the compaction area is accomplished by the front-end loader.

Typically, wastes are placed in "loose lifts" (less than two feet, with average of about 8 inches) and then compacted directly after unloading. To prevent damage to the liner system, no hard or sharp edged objects are allowed to be placed within five (5) feet of the landfill bottom or sides. No liquid,

special or hazardous waste is accepted at the Monofill Facility. After the transport truck is unloaded, the loader spreads and compacts the material.

Subsequent to off-loading of each truck, the Monofill operator completes the "disposer" section of the data form and gives one (1) copy to the truck driver for delivery back to the CalEnergy environmental department. The completed data form is retained at the Monofill office.

The disposal record and non-hazardous data forms are available for inspection and review by representatives of the Regional Board, CalRecycle, and LEA at any time during normal business hours. Monthly and quarterly reports are, and will continue to be prepared and submitted to the Regional Board and LEA containing all information as required by CUP, SWFP and WDR.

3.3.6. Daily Cover

At the end of the day, spread and compacted material is sprayed with an acrylic polymer soil sealant compound to stabilize the surface and protect against wind erosion.

3.4. Environmental Controls

Numerous environmental controls, as required under the current operating permits, are implemented at the monofill to reduce and/ or avoid adverse effects.

3.4.1. Subsurface Barrier/Liner

Cell 3 has a subsurface barrier that consists of two (2) clay liners and two (2) synthetic liners. With one exception, Cell 3 was designed with the Class I standard design of the original Cells 1 and 2 whenever possible, including the use of native clay, compacted clay, and two polyethylene liners with a primary and secondary leachate collection system. The exception is that Cell 3 was constructed using a geosynthetic clay liner below the primary and secondary containment liners as approved by all governing agencies. Below are the various constructed layers of Cell 3 from the bottom disposal surface downward to native soils:

- Two (2) feet of native soil layer (liner protection from disposal equipment) or 40 mil High-density polyethylene (HDPE) ultraviolet (UV) cover over geofabric.
- Leachate Collection Recovery System – HDPE Geogrid bonded with 8 oz Geofabric.
- Primary Liner – 80 mil High Density Polyethelyne Geomembrane.
- Leak Detection Layer – High Density Polyethylene Geo-Grid.
- Secondary Liner – 80 mil High Density Polyethelyne Geomembrane.
- Geosynthetic Clay Liner.
- Compacted native clay soils minimum five (5) feet above water table.

3.4.2. Leachate, Collection and Removal System

The DVM is equipped with a primary and secondary leachate collection and removal system (LCRS). The primary LCRS consists of polyethylene drainage net covered with a nonwoven geotextile placed on the cell bottom. The maximum load on the net is approximately 70 feet of waste, which is equivalent to approximately 6,800 pounds per square foot (psf). The drain net has a flow capacity of approximately 0.14 gallon per minute per foot of width of net, based upon test data at a confining pressure of 10,000 psf and using a soil, geotextile, drain net, HDPE liner test configuration. The strength of the drain net has been shown to exceed 20,000 psf without crushing. The drain net is connected to HDPE pipes located on each of the cell centerlines. These pipes carry leachate to the primary sumps at the north end of the cell. From the sumps, leachate is pumped to the leachate ponds located north and east of the cell area. The HDPE pipe is chemically resistant to the leachate and strong enough to withstand construction traffic loads with 18 inches of soil cover. It is also sufficient to withstand loads imposed by the full height of waste and soil cover. The HDPE pipe is located in a gravel filled trench which is wrapped in a geotextile cover.

The primary LCRS was placed immediately above the primary liner. The pumping capacity is approximately 50 gallons per minute. The maximum anticipated daily volume of leachate from the unit is 150 gallons, exclusive of storm runoff. The leachate holding ponds are designed to handle the 1,000 year design storm event. The system is designed to handle more than twice the anticipated volume of leachate generated per day. The secondary LCRS was placed between the inner and outer liners (Desert Valley Company, 2016; Section II, Page 132).

The desert climate precludes significant amounts of leachate from being generated on a continual basis. Storm events can generate significant quantities of leachate. An analysis performed for Cells 1 and 2, using EPA methods, has shown that no leachate is expected from the waste materials. The leachate sump is checked weekly with a water level indicator to determine if leachate is present. If leachate is present, it is pumped to the leachate pond and allowed to evaporate naturally in the desert climate.

The secondary leachate system consists of a polyethylene drain net between the two HDPE liners. The drain net is connected to the HDPE pipes (with clean out), which run to the secondary leachate sump. The drainage net is the same as used for the primary leachate collection system and can withstand the same loads. Past operational experience shows that little leachate reaches the secondary leachate system. The secondary leachate sump is checked weekly for liquid presence. If any liquid is present, it is pumped to the leachate ponds and allowed to evaporate.

Both leachate sumps are also inspected for presence of liquids after rainstorms. As noted above when leachate is present, it is removed by pumps equipped with flow meters that measure the amount of leachate removed from the sumps to the leachate ponds. The amount of leachate removed from the sumps is recorded in daily and electronic logs. In addition, the working surface of the DVM is

also inspected for ponded water from storm activity. If present, such water is removed by pumping to the existing leachate ponds.

A storm water runoff diversion wall is located between the closed Cells 1 and 2 and the leachate collection ponds to prevent storm water runoff issues at the ponds. This minor change was approved by the LEA on July 20, 2011 (Desert Valley Company, 2016; Section II, page 37).

3.4.3. Radiological Monitoring

As required and enforced by the Environmental Health Services Division and the Imperial County Air Pollution Control District, monitoring is conducted to ensure the expected minimal exposure/dose around the Monofill is maintained. The Radiological Monitoring Plan consists of on-site workers and truck drivers wearing film badge/ dosimeters, which measure external radiation exposure. The dosimeter must be worn at all times whenever the monofill workers or truck drivers are present at the facility. In accordance with the Plan, workers and truck drivers shall not receive more than the occupational dose limit set by Title 17-30265 of the California Code of Regulations for whole body exposure of 1.25 REM per calendar quarter. DVM submits quarterly reports to the ICAPCD and the LEA regarding the quarterly film badge radiological exposure for DVM workers, and truck drivers. To date, no exposures in excess of the standards have been reported.

3.4.4. Water Quality Monitoring Program

Monitoring Wells

There are eleven (11) monitoring ground water wells and six (6) vadose zone monitoring wells. Four groundwater monitoring wells are located north of the closed Cells 1 and 2. One is located between Cells 1 and 2 and Cell 3. Three are located on the northeast side of Cell 3. One is located south of Cell 3. Two are located on the west side of the site, one each by Cells 1 and 2 and Cell 3. in accordance with the CUP, SWF Permit, and the Waste Discharge Requirements Permit, groundwater monitoring reports are filed quarterly and annually to the Regional Water Quality Control Board and copied to the Imperial County Planning and Environmental Health (Compliance Report 13). When groundwater is sampled the elevation of the groundwater surface is determined to within 0.01 foot using an electric probe and field parameters (temperature, electrical conductivity, turbidity, and pH) is measured (Desert Valley Company, 2016; Section II, Page 163). The groundwater constituent trend analysis required under MRP R7-2016-0016 includes the following constituents:

- Groundwater Elevations
- Lead
- pH
- Chloride
- Sodium
- Specific Conductance
- Sulfate
- Total Dissolved Solids (TDS)
- Cadmium

Four (4) vadose zone wells are located around closed Cells 1 and 2. One is located between Cells 1 and 2 and Cell 3. One is located on the northeast side of Cell 3. Vadose zone monitoring is required quarterly in accordance with WDR R7-2016-0016.

Landfill Gas Control and Monitoring

The DVM does not accept materials that generate methane gas. As such, the DVM is not required to have a gas management plan. On March 8, 2018, the Imperial County Division of Environmental Health granted an extension exempting the Monofill from methane gas monitoring (Desert Valley Company, 2020). The exemption is reviewed by LEA at least every five years.

Daily Cover

No daily or intermediate soil cover is placed during operations at the DVM. The requirement for six (6) inches of cover material has been waived by the LEA for the disposal operations due to the nature of the materials accepted at the DVM. The only cover required at the DVM is the final closure cover. However, a soil sealant is sprayed on the disturbed area at the end of each working day. Approximately, 7,700 gallons of acrylic polymer (soil seal) are diluted and applied on the active waste deposition surface per year. The daily use of acrylic polymer is recorded in a daily and electronic log. Soil Seal is a liquid polymer that cures through evaporation of dilution water. Per the manufacturer, soil seal does not degrade to form methane.

3.4.5. Air Quality Controls

Air Quality Monitoring and Reporting

The DVM has been issued an Authority to Construct and Permit to Operate (#2120 B-3) by the Imperial County Air Pollution Control District (ICAPCD). In accordance with this permit and with the requirements of the CUP, the DVM installed a meteorology data collection station and four (4) high volume air quality total particulate sampling stations. The DVM is required to measure ambient particulate concentrations for 24 hours on a six-day interval. Particulate filter loading from the high-volume air sampler, the highest concentration measured for the quarter, are analyzed for gross radionuclides (Ra 226 and 228) and speciated for heavy metal concentrations (Pb, Zn, Cd, Cu, As). The heavy metal speciation was conducted quarterly the first year of the monofill's operation and twice yearly thereafter.

Reports of the total ambient concentrations of particulates (micrograms/cubic meter/24 hours) measured from the high-volume air samplers and heavy metal speciation concentrations and gross radionuclides including, the method procedures for heavy metal and radionuclides analysis are submitted to ICAPCD and the County of Imperial Department of Environmental Health on a quarterly basis. In addition, the DVM submits an annual gas speciation analysis. The Monofill is also required to report the total wastes received. The report includes the total tonnage, the type of

waste(s), and origin of wastes. Additionally, every three (3) years, the DVM measures radon gas emissions from closed Cells 1 and 2 and reports the findings to the ICAPCD.

Dust Control

The following control measures and improvements are used to control the generation of dust at the DVM site. The site access road, employee parking area and the maintenance area are paved. A water truck is used during landfill operations to wet down the working face of the monofill to prevent fugitive dust emissions during the day. A mobile soil sealant spray system is used to cover all working geothermal waste after each working day to prevent fugitive dust emissions.

The following Wind Dispersal Prevention Program continues to be implemented at the DVM:

Wind Dispersal Prevention Program (WDPP)

At the end of the compaction activities or the end of the day, the working face of the DVM is sprayed with soil sealant. The sealant used is a patented formulation composed primarily of high-grade latex acrylic-balanced copolymers prepared in an emulsion form. The soil sealant is applied by a water truck using a sprayer. The sealant material penetrates the soil surface to form a crust that is resistant to wind erosion and dispersion.

A wind direction/wind speed monitoring device is installed at the DVM that records wind speed and direction. The wind speed circuit is connected to an alarm light in the Administrative Office. When wind speeds exceed 13 miles per hour (mph) the alarm light illuminates, and all unloading activities cease. When wind speeds exceed 21 mph, all earth moving activities cease and the working face of the monofill is sprayed with sealant or covered by plastic tarps.

3.4.6. Fire Control

Burning wastes are not accepted at the DVM. Due to the inorganic nature of the DVM wastes, fires are extremely unlikely. In the event of a fire in a cell, a loader or water truck is used to smother the fire with on-site soils or water. In addition, fire extinguishers are located in the office, maintenance area, and on the site vehicles.

3.4.7. Vector Control

The types of materials accepted at the DVM have no known nutrient value that could be used by insects, rodents, small animals or birds for food purposes. Operational experience at the site indicates that the DVM waste materials do not attract insects, rodents, or birds. The leachate ponds are empty most of the time which decreases the potential for vectors, rodents, and birds to become dependent on the pond as a source for water. Larger wildlife is denied access to the site by the perimeter fence (6-foot height), and small animals are denied access to the site by virtue of slats inserted into the fence.

The leachate ponds are designed to contain approximately 6.5 feet of depth of leachate/ponded water. The inside slopes of the pond perimeters have 2:1 slopes, while the internal dike between the northern most pond sections has a 1.5:1 slope. These are typical design parameters for shallow ponds. The water in the ponds is essentially rainwater with some dissolved salts, almost all sodium chloride, and DVM leachate from the primary and secondary leachate sumps. Since the ponds would be dry a large percentage of the time the attraction for wildlife would be very low. Secondly, if rainwater is present in the ponds, then the presence of rainwater pools throughout the surrounding desert would also most likely be present and would be far more accessible and attractive to wildlife than the leachate ponds (Desert Valley Company, 2016: Section II, Page 39).

3.4.8. Drainage and Erosion Control

The DVM is protected from erosion from precipitation by an existing diversion barrier and/or additions to the diversion barrier. The design of the diversion barrier (berm) is described briefly as follows:

The DVM is protected from precipitation drainage from the higher elevation areas on the southern borders of the facility property by an upstream diversion barrier (berm) and ditch system. The berm is made of compacted soil and is approximately three (3) feet in height, eight (8) feet in width (at the crest) and has 3:1 side slopes. The DVM, as a Class II solid waste disposal facility, must be protected from the 1,000-year rainfall event, which at the Project site, is defined as 6-inches of rainfall in a 24-hour period. The existing diversion barrier has been designed for a protection level equivalent to that required by a Class I landfill, i.e., 13.3 inches of rainfall in a 24-hour period (probable maximum precipitation [PMP]). The maximum flood flow of 101 cubic feet per second (CFS) was derived from the Rational Equation with a runoff coefficient of 0.6 and rainfall intensity of 4.03 inches per hour. Assuming that approximately one third of the 24-hour rainfall occurs in the first hour is conservative. The 1.5-foot deep ditch in front of the diversion barrier has sufficient capacity to handle the maximum flow. The barrier, as stated earlier is three (3) feet high which provides sufficient freeboard for the design flow. The flow that is diverted around the DVM rejoins the original channels just north of the site. As a result, there is no significant change in the area drainage patterns. Other erosion measures that are used include:

- Application of polymer sealant to the surface of the cap (Cells 1 and 2) as needed to prevent soil losses due to wind erosion. Similarly, polymer sealant would be applied to the surface of the cap of Cell 3 in the future.
- Sandbags are also placed on the surface of the closed Cell 1 and 2 cap as necessary to prevent excessive surface erosion. At Cell 3, the sandbags are used to help keep the UV cover in place.
- The DVM installed a storm water runoff diversion wall between the closed Cells 1 and 2 and the leachate collection ponds. The objective for the installation of the storm water wall is to

prevent storm water runoff issues at the west leachate collection pond of Cell 1 and Cell 2. This minor change was approved by the LEA on July 20, 2011.

Litter Control

Litter is not a problem at Cell 3 because municipal solid waste is not accepted as a waste material at the DVM. Loose materials would not present a problem due to the WDPP and the daily compacting of the materials received (Desert Valley Company, 2016; Section II, Page 41).

3.4.9. Noise Control

Operational experience at the DVM has shown that noise has not been a problem and is not expected to be a problem for continuing Cell 3 operations. Hearing protection is available for use by on-site employees when required. The isolated location of the DVM in relationship to sensitive or casual receptors precludes any health hazards due to noise from the site. The nearest dwelling is approximately two (2) miles away from the site. (Desert Valley Company, 2016; Section II, Page 41).

3.4.10. Odor Control

The types of materials disposed of at the DVM preclude the attraction of insects, rodents, and other vectors or creation of nuisance. Operational experience at the site indicates that insects, rodents, and other vectors not attracted to the DVM, and no problems have been noted. Odors have not been a concern since the DVM does not accept odorous waste materials. No issues with regard to the protection of public health have been identified (Desert Valley Company, 2016; Section II, Page 35).

3.4.11. Site Security

The entire active portion of the DVM, office and maintenance areas, are surrounded by chain link fencing [approximately six (6) feet in height], with locking gates. The gates are locked at all times when facility personnel are not present at the site. This practice prevents animals and humans from accidentally coming into contact with the waste materials. A manual sliding gate is currently installed on the site access road. This gate is left open whenever facility personnel are present at the site but is closed and locked whenever the facility is unattended. There is also a pole gate at the access road entrance from State Highway 86 that is down when facility personnel are not present at the site (Desert Valley Company, 2016: Section II, Page 30).

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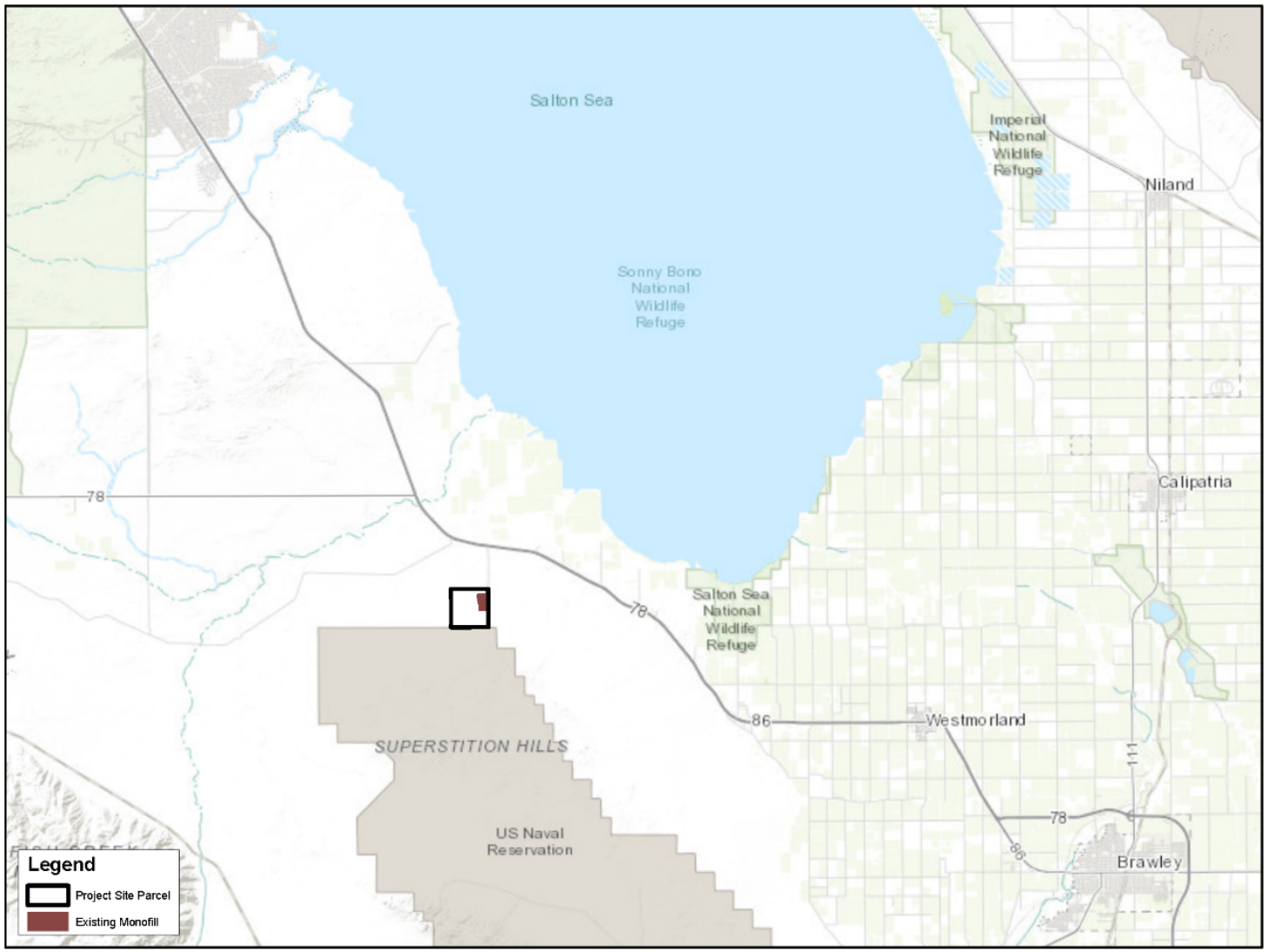

Desert Valley Monofill Regional Location
Desert Valley Company Monofill Expansion Project, Cell 4
Figure 3-1

1

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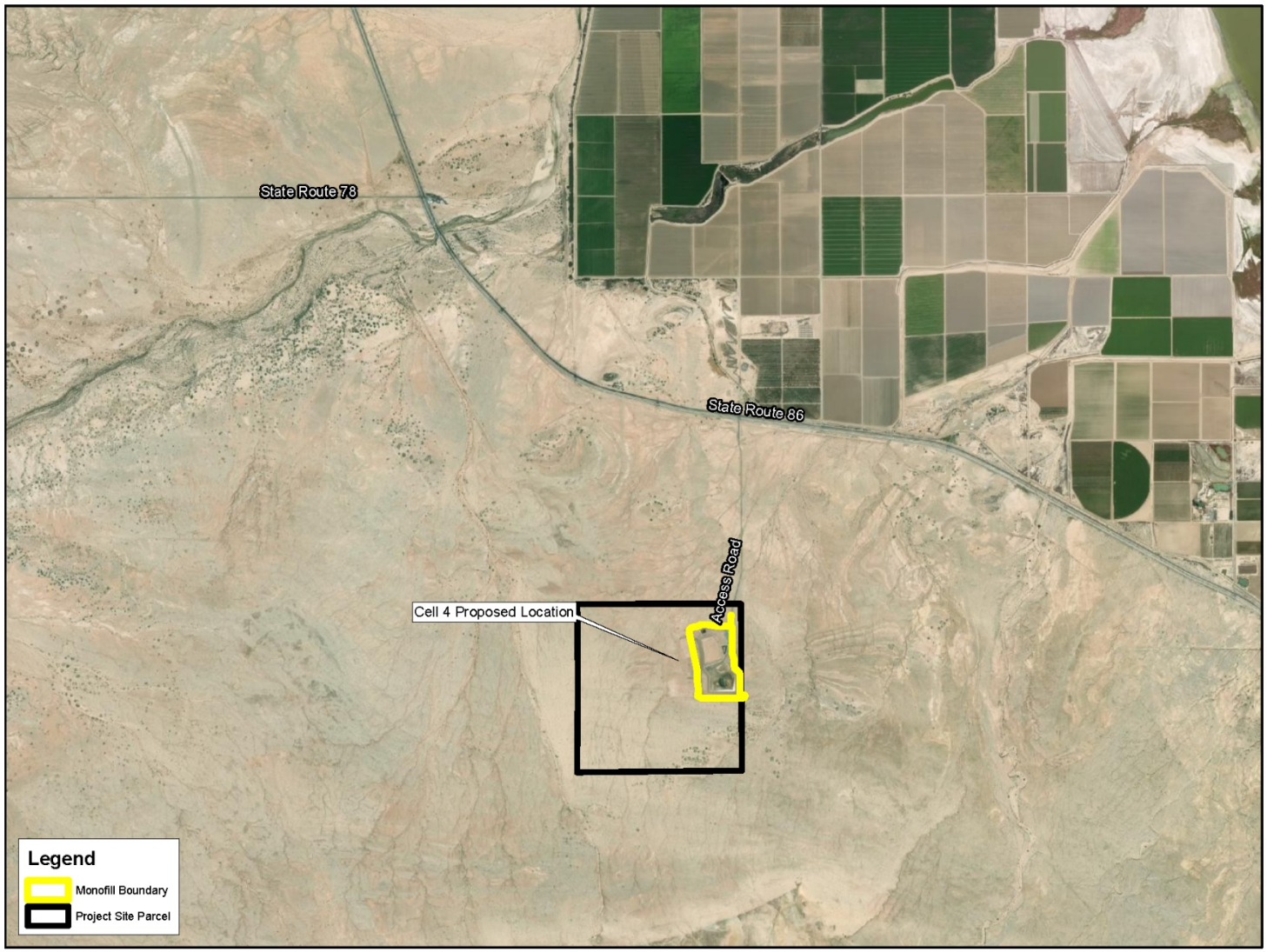

Desert Valley Monofill Location
Desert Valley Company Monofill Expansion Project, Cell 4
Figure 3-2

1

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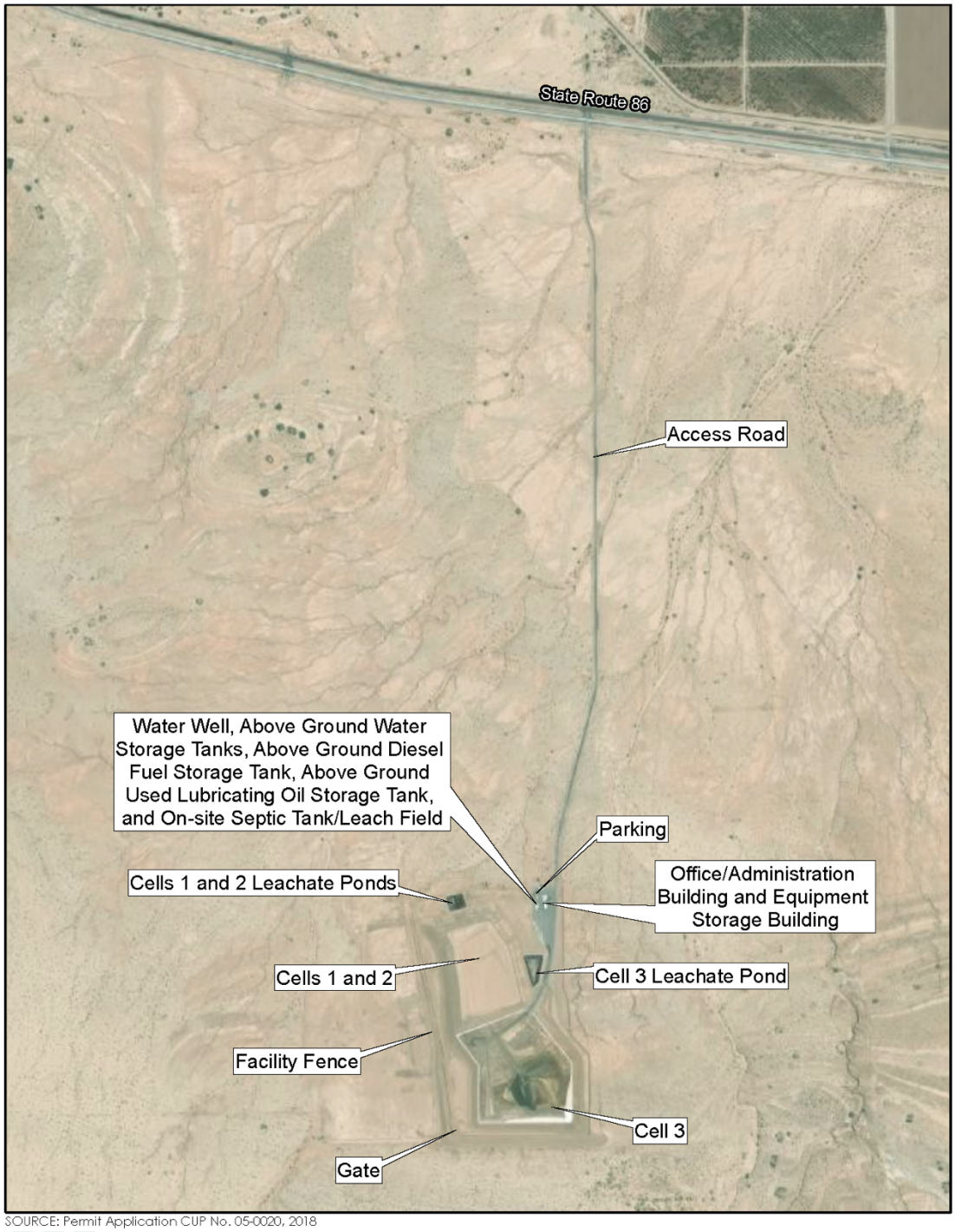

SOURCE: Permit Application CUP No. 05-0020, 2018

Existing Monofill
Desert Valley Company Monofill Expansion Project, Cell 4
Figure 3-3

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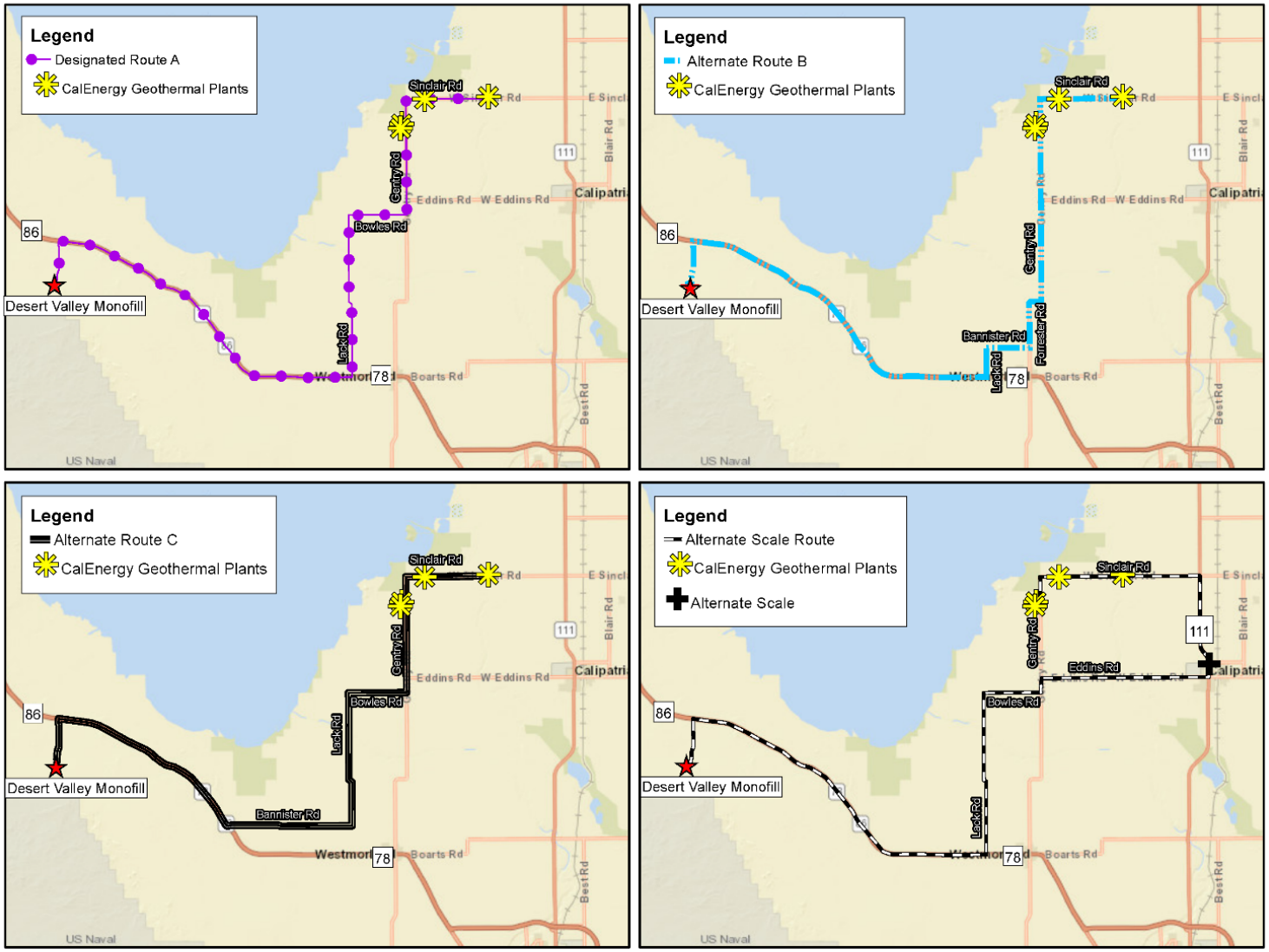
2



SOURCE: Basemap-ESRI; County of Imperial, 2008

N

0 2.5 5 Miles

Desert Valley Monofill Existing Haul Routes

Desert Valley Company Monofill Expansion Project, Cell 4

Figure 3-4

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