



# Imperial County Planning & Development Services Planning / Building

December 16, 2021

**Jim Minnick**  
DIRECTOR

Subject: **Request for Proposal - Environmental Impact Report (EIR) for the Hell's Kitchen PowerCo 1 LLC project CUP #21-0020/Variance V21-0004 & Hell's Kitchen LithiumCo 1 LLC CUP #21-0021/Variance V21-0005 /Initial Study #21-0037, APN 020-010-012-000, et Al**  
**Project Applicant(s): Hell's Kitchen PowerCo 1 LLC & Hell's Kitchen LithiumCo LLC.**

- Conditional Use Permit(s) CUP (#21-0020 & CUP #21-0021)
- Variance(s) V21-0004 & V21-0005
- Water Supply Assessment (WSA)

Dear Consultant:

The Imperial County Planning & Development Services Department is soliciting proposals for the preparation of a comprehensive Environmental Impact Report (EIR) for the attached project: Conditional Use Permit (CUP #). **The Planning & Development Services Department** will act as the "Lead Agency" for the preparation of the EIR pursuant to the California Environmental Quality Act (CEQA). The successful consultant will work directly for the County Planning & Development Services Director in the preparation of the Draft and Final EIR.

**The Hell's Kitchen PowerCo & LithiumCo LLC's projects include:**

**Hell's Kitchen PowerCo 1 LLC, a wholly owned subsidiary of Hell's Kitchen HoldingCo 1 LLC (a subsidiary of Controlled Thermal Resources),** proposes development of the Hell's Kitchen PowerCo 1 Project (Project; HKPI). The Project will generate up to 49.9 megawatts (MW) net of geothermal power and deliver the power to the Imperial Irrigation District (IID) system via an approximately 2-mile-long generation tie (gen-tie) line to the existing IID interconnect station at Hudson Ranch. Project development will require Conditional Use Permit (CUP) authorization from Imperial County. Controlled Thermal Resources (CTR) obtained a geothermal mineral lease from IID to develop geothermal resources in Sections 3, 10, and 11, Township 11 North, Range 13 East. The Project will develop geothermal resources within CTR's geothermal lease area.

The Project will consist of the following components: The Project will generate up to 49.9 megawatts (MW) net of geothermal power and deliver the power to the Imperial Irrigation District (IID) system via an approximately 2-mile-long generation tie (gen-tie) line to the existing IID interconnect station at Hudson Ranch. Project development will require Conditional Use Permit (CUP) authorization from Imperial County. Controlled Thermal Resources (CTR) obtained a geothermal mineral lease from IID to develop geothermal resources in Sections 3, 10, and 11, Township 11 North, Range 13East. The Project will develop geothermal resources within CTR's geothermal lease area.

The Project will consist of the following components:

- a geothermal power plant, including:
- production and injection wells and well pads –
- geothermal fluid production and injection pipelines
- a brine processing facility and brine pond
- a 49.9 MW net geothermal turbine generator facility, with a heat rejection system
- material and equipment storage
- a control building
- administrative and warehouse buildings
- a water storage pond and water storage tank
- an on-site substation
- 230-kV gen-tie line to the IID interconnect station at Hudson Ranch

Project Location:

The Project area is within Sections 10, 11, and 12, Township 11 North, and Range 13 East in Imperial County near the eastern shore of the Salton Sea (Figure 1 and Figure 2). The Project area is within CTR's lease area and lands owned by CTR. The proposed geothermal power facilities will be immediately west of Davis Road and south of Noffsinger Road in Imperial County. The gen-tie line will be east of Davis Road and north of McDonald Road, within IID's transmission right-of-way and a new right-of-way. The Project area is approximately 3.6 miles west of the town of Niland.

#### Zoning

The geothermal development area is zoned open space/geothermal overlay (S-I-G) and is within the renewable energy/geothermal map overlay zone in the 2015 Renewable Energy and Transmission Element update to the County's General Plan. The gen-tie right-of-way is zoned S-I-G and medium industrial/geothermal overlay (M-2-G). Assessor's parcel numbers (APNs) are shown in Table 1 for all parcels in the Project area.

**Hell's Kitchen LithiumCo 1 LLC, a wholly owned subsidiary of Hell's Kitchen HoldingCo 1 LLC (a subsidiary of Controlled Thermal Resources [CTR])** is proposing to construct and operate the Hell's Kitchen LithiumCo 1 Project (HKLI, Project). The Project will consist of mineral extraction and processing facilities capable of producing commercial qualities of lithium hydroxide, silica, bulk sulfide, and polymetallic products. The Project will include brine supply and return pipelines to process geothermal brine from the neighboring Hell's Kitchen PowerCo 1 Project (HKPI), The Project will also include an interconnecting power line, which will be on the transmission power poles with the HKPI generation tie line, to supply power to Project facilities.

The Project facilities will be in Sections 11 and 12, Township 11 North, Range 13 East, as shown on the U.S. Geological Survey Niland Quadrangle topographic map (Figure 1). CTR holds a geothermal mineral lease from Imperial Irrigation District (IID) for production of geothermal resources in Sections 3, 10, and 11, Township 11 North, Range 13 East.

The Project objectives are to:

provide a sustainable domestic source of lithium, a designated critical material; • extract and produce lithium hydroxide, silica, bulk sulfide, and polymetallic products for commercial sale from the geothermal brine within CTR's lease area; • minimize the distance between the geothermal power plant and lithium extraction plant for production efficiency and to reduce the extent of pipeline required to convey brine and steam to and from the geothermal power facility to the mineral extraction plant, thereby minimizing the overall industrial footprint of the combined power and mineral operations; and • provide a positive impact on the community and the environment through efficient production of a domestic supply of lithium for electric vehicle batteries and job creation.

#### Project Location

The Project area is within Section 11 and 12, Township 11 North, Range 13 East in Imperial County near the eastern shore of the Salton Sea (Figure 1 and Figure 2). The Project area is within CTR's lease area and lands owned by CTR. The HKLI facilities will be immediately west of Davis Road and north of Pound Road in Imperial County. The power line will be east of Davis Road and north of McDonald Road within IID's transmission right-of-way and a new right-of-way. The Project area is approximately 3.6 miles west of the town of Niland.

It should be noted that the applicant has agreed to prepare an EIR for the proposed Project in order to satisfy compliance with CEQA. In order to assist in the preparation of the EIR, the applicant is currently preparing or plans to prepare, the following technical studies:

1. Air Quality/Greenhouse Gas (GHG) Technical Report
2. Traffic Study/VMT Analysis
3. Biological Resources Survey and Report
4. Aquatic Resources Delineation Report
5. Archaeological Resources Management Report

Attached in a CD/other hereto is a copy of the application package and maps.

- I. **The County hereby requests the following information; for each item (as appropriate), the hourly rate and estimated total hours for the specific task must be documented.**
  - a. Identified milestones representing specific tangible work products (tasks) to which payments by the County would be linked and become part of the legal contract. (Please note that all subsequent bills/invoices will be required to include both the identified milestones and percent completed).

- b. All potential subcontractor(s) that will be utilized along with their estimated staff time and cost breakdown;
- c. An estimated "not to exceed cost" to prepare the Drafts (DEIR), Final Environmental (FEIR), & Findings of Fact documents;
- d. Review the attached proposed Conditional Use Permit(s) and Variances & make Findings of Consistency with the General Plan on the EIR,
- e. Review and comment on the submittal of studies prepared by applicant and their consultant, and
- f. Submittal of 5 CD's and three (3) hard copies of proposal.

The only exception to the "not to exceed" cost shall be the response to public comments received as a result of the joint environmental document's circulation. If the County receives excessive comments on the draft document, then the costs will be determined on a "negotiated basis" when the draft document and comments on the project become available. Excessive comments are generally considered to be more than twenty (20) commenting agencies/individuals and/or over 150 comments that require answers other than "comment noted."

Also, proposals must incorporate the cost estimate for the printing of the Draft (DEIR) and Final environmental documents (EIR) for a minimum of copies. The first three (3) hard copies of DEIR & FEIR with Appendices and 5 CD's are to be included within your estimate.

The proposal must provide that prior to any cost overruns; the consultant shall discuss **first and then seek written approval from the County Planning and Development Services Director, Jim Minnick** before such costs are incurred. Failure to get prior written approval may result in such costs being disallowed.

**II. We request that you provide within your cost estimate for the EIR, a preparation of the following analysis and peer reviews of studies done for this EIR by the applicant and their consultants (applicant listed studies are highlighted in yellow as shown in above text).**

- Aesthetics
- Agricultural Resources (include LESA Model)
- Air Quality & Greenhouse Gas Emissions Studies (applicant provided)
- Alternatives
- Cumulative, Growth
- Climate Change
- Hazards, Hazardous Materials Study
- Health Risk Assessment
- Hydrology/Water Quality
- Land Use
- Noise Study
- Population and Housing
- Public Health & Safety
- Public Services
- Transportation/Circulation (applicant provided)
- Utilities and Service

- Findings for Project
- Mitigation, Monitoring & Reporting Program
- Biological resources
- Cultural Resources/Archeological Study
- Geology and Soils Analysis
- Geotechnical Investigation (applicant will provide).
- Traffic Study
- Glare Analysis
- Visualization Study
- Noise Study
- Energy Assessment
- Wildfire assessment

**III. The following format should be used in preparing the proposal; additional information/items may be used to further bolster your proposal:**

One page cover letter introducing your firm.

**1. Project Understanding**

**2. Project Team**

- Identify all company and consultant team personnel who will work on the project and short description of their education and work experience.
- Resumes of the prime and technical consultants should be included and can be attached to the proposal as an appendix.
- Organization Charts-Elaborate organization charts are not necessary.

**3. Scope of Work**

- Describe the proposed tasks to accomplish the scope of work.
- Include deliverables, when applicable, for each task.
- Include all applicable site visits, scoping meetings, staff meetings and public hearings.
- Be specific regarding your approach to complete the CEQA noticing requirements.

**4. The tasks should be presented as follows:**

a. Project Initiation

Include research, site visit, data collection, CEQA notices, Notice of Preparation and Initial Study (NOP & IS), scoping meetings, EEC meeting, ALUC hearing.

b. Administrative Draft EIR (ADEIR)

Include mandatory CEQA sections, required and technical studies, peer review of applicant-prepared technical studies, number of revisions, meetings and coordination with County Staff;

c. Public Review Draft EIR (DEIR)

Include document preparation, CEQA notice, Scoping meeting, and coordination with County Staff;

- d. Final EIR (FEIR)  
Include document preparation, Response to Comments, CEQA notice, meetings, coordination with County Staff and attendance at Planning Commission and Board of Supervisors hearing;
- e. Mitigation, Monitoring and Reporting Program  
Include the preparation per CEQA identification of all mitigation measures, identification of all responsible parties, timing and enforcement;
  - CEQA Findings & Findings of Fact and  
Include the preparation per CEQA requirements;
- f. Assumptions  
Please provide a specific section for assumptions. Include your assumptions regarding travel time, mileage, public noticing, or anything else that needs clarification; and
- g. Meetings  
The number of meetings and hearings that are included in your proposal should be detailed under each task. Must include Planning Commission and Board of Supervisors hearings.

## 5. Proposed Schedule

Provide the number of weeks for each task in tabular form from project initiation to public hearings, Planning Commission, and Board of Supervisors.

## 6. Cost Estimate/Milestones

- Provide a discussion of the proposed cost and any optional costs.
- Include a spread sheet that details your personnel, any subcontractors to be used, their estimated hours, and associated costs per task (can be attached as an appendix).
- A table of project milestones should be included in the Cost Estimate discussion.

## 7. Consultant Selection Criteria

- a) **Understanding of the project:** the proposer should demonstrate understanding of key elements of the project and, accordingly, provide the names of personnel and their expertise.
- b) **Approach to the project:** The selection process will evaluate the extent to which the proposer has recognized and identified special circumstances on the project and whether the proposer has provided logical approach to tasks and issues of the project.
- c) **Professional qualifications necessary for satisfactory performance:** The project manager and key team members should be qualified to perform the work categories on the project; and the proposer's knowledge of standards and procedures will be examined.
- d) **Specialized experience and technical competence in the type of work required:**  
The proposer should provide information about comparable projects they have been

involved with and/or successfully accomplished. Past performance on contracts with government agencies and private industry along with past performance evaluations; and the capacity to accomplish this work in the required time will be evaluated.

- III. **It is requested that you disclose all conflicts** or potential conflict that you may have if you are submitting a proposal. The conflict by the County envisions, at the very minimum, current/ongoing or previous contracts (within the past year) with the applicant(s); this also includes current technical studies that either are or have been prepared for the applicant(s) within the last year.
- IV. **Not providing the extent of information (including hourly rate and total estimated hours per task) may negatively impact the evaluation of your proposal.**

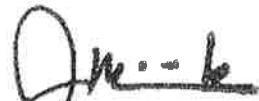
If you are interested in submitting a proposal, please submit it to the Director at Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA, 92243, **no later than January 18th, 2022 at 5:00 p.m.** This must be postmarked on or before this date and time.

Please note that it is **not necessary to present us with voluminous references or individualized background data** on persons or personnel within your organization. We may require this at a later date. We look forward to receiving your submittal.

**Please submit a total of 3 hard copies and a 5 CD's.**

Should you have any questions or comments, please feel free to contact the assigned Planner for this project, David Black IV (442) 265-1736, extension 1746, or via-email at [davidblack@co.imperial.ca.us](mailto:davidblack@co.imperial.ca.us).

Sincerely,



Jim Minnick, Director  
Planning & Development Services

Attachments: CUP Project Applications, Project Description and Site Plans

cc: Tony Rouhotas, County Executive Officer  
Eric Havens, County Counsel  
Jim Minnick, Director of Planning and Development Services  
Michael Abraham, AICP, Asst. Director of Planning & Development Services  
Project File: CUP 21-0020 & 21-0021, Initial Study #  
APN 037-140-006-000

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**CONTROLLED  
THERMAL  
RESOURCES**

December 10, 2021

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

Re: Hell's Kitchen PowerCo 1 Project and Hell's Kitchen LithiumCo 1 Project – Conditional Use Permit Applications

Dear Mr. Minnick:

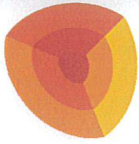
Hell's Kitchen PowerCo 1 LLC and Hell's Kitchen LithiumCo 1 LLC, subsidiaries of Hell's Kitchen HoldingCo 1 LLC and Controlled Thermal Resources, Inc. (CTR), are hereby submitting the enclosed Conditional Use Permit (CUP) applications for the proposed Hell's Kitchen PowerCo 1 Project (HKP1) and Hell's Kitchen LithiumCo 1 Project (HKL1). The HKP1 and HKL1 Projects are located approximately 3.6 miles west of the community of Niland. The enclosed CUP application package includes the following contents:

1. Complete CUP Application Forms for the HKP1 and HKL1 Projects (5 copies)
2. Complete Variance Application Forms for HKP1 and HKL1 Projects (5 copies)
3. A Project Description, including environmental protection measures to avoid or reduce environmental impacts
4. A completed ICPDSD Notice to Applicant form
5. A completed ICPDSD General Indemnification form
6. Check in the amount of \$13,000, for the CUP and Variance application for the HKP1 and HKL1 Projects

We request that Imperial County Planning and Development Services (ICPDS) prepare an Environmental Impact Report (EIR) for the projects in compliance with the California Environmental Quality Act (CEQA). While we believe the projects will not result in significant impacts on the environment, an EIR provides a higher standard for legal review (substantial evidence versus fair argument) and provides greater legal defensibility for the environmental document. As we discussed, HKP1 has a commercial operation date of September 2023, and we hope to complete the CEQA process to meet the HKP1 and HKL1 schedules. We will be ready to submit the following environmental technical reports and studies to support the CEQA review process in the near future.

- Biological Resources Technical Report
- Aquatic Resources Delineation Report
- Archaeological Resources Management Report





Mr. Minnick  
December 10, 2021  
Page 2

- Vehicle Miles Traveled Analysis
- Air Quality and Greenhouse Gas Emissions Analysis

We would be happy to meet with your staff to discuss the HKP1 and HKL1 Projects and CUP applications to facilitate your processing of the enclosed applications.

Please contact our office if you should have any questions.

Sincerely,

A handwritten signature in blue ink that reads "James T. Turner".

James T. Turner  
Chief Operating Officer

cc: Laurel Glass Lees, Regulatory Affairs Specialist



# Imperial County Planning & Development Services Planning / Building / Parks & Recreation

Jim Minnick  
DIRECTOR

## NOTICE TO APPLICANT

SUBJECT: PAYMENT OF FEES

Dear Applicant:

Pursuant to County Codified Ordinance Division 9, Chapter 1, Section 90901.02, all Land Use Applications must be submitted with their appropriate application fee. Failure to comply will cause application to be rejected.

Please note that once the Department application is received and accepted, a "time track" billing will commence immediately. Therefore, should you decide to cancel or withdraw your project at any time, the amount of time incurred against your project will be billed and deducted from your payment. As a consequence, if you request a refund pursuant to County Ordinance, your refund, if any, will be the actual amount paid minus all costs incurred against the project.

Please note there will be no exceptions to this policy. Thank you for your attention.

Sincerely yours,

Jim Minnick, Director  
Planning & Development Services

RECEIVED BY:

*Frank T. Turner, CDD* DATE: *Dec. 10, 2021*  
*for Hell's Kitchen Lithium Co 1, LLC &*  
*Hell's Kitchen Power Co 1, LLC*

# IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES GENERAL INDEMNIFICATION AGREEMENT

As part of this application, applicant and real party in interest, if different, agree to defend, indemnify, hold harmless, and release the County of Imperial ("County"), its agents, officers, attorneys, and employees (including consultants) from any claim, action, or proceeding brought against any of them, the purpose of which is to attack, set aside, void, or annul the approval of this application or adoption of the environmental document which accompanies it. This indemnification obligation shall include, but not be limited to, damages, costs, expenses, attorney fees, or expert witness fees that may be asserted by any person or entity, including the applicant, arising out of or in connection with the approval of this application, whether or not there is concurrent negligence on the part of the County, its agents, officers, attorneys, or employees (including consultants).

If any claim, action, or proceeding is brought against the County, its agents, officers, attorneys, or employees (including consultants), to attack, set aside, void, or annul the approval of the application or adoption of the environmental document which accompanies it, then the following procedures shall apply:

1. The Planning Director shall promptly notify the County Board of Supervisors of any claim, action or proceeding brought by an applicant challenging the County's action. The County, its agents, attorneys and employees (including consultants) shall fully cooperate in the defense of that action.
2. The County shall have the final determination on how to best defend the case and will consult with applicant regularly regarding status and the plan for defense. The County will also consult and discuss with applicant the counsel to be used by County to defend it, either with in-house counsel, or by retaining outside counsel provided that the County shall have the final decision on the counsel retained to defend it. Applicant shall be fully responsible for all costs incurred. Applicant shall be entitled to provide his or her own counsel to defend the case, and said independent counsel shall work with County Counsel to provide a joint defense.

Executed at 447 W. ATEN RD, IMPERIAL California on Dec. 10, 2021

**APPLICANT**

Hell's Kitchen Lithium Co I, LLC &  
Hell's Kitchen Power Co I, LLC

Name: James T. Turner

By James T. Turner

Title Chief Operating Officer

Mailing Address:  
447 W. ATEN RD  
SUITE 6  
IMPERIAL, CA 92251

**REAL PARTY IN INTEREST**

(If different from Applicant)

Name \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Mailing Address:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ACCEPTED/RECEIVED BY \_\_\_\_\_ Date \_\_\_\_\_

PROJECT ID NO \_\_\_\_\_ APN \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

S:\FORMS\_LISTS\General Indemnification FORM 041516.doc

**Hell's Kitchen PowerCo 1 LLC  
Hell's Kitchen PowerCo1 Project  
Conditional Use Permit Application  
Project Description**

**December 2021**

Hell's Kitchen PowerCo 1 LLC  
447 West Aten Road, Suite G  
Imperial, CA 92251  
Jim.Turner@cthermal.com



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Attachment A Site Plan

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## Acronyms and Abbreviations

APN	assessor's parcel number
CalGEM	California Geologic Energy Management Division
CARB	California Air Resources Board
CPUC	California Public Utilities Commission
CRRWQCB	Colorado River Regional Water Quality Control Board
CTR	Controlled Thermal Resources
CUP	Conditional Use Permit
gen-tie	generation tie (line)
H <sub>2</sub> S	hydrogen sulfide
HCl	hydrochloric acid
HKP1	Hell's Kitchen PowerCo 1 Project (Project; HKP1)
HMBP	Hazardous Materials Business Plan
ICAPCD	Imperial County Air Pollution Control District
ICPHD	Imperial County Public Health Department
IID	Imperial Irrigation District
KGRA	known geothermal resource area
kV	kilovolt(s)
M-2-G	medium industrial/geothermal overlay
MW	megawatt(s)
MWe	megawatt(s) electric
NCG	noncondensable gas
NERC	North American Electric Reliability Corporation
O&M	operation and maintenance
RO	reverse osmosis
S-1-G	open space/geothermal overlay
SO <sub>4</sub> <sup>2-</sup>	sulfate
TEWAC	totally enclosed water and air-cooled
WMU	waste management unit

# PROJECT DESCRIPTION

## Introduction

### Project Overview

Hell's Kitchen PowerCo 1 LLC, a wholly owned subsidiary of Hell's Kitchen HoldingCo 1 LLC (a subsidiary of Controlled Thermal Resources), proposes development of the Hell's Kitchen PowerCo 1 Project (Project; HKP1). The Project will generate up to 49.9 megawatts (MW) net of geothermal power and deliver the power to the Imperial Irrigation District (IID) system via an approximately 2-mile-long generation tie (gen-tie) line to the existing IID interconnect station at Hudson Ranch. Project development will require Conditional Use Permit (CUP) authorization from Imperial County. Controlled Thermal Resources (CTR) obtained a geothermal mineral lease from IID to develop geothermal resources in Sections 3, 10, and 11, Township 11 North, Range 13 East. The Project will develop geothermal resources within CTR's geothermal lease area.

The Project will consist of the following components:

- a geothermal power plant, including:
  - production and injection wells and well pads
  - geothermal fluid production and injection pipelines
  - a brine processing facility and brine pond
  - a 49.9 MW net geothermal turbine generator facility, with a heat rejection system
  - material and equipment storage
  - a control building
  - administrative and warehouse buildings
  - a water storage pond and water storage tank
  - an on-site substation
- a 230-kV gen-tie line to the IID interconnect station at Hudson Ranch

### Project Objectives

The Project objectives are to:

- produce 49.9MW (net) of geothermal power from CTR's geothermal lease area;
- provide power to the Imperial Irrigation District; and
- generate a positive impact on the community and the environment through production of renewable energy and job creation.

### Project Location

The Project area is within Sections 10, 11, and 12, Township 11 North, Range 13 East in Imperial County near the eastern shore of the Salton Sea (Figure 1 and Figure 2). The Project area is within CTR's lease area and lands owned by CTR. The proposed geothermal power facilities



## PROJECT DESCRIPTION

will be immediately west of Davis Road and south of Noffsinger Road in Imperial County. The gen-tie line will be east of Davis Road and north of McDonald Road, within IID's transmission right-of-way and a new right-of-way. The Project area is approximately 3.6 miles west of the town of Niland (Figure 1).

### Zoning

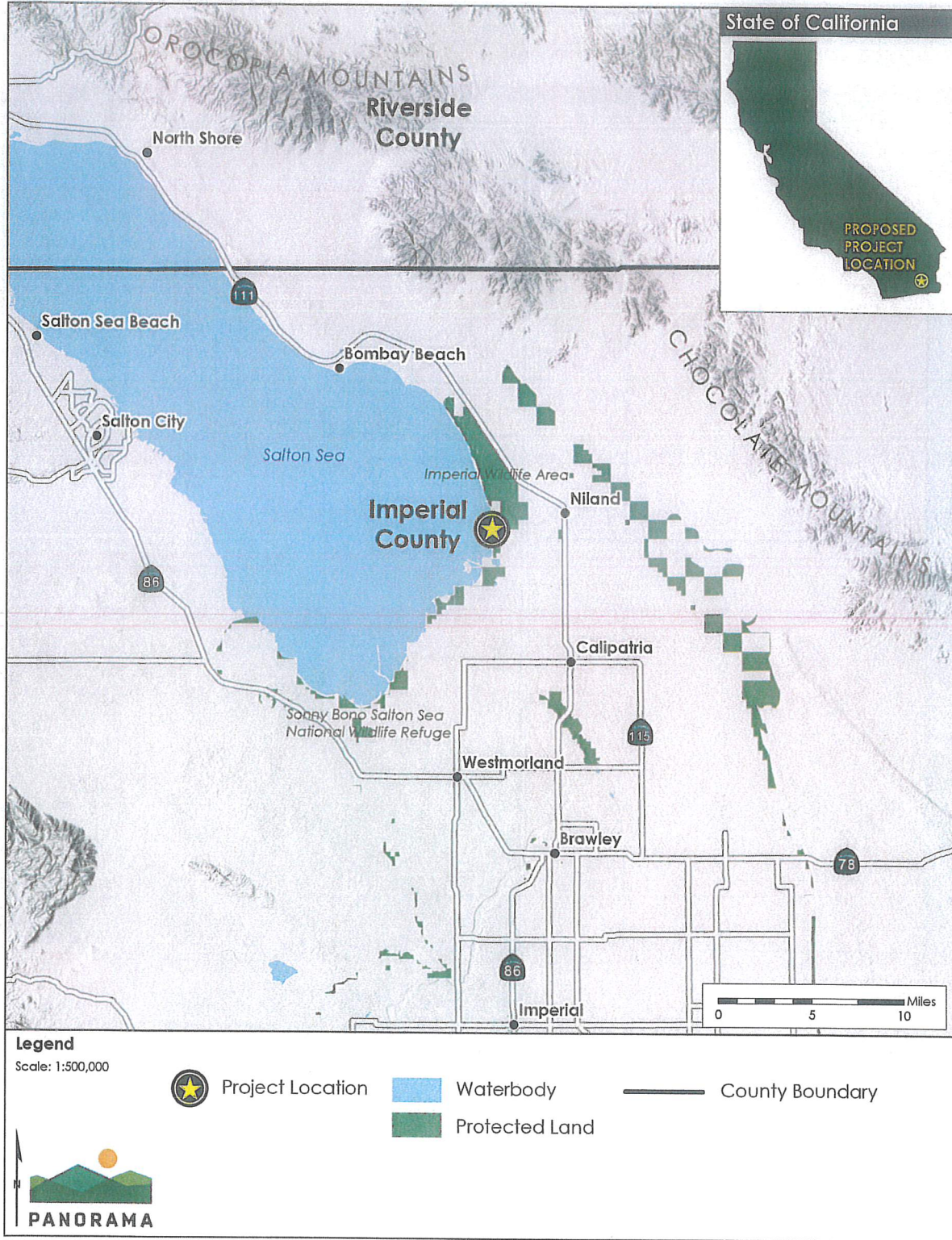
The geothermal development area is zoned open space/geothermal overlay (S-1-G) and is within the renewable energy/geothermal map overlay zone in the 2015 Renewable Energy and Transmission Element update to the County's General Plan (Figure 2 **Error! Reference source not found.**). The gen-tie right-of-way is zoned S-1-G and medium industrial/geothermal overlay (M-2-G). Assessor's parcel numbers (APNs) are shown in Table 1 for all parcels in the Project area.

**Table 1 Assessor Parcels in the Project Area**

Assessor Parcel Number	Project Component
020-010-012	Geothermal power facilities
020-010-013	Geothermal power facilities
020-070-060	Geothermal power facilities
020-010-042	Gen-tie line
020-060-001	Gen-tie line
020-060-002	Gen-tie line
020-060-039	Gen-tie line
020-060-040	Gen-tie line
020-070-026	Gen-tie line
020-070-025	Gen-tie line
020-070-029	Gen-tie line
020-070-055	Gen-tie line
020-010-031	Gen-tie line
020-010-032	Gen-tie line
020-010-035	Gen-tie line

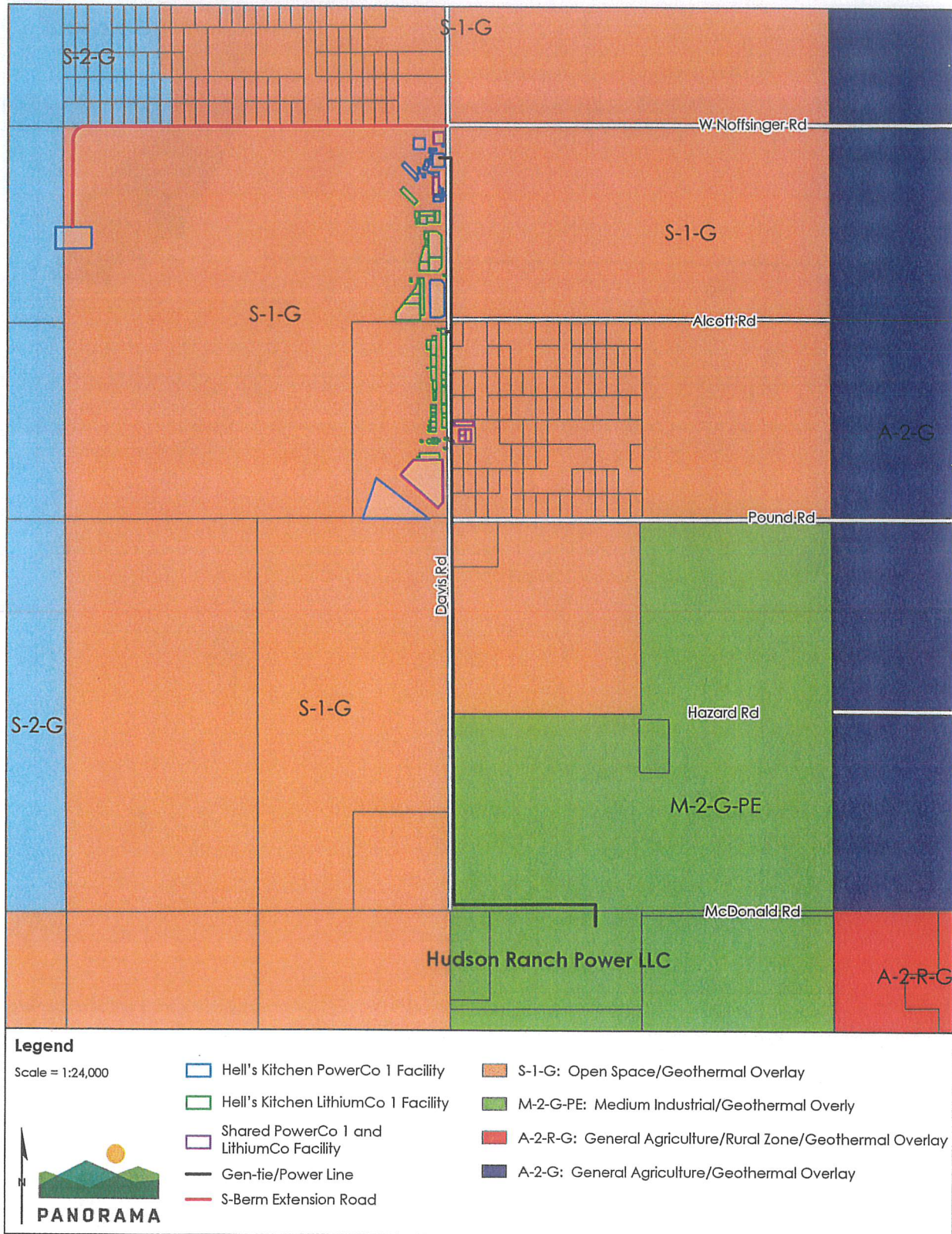
# PROJECT DESCRIPTION

**Figure 1 Project Location**



# PROJECT DESCRIPTION

**Figure 2 Project Area Land Use and Zoning**



## PROJECT DESCRIPTION

### Background

The County authorized Geothermal CUP #16-0001 on June 14, 2017, which allowed construction of up to four well pads as well as drilling and maintenance of up to six separate geothermal exploratory wells. Well Pad 1, north of Alcott Road and west of Davis Road, was constructed in early 2021. Well drilling began at Well Pad 1 in November 2021, and brine testing is scheduled to start beginning in early 2022. Rough grading for Well Pad 3, south of Noffsinger Road and east of Davis Road, began in November 2021. The remaining Project area is undeveloped.

### Development Facilities

#### Overview

The power generation facility will be a single-flash power plant, using a single-pressure, axial exhaust-condensing, steam turbine generator set, capable of producing up to 55.3 megawatts electric (MWe) (gross), 49.9 MW net. The horizontal brine separator will receive produced brine, delivered from the production wells, and will separate a high-pressure steam fraction from the brine. The steam will be purified using a scrubber and demister system before being admitted into the axial exhaust-condensing steam turbine. The liquid brine in the separator will be injected back into the geothermal reservoir. The turbine exhaust steam will be condensed to form geothermal condensate, which may be used as make-up water in the cooling tower, to minimize the water consumption of the facility.

#### Site Access

The Project site will be accessed from Davis Road via two new ingress/egress driveways that will be constructed during construction of the power facilities. Davis Road will be upgraded with an aggregate base during Project construction. Project-related traffic typically will access the site from Highway 111 via McDonald Road and Davis Road.

All County road ingress/egress will be constructed in conformance with Imperial County Public Works Department requirements. Road access will be restricted during construction, and appropriate traffic controls will be in place.

#### Power Plant Site

The power generation facilities will be southwest of the intersection of Noffsinger Road and Davis Road (Figure 3). A security fence will be installed around the power plant facilities.

PROJECT DESCRIPTION

Figure 3 Site Layout



## PROJECT DESCRIPTION

### Geothermal Wells

#### Production and Injection Wells

The Project will use Well Pad 1 and a well pad adjacent and south of the Q Drain for geothermal fluid production and injection. The Project also may use Well Pad 4 for geothermal fluid production or injection. Well Pad 1 previously was approved for geothermal exploration drilling and was constructed in 2021. The geothermal production wells will be drilled at Well Pad 1, and one or two injection wells also will be drilled at Well Pad 1. The existing footprint of Well Pad 1 will be expanded by approximately 160 feet to the north during construction of the commercial facility, to accommodate the wells required for commercial operation of the Project. Well Pad 4 previously was approved by the County for geothermal exploration drilling but was not constructed. The Project will include seven wells for production and injection, including one well for injection of aerated fluids. The two previously drilled geothermal exploration wells will be used as commercial production wells for the Project. All production and injection wells will be operated in accordance with California Geologic Energy Management Division (CalGEM) regulations.

#### Well Site Production and Injection Equipment

Production and injection wellhead dimensions are not expected to exceed a height of 15 feet above the ground surface or 4 feet in diameter. The wellhead will consist of control valves, warmup bypass valves, and isolation valves. The wellheads will be insulated, and the insulation cladding will be supplied with an appropriate color to blend with the area and minimize visibility.

The injection wells will be located to avoid geothermal fluid interference with the production wells. Each injection well will be monitored remotely for pressure, temperature, and flow rate. Injection pumps at the power plant site will pump the geothermal injection fluid through the injection pipeline system, providing sufficient pressure to inject the geothermal brine back into the geothermal reservoir. Limited electrical equipment will be required at the injection well sites. A flow meter will be integrated into the injection pipeline equipment at the injection well pad and operated remotely from the control room. Overhead lighting will be constructed on the injection well pads. The injection well pads will be fenced.

The geothermal production and injection wells will be drilled from the production and injection well pads using steel, titanium or titanium alloy, nickel alloy, duplex stainless steel, or equivalent, as appropriate to the final well completion depth.

#### Geothermal Pipeline Systems

Above-ground pipelines will be constructed to interconnect the production and injection wells with the power plant site facilities (see the site plan in Attachment A). The pipelines will be constructed at ground level on pipeline supports, on drilled foundations installed approximately every 20 to 40 feet along the pipeline routes. The pipelines will use a cattleguard-type crossing at the Q and R drains, to avoid impacts on the irrigation drains, and the crossing

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will be constructed in collaboration with IID. Pipeline construction will be conducted concurrently with construction of the power plant.

The production wellheads will be on Well Pad 1, south of the power plant site. An above-ground pipeline will be constructed from the production wells to the brine and steam-handling facilities on the power plant site. The production pipelines will be constructed from alloy or alloy-lined pipe that will be designed, constructed, tested, and inspected pursuant to current industry standards for high-temperature, high-pressure piping. Above-ground geothermal fluid pipelines, approximately 30 inches in diameter, will be covered with approximately 2 inches of insulation and a protective metal sheath appropriately colored to blend with the area.

The brine injection pipeline will be either cement-lined carbon steel, alloy, or a combination of both. The brine injection pipeline also will be very similar in design to the pipelines currently used to transport polished brine from the existing Salton Sea known geothermal resource area (KGRA) geothermal power plants to their respective injection wells. The brine injection pipeline will be approximately 24 inches in diameter and will be insulated, then covered with a protective metal sheath appropriately colored to blend with the area.

### **Brine Processing Facility**

The brine processing facility will prepare the geothermal fluid that is produced from the production wells for steam extraction. The geothermal fluid will be delivered through above ground pipelines to the brine processing facility. The spent brine will be injected back into the geothermal reservoir through injection wells (discussed next).

A pH modification system will be installed if silica management is necessary to prevent scaling in either surface equipment or injection wellbores. The pH modification system will involve injection of dilute hydrochloric acid (HCl) into the brine stream, exiting the high-pressure separator at a rate to establish a known bulk fluid pH value. The pH modification system will consist of a concentrated acid storage tank, acid transfer pumps, a diluted acid storage tank, diluted acid injection pumps, and an injection nozzle to distribute the diluted acid into the brine injection pipeline. Concentrated HCl (approximately 32% by weight) will be delivered to the Project site by truck for storage. The concentrated acid will be mixed with service water to create a diluted acid solution (approximately 4% by weight). If necessary for silica management, this diluted acid solution then will be injected into the brine pipeline between the high-pressure separator and the brine injection pumps.

**The process flow diagram shown in Figure 4 illustrates the fluid movement through the brine processing facility. The projected chemistry of the geothermal production fluid is shown in**

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Table 2.



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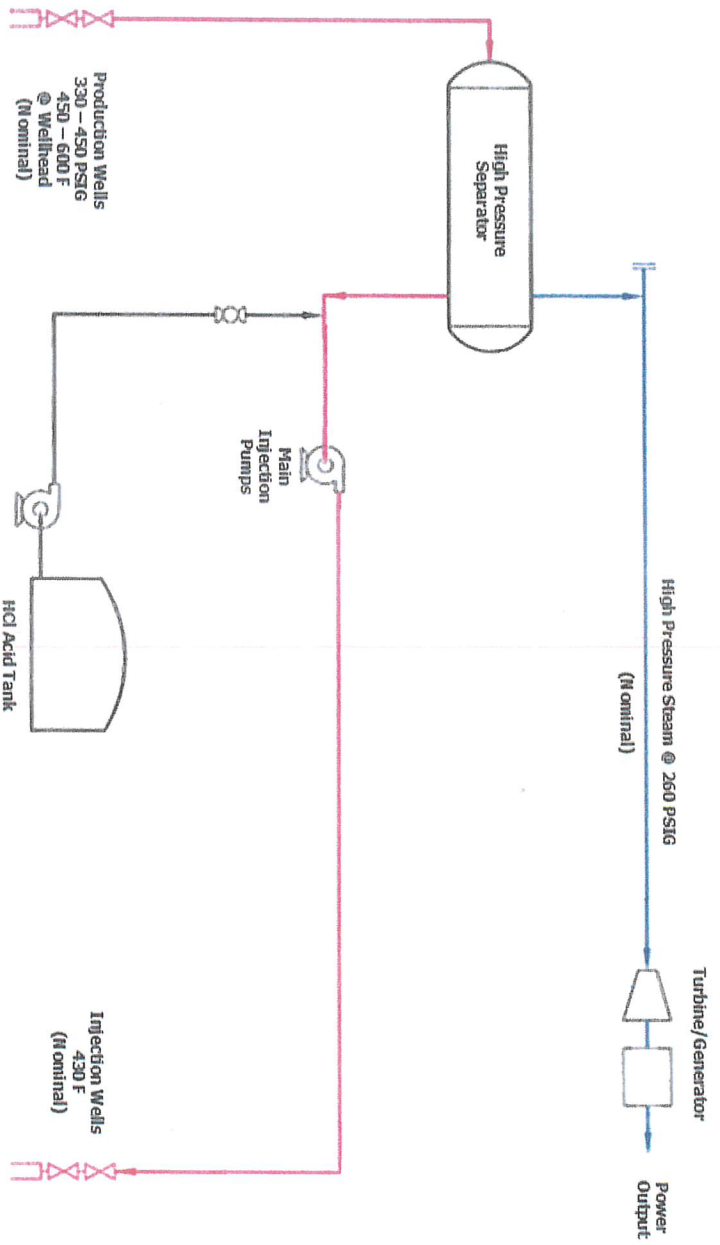
**Table 2 Expected Brine Composition**

Mineral	Value (mg/L)
Ammonium, NH <sub>4</sub>	250
Arsenic, As	10
Barium, Ba	250
Boron, B	350
Bromine, Br	100
Calcium, Ca	29,000
Cesium, C	15
Chloride, Cl	156,000
Cobalt, Co	<0.05
Copper, Cu	5
Iodide, I	10
Fluoride, F	25
Iron, Fe	1,600
Lead, Pb	100
Lithium, Li	250
Magnesium, Mg	50
Manganese, Mn	1,400
Potassium, K	17,000
Sodium, Na	54,000
Silica, SiO <sub>2</sub>	350
Strontium, Sr	500
Sulphate, SO <sub>4</sub>	5
Zinc, Zn	500

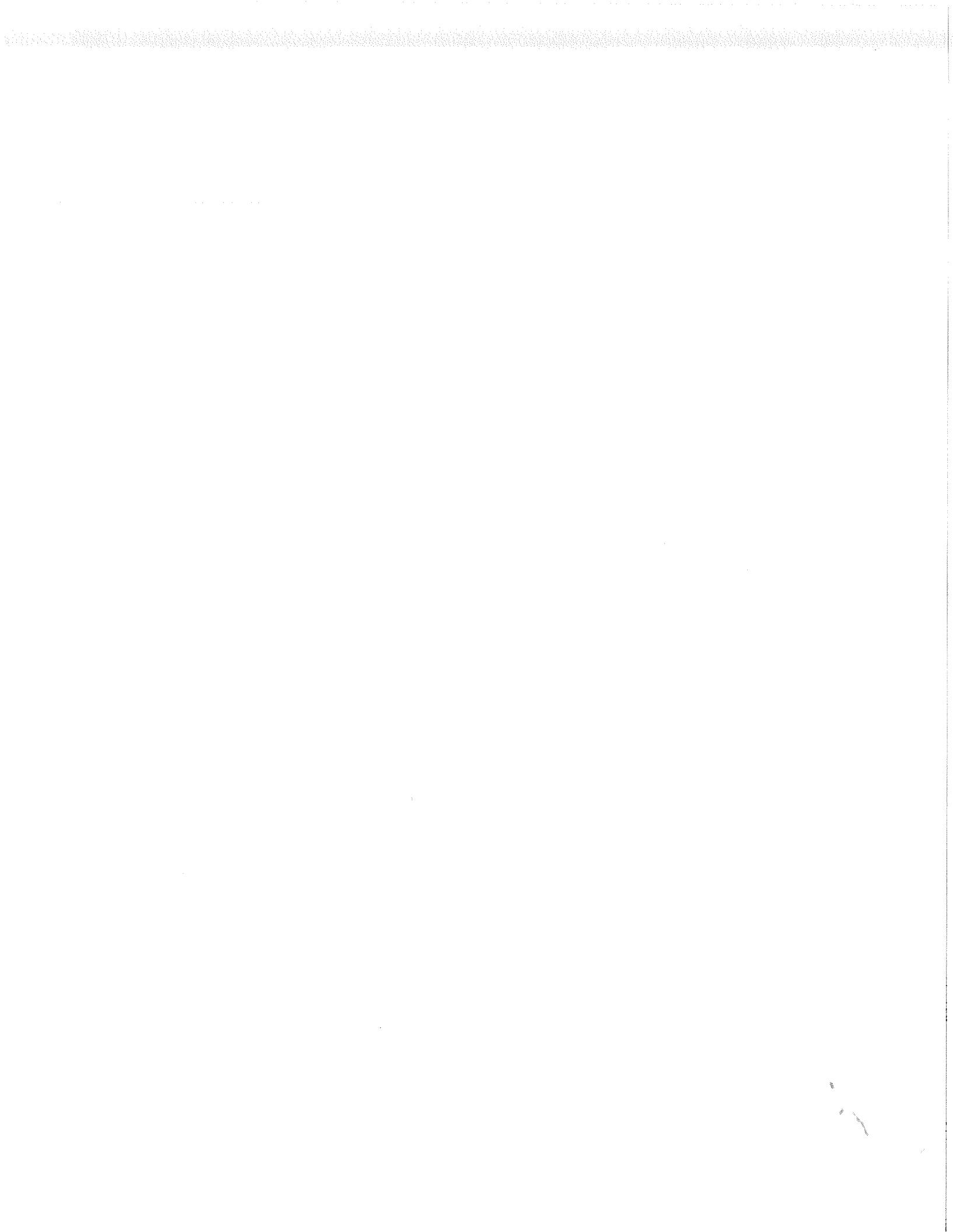
*Source: (Hatch, 2021)*

# PROJECT DESCRIPTION

Figure 4 Brine Processing Flow Diagram



Source: (John Matthew Engineering, 2014)



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### Brine Pond

The brine pond will be cement-lined with an underliner leak detection system, to allow storage of brine during upset conditions and collection of brine during flow testing and plant startup. The brine pond will be sized to accommodate two times the volume of the largest vessel and up to 6 hours of normal brine flow-equivalent during system upset conditions plus 2 feet of freeboard. The brine pond will be constructed as a waste management unit (WMU) to meet Colorado River Regional Water Quality Control Board (CRRWQCB) surface discharge requirements. Groundwater monitoring wells will be constructed adjacent to the brine pond in conformance with CRRWQCB requirements.

### Turbine Generator Facility

The Project will use flash-based power plant technology that has been used in the Salton Sea geothermal field since 1982 to convert geothermal-based renewable steam energy into electricity. Steam from the high-temperature geothermal fluid in the brine-handling facilities will be delivered to the turbine generator facility. The turbine generator facility will include a 49.9 MW (net) condensing turbine/generator set, a gas removal and emission abatement system, and a heat rejection system (i.e., condenser and cooling tower). The steam will be purified using a scrubber and demister, before being admitted into the condensing steam turbine. The turbine will be directly coupled to a totally enclosed water and air-cooled (TEWAC) synchronous-type generator. The turbine-generator unit will be fully equipped with all the necessary auxiliary systems for turbine control and speed protection, lubricating oil, gland sealing, generator excitation, and cooling. Facilities associated with the turbine generator facility will include a control building, a service water storage tank, a lube oil skid, and other ancillary facilities, as shown in the site plan provided in Attachment A.

One 3-MW diesel generator will be installed to provide blackstart<sup>1</sup> capability and emergency site power when the steam turbine generator is shut down. An 800-kW emergency generator also will be installed, to provide backup for critical instrument and equipment control power. The diesel engines will meet California Air Resources Board (CARB) air pollutant emission limits. The generators are expected to operate less than 600 hours per year.

### Heat Rejection and Noncondensable Gas Removal Systems

The heat rejection system will include a shell-and-tube-type condenser, a counterflow cooling tower, and a noncondensable gas (NCG) removal system. The cooling tower, NCG removal system, and condenser design will be similar to those used at other geothermal power plants at the Salton Sea. The cooling tower will be up to 40 feet tall. Steam from the turbine will be condensed in the condenser. The geothermal steam condensate from the condenser will be

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<sup>1</sup> Blackstart service is the capability of generating units to start without an outside electrical supply or the demonstrated ability of a generating unit to automatically remain operating at reduced levels when disconnected from the grid (FERC-NERC, 2018).

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collected in an aeration tank and used as a source of make-up water for the cooling tower. Gases that accumulate in the condenser will be evacuated by the NCG removal system. NCG will be pressurized and vented to a hydrogen sulfide (H<sub>2</sub>S) abatement system during normal plant operation. The projected composition of the NCG that is expected to be produced in the geothermal fluid is summarized in Table 3.

**Table 3 Expected Noncondensable Gases Composition**

Noncondensable Gases (NCG)	Total Mass Flow Composition (mg/kg)	
	Nominal Case	Design Case
Carbon Dioxide (CO <sub>2</sub> )	3,000	4,000
Hydrogen Sulfide (H <sub>2</sub> S)	14	19
Ammonia (NH <sub>3</sub> )	500	600
Methane (CH <sub>4</sub> )	3.6	5.0
Nitrogen (N <sub>2</sub> )	3.1	5.0
Hydrogen (H <sub>2</sub> )	0.23	0.50
Argon (Ar)	0.03	0.03
Benzene (C <sub>6</sub> H <sub>6</sub> )	0.05	0.10
<b>Total</b>	<b>3,521</b>	<b>4,630</b>

Note: NCG composition is based on the Leathers and Elmore geothermal project area production wells.

During plant startup or load rejection (i.e., plant trip offline), steam to the turbine will be diverted to a rock muffler for safe venting, like the current procedure at the existing geothermal power plants in the Salton Sea KGRA. During this time, H<sub>2</sub>S and other NCG will be released to the atmosphere.

A combination of best available control technology, best management practices, and process monitoring equipment will be used to minimize air emissions from the power plant facilities. Permits to construct and operate the facility will be obtained from the Imperial County Air Pollution Control District (ICAPCD).

### Hydrogen Sulfide Abatement System

H<sub>2</sub>S gas is a naturally occurring compound found in Salton Sea geothermal brines. To minimize H<sub>2</sub>S from being released to the atmosphere and meet permitted requirements during routine operations, the Project will employ proven abatement systems. The H<sub>2</sub>S abatement system will oxidize the gas effectively to a sulfate (SO<sub>4</sub><sup>2-</sup>) that is highly soluble, and then will return the sulfate product to injectate streams via the cooling tower blowdown process.

Non-condensable gases, including H<sub>2</sub>S, will be removed from the main condenser through a series of steam-powered air ejectors, vacuum pumps, and compressors. After the gas stream is

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pressurized, it will be sent to a sparging system in the cooling tower basin, where the H<sub>2</sub>S will react with H<sub>2</sub>S abatement chemicals to oxidize the sulfide to sulfate. The sulfate product will be injected into the reservoir with cooling tower blowdown.

In addition, condensate flowing from the main condenser will be routed to a tank where oxygen (sparged air) will be introduced, along with oxidizing chemicals. This process will oxidize any remaining H<sub>2</sub>S gas to soluble sulfate. The treated condensate then will be introduced to the cooling tower basin as a source of make-up water. As stated above, the sulfate product subsequently will be injected into the reservoir as cooling tower blowdown.

### **Buildings**

All buildings on site will be designed and constructed in compliance with the California Uniform Building Code.

### **Laboratory, Administration, and Control Room**

The laboratory and administration building will be a single-story structure, built on a reinforced concrete slab on-grade. The building will be approximately 15,500 square feet and less than 35 feet tall. The building will house facility offices, a kitchenette, an electrical room, and toilet facilities. The control room will be adjacent to the turbine generator facility and will control the power production. The control room and power distribution centers will be provided with heating, ventilation, and air conditioning equipment, as required for equipment and personnel.

### **Maintenance Building and Warehouse**

The maintenance building and warehouse will be used to store maintenance equipment and supplies for power plant operation. The workshop/maintenance portion of the building will be approximately 6,200 square feet, and the warehouse portion will be approximately 12,400 square feet. The warehouse and maintenance building will be a single-story building up to 35 feet tall.

### **Substation and Electrical Power Transmission**

The electricity from the geothermal power plant will be converted to 230 kilovolts (kV) in the on-site substation. The output of the turbine generator facility will be connected through a generator breaker to a (13.8 to 230 kV) main step-up transformer in the facility substation. The transformer will be set on a concrete pad within an oil containment system. The transformer will include gas-insulated switchgear. The high-voltage side of the main step-up transformer will be connected to a new gen-tie line within IID's transmission right-of-way for approximately 2 miles to the IID interconnect station at Hudson Ranch. The gen-tie line will be constructed as part of the power plant construction but turned over to IID for ownership and operation. The transmission line will be installed on steel structures that will support up to two 230-kV, three-phase electrical circuits, including optical ground and static wire. The steel structures will consist of direct bury steel poles approximately 120 feet tall and will span an average length of 800 feet.

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### Water Storage

A high-density polyethylene-lined freshwater pond will be constructed at the southern end of the Project site and just north of the Q drain. The pond will store and provide fresh water for Project operations. The pond will be sized to provide sufficient storage capacity to meet Project demand during foreseeable periodic interruptions in IID canal water availability. A 100,000-gallon water storage tank will be on site for fire water storage.

### Parking and Internal Access Roads

Parking will be available in the administration and control building area. Internal access roads will be designed to meet Imperial County Engineering Design Standards and will meet Fire Department requirements for fire access.

### Site Grading, Drainage, and Foundations

Site grading will involve import of engineered fill material to construct the power plant development area. The geothermal power production facilities (i.e., brine processing facility, turbine generator facility, heat rejection and NCG removal facilities, on site electrical infrastructure, and buildings) will be on a pad of compacted fill material approximately 2 to 3 feet in elevation over existing grade. A berm will extend along the outer perimeter of the Project as part of the stormwater infrastructure.

The developed power facility pad will be generally flat but will be designed to effectively drain to the stormwater retention basin. The stormwater drainage system will be sized to accommodate 3 inches of precipitation in a 24-hour period (100-year storm event), and to comply with applicable local codes and standards. Buildings and equipment will be constructed in a manner that provides protection from a 100-year storm. Spill containment areas and sumps subject to spills of miscible chemicals will drain to an enclosed oil/water separator and collected in a waste oil tank for off-site recycling. The power plant site will be graded and constructed so that any geothermal fluid spills will be collected in sumps that will drain to the brine pond rather than the stormwater retention basin.

Within the power plant site, buildings and equipment will be constructed on foundations consistent with the overall site plan. Deep foundations for all major equipment are expected to require subsurface improvements in the form of steel and or concrete pilings. Shallow foundations for buildings are not expected to require piling supports.

## Construction

### Site Preparation

Before construction of the power plant facility, the limits of the power plant site impact area will be staked and flagged. All vegetation within the power plant site impact area will be cleared. Vegetation will be removed using a brush hog or functional equivalent. The removed vegetation either will be chipped on site for dust control, re-used in landscaping, or composted.

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Sediment and erosion control best management practices will be installed in the work areas as needed to protect water quality and control sedimentation and erosion during construction.

Engineered fill material will be imported and compacted within the Project site to construct the power facility pad, well pads, and access roads. Well Pad 1 will be extended by approximately 160 feet to the north. The injection well pad and access road will be constructed on imported fill and compacted to finished grade.

Grading will occur at the administration and warehouse area east of Davis Road, to provide a flat space for construction of the proposed buildings and foundations. Limited grading is proposed for the gen-tie line. A flat, approximately 100-foot by 100-foot pad will be constructed at each transmission structure location, to support the cranes and heavy equipment that will be required to install the transmission structures. The equipment will access the gen-tie line from Davis Road.

### **Staging and Laydown**

Material staging and laydown will occur within the Project area after site preparation. The area between Well Pad 1 and HKP1 facilities west of Davis Road will be available for material staging and laydown during construction, as needed.

### **Access Road Improvements**

Aggregate will be used along Davis Road, from McDonald Road to the Project site, to provide a stabilized roadbed for construction access. Minor rills and erosion along the road will be graded at the start of construction, to improve the access road for vehicle access.

### **Construction Schedule, Workforce, and Traffic**

Project construction is anticipated to occur over a 17-month period. CTR anticipates beginning construction of the power plant and developing the well field in April 2022. The projected in-service date for the Project is September 2023.

Well drilling operations will be conducted 24 hours a day, 7 days a week, until the well depth is obtained and the wells are completed. Well drilling is anticipated to last approximately 8 weeks at each well and will involve a workforce of approximately 12 to 20 people, depending on the activity. An average of 225 workers will be on site daily during construction of the power plant, with a maximum of 450 workers per day during peak construction. Construction of the power plant facilities will be conducted during daytime hours. The construction schedule will be based on a single-shift of 10 hours per day, in a Monday through Saturday workweek. Overtime and shift work for construction may vary.

Approximately 4,000 truck trips are expected to occur during Project construction.



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### **Water Use, Sanitary Facilities, and Construction Electricity**

Water will be used during construction for dust control and compaction. This water will be obtained from IID and transported to the Project site via truck. The water will be applied for dust control that meets Imperial County's dust control requirements.

Portable sanitary facilities will be housed on trailers, and sanitary waste from construction will be serviced regularly and removed from the site in compliance with all federal, State, and local regulations.

A new electrical drop from IID's distribution line will be installed at the Project site to provide temporary construction power. Alternatively, a generator may be used to provide construction power, when a power line is not practical. Any generator use will be permitted with the Imperial County Air Pollution Control District.

### **Groundwater Dewatering**

Shallow groundwater that is encountered in excavations (e.g., foundations, water storage pond) will be removed from the excavation via a submersible pump and will be applied as irrigation in upland areas via perforated pipe, discharged through a sediment filter bag, or pumped to a Baker Tank and removed from the site. The groundwater dewatering method will comply with all water quality standards. A CRRWQCB permit will be obtained before any groundwater discharge to land.

### **Temporary Worker Housing**

Trailers may be brought to the Project site, to provide temporary worker housing for drilling staff who need to be on site 24 hours/day.

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## **Operation and Maintenance**

Routine operation and maintenance (O&M) of the facilities will include preventative maintenance and repairs of any damaged or otherwise inoperable equipment on an as-needed basis. The O&M staff will monitor the facility operations over the Project life, to ensure that the power plant is operating to meet design standards. Generally, the plant will be operated to provide its maximum electrical output throughout the year. To start the plant from a zero percent dispatched operating mode, power will be back-fed through the interconnection to bring the facilities on-line or the emergency standby generators will be used to bring the facility online. Auxiliary systems and the resource production facility will be started up first. After production of turbine-quality steam is confirmed, steam will be directed to the turbine. After achieving full speed, the turbine generator will be synchronized with the transmission grid.

Planned maintenance will be coordinated to reduce the impact of having the unit out of service for maintenance and overhauls. Normally, this work will be planned during spring each year, when the need for electricity is reduced.

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The time required for startup of the plant will be approximately 72 hours, when the plant has been completely shut down (cold startup) and all brine flow to the plant has been secured for an extended period. This event is projected to occur approximately once per year.

### **Operational Workforce, Schedule, and Traffic**

The Project will require up to 22 full-time, on-site workers. Operational staff will include operators, management and supervisors, maintenance technicians, and lab technicians. On a typical day, the operators will assume a two-shift, 24-hour workday, and all other personnel will assume a standard 8-hour workday.

Approximately 22 worker trips, three vendor trips and one haul truck trips will occur daily during Project operation.

### **Fire Protection and Safety Systems**

The fire protection system will consist of an underground fire main and surface distribution equipment, such as yard hydrants and hose houses, monitors around the perimeter of the cooling tower, automatic sprinklers for the turbine generator and auxiliary equipment, and a complete detection and alarm system. The firewater supply and pumping system will provide an adequate quantity of fire-fighting water. The systems will be designed in accordance with federal, State, and local fire codes, occupational health and safety regulations, and other jurisdictional codes, requirements, and standard practices.

### **Water Supply Source and Requirements**

The Project will require up to approximately 200 acre-feet per year of fresh water for normal operation, including supplemental cooling tower make-up and other plant uses when operating at full plant load. Average annual demand requirements will vary, depending on the capacity factor of the overall facility. Steam condensate is anticipated to be used to offset freshwater requirements.

The primary source of freshwater for the facility is anticipated to be irrigation water, made available under a supply contract with the IID. Water will be obtained from the "Q," "R," or "S" lateral adjacent to the Project site. Water will be transferred to a water storage pond adjacent to the Q drain, with a capacity of approximately 18 acre-feet. The water then will be transferred to a 100,000-gallon above-ground water storage tank via an above-ground freshwater pipeline. Additional pipelines will be constructed to transport the water from the water storage tank to the power plant facility. The water will be used for steam wash water, purged water for pump seals and the reverse osmosis (RO) potable water system, process wash water, and at times, cooling water make-up. The Project will be designed to minimize reliance on external sources of water supply for process needs, by using condensed steam from the geothermal steam condensate to the greatest extent practical.

A filtration-based or RO potable water system will be used to process IID fresh water for non-drinking potable water needs at the site. A Nontransient-Noncommunity Water System Permit

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will be obtained from the Imperial County Public Health Department (ICPHD) for the on-site potable water system. Bottled drinking water will be purchased for worker consumption.

### **Spent Fluid and Wastewater**

**Spent brine will be injected directly into the injection wells, to replenish the geothermal resource and balance pressure within the resource. The chemical characteristics of the process brine are summarized in**

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Table 4. Under normal operation, this spent brine will be pumped via the main injection system. Spent geothermal brine will be injected into the subsurface geothermal reservoir via the primary injection wells. Geothermal brine will be discharged into the brine pond during upset conditions or maintenance activities (e.g., startup and shutdown). The fluids from the brine pond also will be injected into the subsurface geothermal reservoir via the dedicated aerated brine injection well (plant well). All subsurface fluid injection will conform with CalGEM requirements.

Wastewater, including non-process wash water and sanitary waste, will be generated during facility operations. Sanitary drains will collect all sanitary waste and non-process wash water and discharge to an appropriately sized and County-approved septic system. The septic system will be engineered and operated to meet County Environmental Health requirements.

### **Stormwater Drainage**

Stormwater drainage will be collected in the stormwater retention basin, as discussed above. Water accumulated in the stormwater retention basin will be allowed to evaporate or possibly used as a substitute for normal fresh water. The retention basin will be designed to meet State Water Resources Control Board requirements and will include appropriate mosquito abatement, per Imperial County guidelines.

### **Hazardous Materials**

The Project will develop and implement a Hazardous Materials Business Plan (HMBP). Hazardous materials that are expected to be used during Project construction will include unleaded gasoline, diesel fuel, oil, lubricants (i.e., motor oil, transmission fluid, and hydraulic fluid), solvents, adhesives, and paint materials. The construction contractor will be responsible for assuring that the use, storage, and handling of these materials complies with applicable federal, State, and local regulatory requirements, including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping.

During power plant operation, chemicals will be stored in chemical storage facilities in compliance with state and federal laws and regulations for storage and handling of hazardous materials.

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**Table 4 Projected Chemical Characteristics of the Injection Brine Fluid**

Constituent	Cooling Tower Blowdown (mg/L) <sup>1</sup>	Brine Pond (mg/L) <sup>1</sup>
Ammonium	190	250
Arsenic	<0.001	10
Barium	0.1	250
Boron	0.1	350
Bromine	<0.05	100
Calcium	0.4	29,000
Cesium	<0.01	15
Chloride	40	156,000
Cobalt	<0.001	<0.05
Copper	<0.001	5
Iodine	<0.01	10
Fluoride	<0.01	25
Iron	0.5	1,600
Lead	<0.05	100
Lithium	0.07	250
Magnesium	<0.02	50
Manganese	0.4	1,400
Potassium	<0.001	17,000
Sodium	15	54,000
Silica	0.1	350
Strontium	0.15	500
Sulfate	2,500	5
Zinc	0.15	500
pH	8.4	4 to 7

*Source: (Energy Source, 2010; Hatch, 2021)*

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Chemicals that will be stored on site will include transformer oil for transformer operation, lube oil for the turbine generator operation, diesel for generator fueling, and HCl (32% by weight). The transformer oil will be contained within the transformers; the lube oil will be stored on a skid. Diesel will be stored in a diesel storage tank with a capacity of approximately 3,000 gallons. Two polymer or fiber-reinforced plastic HCl tanks, with capacities of approximately 20,000 and 75,000 gallons, will store the HCl for the acid modification process. The HCl tanks will be fitted with scrubbers. All chemicals will be stored outdoors on impervious surfaces in above-ground storage tanks with secondary containment. The secondary containment areas for the bulk storage tanks will not have drains. Any chemical spill occurring in these areas will be removed with portable equipment and re-used or disposed properly. Other chemicals will be stored and used in their delivery containers.

### **Solid Wastes**

Construction and operation of the facility will generate both nonhazardous and hazardous wastes, as described next.

#### **Nonhazardous Wastes**

Solid waste from construction activities may include lumber, excess concrete, metal, glass scrap, empty nonhazardous containers, and waste generated by workers. Management of these wastes will be the responsibility of the construction contractor(s). Typical management practices required for nonhazardous waste management will include recycling when possible, proper storage of waste and debris to prevent wind dispersion, and weekly pickup and disposal of wastes to local Class III landfills.

The primary source of solid waste during operation will be office waste and other waste generated by workers. Non-hazardous waste will be collected in appropriate on-site storage receptacles, designated for waste and recycling. Recyclable materials will be brought to a recycling center, and non-recyclable waste will be removed and taken to a Class III landfill.

#### **Hazardous Wastes**

All hazardous wastes generated during facility construction and operation will be handled and disposed in accordance with applicable laws, ordinances, regulations, and standards. Hazardous wastes will be recycled or managed and disposed properly in a licensed Class I waste disposal facility that is authorized to accept the waste.

### **Abandonment**

The projected life of the Project is 50 years. At the end of the useful life of the Project, equipment and facilities will be properly abandoned.

The geothermal wells will be abandoned in conformance with the well abandonment requirements of CalGEM. Abandonment of a geothermal well will involve plugging the well

## PROJECT DESCRIPTION

bore with clean drilling mud and cement, sufficient to ensure that fluids will not move into different aquifers. The wellhead (and any other equipment) will be removed, the casing cut off below grade, and the well site reclaimed.

At the end of power plant operations, the Project will prepare and implement a Site Abandonment Plan, in conformance with Imperial County and CalGEM requirements. The plan will describe the proposed equipment dismantling and site restoration program, in conformance with the wishes of the respective landowners/lessors and requirements in effect at the time of abandonment.

### Zoning Variance

The Project area is in zone S-1-G. The height standard for zone S-1 is 35 feet. A zoning variance is required for development of facilities that exceed 35 feet in height. Project facilities that will exceed 35 feet in height will include the cooling tower, which will be up to 40 feet tall, and the steel transmission structures/poles, which will be up to 120 feet tall. The cooling tower must exceed 35 feet in height because of vendor specifications, which are driven by engineering requirements for cooling tower design. The exact height and design of the 230-kV gen-tie structures will be defined by IID, which will become the owner of the gen-tie line after the line has been constructed. The height of the gen-tie poles must exceed 35 feet to provide minimum ground and building conductor clearance, and to meet federal and State regulations for transmission line safety, including the North American Electric Reliability Corporation (NERC) and California Public Utilities Commission (CPUC) standards for construction and operation of high-voltage (i.e., greater than 200 kV) electrical lines.

### Environmental Protection Measures

Environmental protection features, which are considered to be part of the Project, are listed in Table 5.

**PROJECT DESCRIPTION**

**Table 5 Environmental Protection Measures**

Title/Project Feature	Measure	Timing	Application
<b>Aesthetics</b>			
Structure Color and Fencing	A tan color will be used on painted surfaces of project facilities where appropriate, to blend more naturally with the brown and tan hues of the existing setting. The engineering standards will reflect the approved paint colors for painted surfaces for major process equipment. Fencing will be constructed of non-reflective materials or will be treated or painted to reduce visual effects. In addition, reflectivity of surfaces will be reduced by using non-reflective elements where appropriate.	Operation	Power and Lithium
Lighting	Lighting on the project site will be limited to areas required for operations or safety, will be directed downward on site to avoid backscatter, and will be shielded from public view to the extent practical. Lighting that is not required to be on during nighttime hours will be controlled with sensors, timers, or switches operated so that lighting will be on only when needed.	Operation	Power and Lithium
<b>Air Quality</b>			
Fugitive Dust Suppression Plan.	<p>Before beginning construction, the project proponent will submit a Dust Control Plan to the ICAPCD for approval, identifying all sources of PM<sub>10</sub> emissions and associated mitigation measures to be implemented during project construction and operational phases. The project proponent will submit a "Construction Notification Form" to the ICAPCD 10 days before the start of any earth-moving activity. The Dust Control Plan that is submitted to the ICAPCD will meet all applicable requirements for control of fugitive dust emissions, including the following, designed to achieve the no greater than 20 percent opacity performance standard for dust control:</p> <ul style="list-style-type: none"> <li>• All disturbed areas, including bulk material storage, that are not being actively used will be effectively stabilized; visible emissions will 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 PM with 5 percent or greater silt content.</li> <li>• All on-site and off-site unpaved roadway segments being used for 50 or more average vehicle trips per day will be effectively stabilized, to limit visible emissions to no</li> </ul>	Prepare plan before construction; implement during construction	Power and Lithium



## PROJECT DESCRIPTION

Application

Timing

Measure

Title/Project  
Feature

- greater than 20 percent opacity for dust emissions, by the use of restricting vehicle access, paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas 1.0 acre or more in size with 75 or more average vehicle trips per day will be effectively stabilized, and visible emissions will be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
  - The transport of bulk materials on public roads will 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 will be cleaned and/or washed at the delivery site after removal of bulk material, before 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, will 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 in an urban area.
  - Movement of bulk material handling or transfer will be stabilized before handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line, except when such material or activity is exempted from stabilization by the rules of ICAPCD.
  - Any temporary unpaved road will be stabilized effectively, and visible emissions will be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.
  - Fugitive dust generation during construction will be minimized by watering, as needed to meet Imperial County standards for fugitive dust control. To further reduce fugitive dust emissions, project vehicle traffic on unpaved roads will be kept below 15 miles per hour.
  - A publicly visible sign will be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number also will be visible, to ensure compliance with applicable regulations.

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Construction Exhaust Emissions Control Plan	<p>Before the start of construction, the project proponent will prepare a Construction Exhaust Emissions Control Plan. This plan will provide a detailed list of control measures to minimize exhaust emissions during project construction, including fuel use, engine maintenance, and procedures, as follows:</p> <ul style="list-style-type: none"> <li>• The Construction Exhaust Emission Control Plan will provide a detailed list of control measures to minimize exhaust emissions during project construction, including fuel use, engine maintenance, and procedures.</li> <li>• The construction contractor will be required to use construction equipment using diesel engines with certified NO<sub>x</sub> emissions rated as Tier 3 or better. All off-road diesel-powered equipment that is greater than 50 horsepower to be used on site during construction will meet USEPA Tier 4 off-road emission standards.</li> <li>• When commercially available, fossil-fueled equipment will be replaced with electrically driven equivalents (provided they are not run via a portable generator set).</li> <li>• Idling times will be minimized, either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure under Title 13, Section 2485 of California Code of Regulations). Clear signage will be provided for construction workers at all access points.</li> <li>• All construction equipment will be maintained and properly tuned in accordance with manufacturers' specifications. All equipment will be checked by a certified mechanic and determined to be running in proper condition before operation.</li> <li>• Where access to alternative sources of power are available, portable diesel engines will be prohibited.</li> <li>• Haul trucks will be 2010 model year trucks or newer (a gross vehicle weight rating of at least 14,001 pounds), or best commercially available equipment, which meet CARB's 2010 engine emissions standards at 0.01 g/hp-hour of particulate matter and 0.20 g/hp-hour of NO<sub>x</sub> emissions or newer, cleaner trucks.</li> <li>• The VOC architectural coating limits specify that the use of paints and solvents with a VOC content of 100 grams per liter or less for interior and 150 grams per liter or less for exterior surfaces will be required.</li> </ul>	Prepare plan before construction; implement during construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Air Quality Permitting	An application will be submitted to the ICAPCD for an Authority to Construct permit for site construction activities and any operational equipment or emission sources requiring a permit. The application specifies a detailed list of control measures to reduce fugitive emissions from O&M activities, including watering of unpaved roads, vehicle speed limits, windbreaks, transport container covers, and cleaning and sweeping procedures. The project will comply with the ICAPCD permit conditions of approval to limit emissions from project activities.	Obtain permit before construction; comply with the permit during construction	Power and Lithium
Well Flow Testing Program	Specific design features will be used, such as well test units to minimize the release of particulate matter and metals during well drilling and initial testing. The well flow testing program will include flow rate and duration limits.	Construction	Power
Emissions Mitigation	Consistent with the requirements of ICAPCD Policy 5, the project proponent will pay an emission mitigation fee sufficient to offset the amount by which the project's NO <sub>x</sub> emissions exceed the 100 pounds per day threshold. ICAPCD allows a project to pay in-lieu impact fees using the most current Carl Moyer Cost Effective methodology to reduce excess NO <sub>x</sub> emissions. Under the ICAPCD program, the exact amount of the fee cannot be calculated until the time of construction, when more precise data regarding the construction equipment types and hours of operation are known, allowing the ICAPCD to calculate the fee. Before any earth-moving activity, the project proponent will submit to the ICAPCD a complete list of all construction equipment to be used during the construction phase, identifying make, model, year, horsepower, and estimated hours of usage.	Before construction	Power and Lithium
Hydrogen Sulfide Abatement	The project will employ a proven industry standard hydrogen sulfide abatement system to minimize hydrogen sulfide emissions from both the vent gas and the portion of condensate being used as cooling tower make-up. The abatement system will remove at least 95 percent of the H <sub>2</sub> S in the non-condensable gases. In addition, particle emissions from the cooling towers will be minimized by using high-efficiency drift eliminators.	Operation	Power
Electric Truck Hauling	The project will commit to using 100 percent electrical vehicles for hauling mineral products.	Operation	Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Generators That Meet Pollutant Emission Limits	The proposed standby/blackstart diesel engine generator, the emergency diesel generator, and the emergency fire pump engine will meet the applicable USEPA and CARB air pollutant emission limits. Each engine will be tested for less than 50 hours per year (at 100% load).	Operation	Power and Lithium
Provide Charging Stations	The project will include charging stations for electric vehicles and electric trucks.	Operation	Power and Lithium
HCl Scrubbers	HCl storage tanks will include scrubbers with 100% efficacy.	Operation	Power and Lithium
<b>Biological Resources</b>			
Bird Flight Diverters	Bird flight diverters will be installed on any new transmission and power lines serving the project, to limit bird mortality associated with introducing new transmission lines in bird flyways. Flight diverters make transmission lines more visible to birds. The transmission and power lines will be designed to meet Avian Power Line Interaction Committee (APLIC) guidelines.	Operation	Power and Lithium
Bird Nest Avoidance	A Nesting Bird Plan will be prepared that defines procedures for avoidance of nesting birds during project construction. The project will be scheduled to start construction activities outside the nesting season (February 1 through August 31), to the extent feasible. In the event that construction has to start during the nesting season, a qualified biologist will conduct surveys of the project area no more than 72 hours before any ground disturbance. If an active nest is observed in the project area, the qualified biologist will employ appropriate procedures for nest avoidance, and construction activities will not begin in the area of the active nest until all nesting activities have ceased and the young have fledged the nest.	Construction	Power and Lithium
Minimize Disturbance During Bird Nesting Season	Noise barriers, such as hay bales or functional equivalent, will be applied when construction is occurring during the bird nesting season and adjacent to habitat for special-status nesting birds, including California black rail and Yuma Ridgway's rail. The noise will be properly maintained to limit noise levels at occupied habitat to no more than 65 dBA.	Construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Special-Status Wildlife Species	A preconstruction survey for special-status species with potential to occur in the project area will be conducted no more than 14 days before the start of construction. The results of the survey will be provided to Imperial County and the California Department of Fish and Wildlife.	Construction	Power and Lithium
Environmental Awareness Training	An environmental awareness training program will be implemented for all phases of construction. The worker training will be available to all personnel on site and administered by a qualified biologist, assigned to the project site. Training materials and briefings will include discussion of the federal and State ESAs, the consequences of noncompliance with these acts, identification and values of wildlife and natural plant communities, hazardous substance spill prevention and containment measures, and review of all required and recommended mitigation measures.	Construction	Power and Lithium
Power Wash Equipment	All construction equipment to be used during construction will be required to be power washed before arrival at the project site, to prevent the transportation and establishment of noxious weeds in the project area.	Construction	Power and Lithium
Jurisdictional Wetlands and Riparian Areas	The project will provide restoration/compensation for all unavoidable impacts on areas under the jurisdiction of USACE, the CRRWQCB, and CDFW. Impacts on jurisdictional areas will be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible, the project applicant will provide the necessary mitigation required as part of wetland permitting. The location(s) of the mitigation will be determined in consultation with USACE, CDFW, and/or CRRWQCB as part of the wetland permitting process. Mitigation ratios will be developed through consultation with the permitting agencies.	Define mitigation requirements before construction; implement mitigation during and post-construction	Power and Lithium
Limit Disturbance to Approved Areas	All areas to be disturbed during construction will be delineated with flagging or fencing before the start of construction. All disturbances will be confined to approved work areas, and all employees will be instructed that their activities must be confined to locations within the approved areas.	During construction	Power and Lithium
<b>Cultural and Tribal Cultural Resources</b>			
Tribal Cultural Resources	A Native American monitor will need to observe all ground-disturbing activities (including project-related off-site utility and roadway improvements). The Native American monitor will need to consult with the archaeological monitor regarding objects and remains encountered during grading or excavation that may be considered sacred	Construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
	<p>or important. The Native American tribe will be notified 2 weeks before the start of ground-disturbing activities. A copy of the notification also will be provided to the Imperial County Planning and Development Services Department.</p>		
Unanticipated Discoveries	<p>If an unanticipated discovery is made during construction, all construction will be halted immediately within 50 feet of the find and a qualified archaeologist and Native American monitor will be contacted to evaluate the significance of the resource. If the resource is not eligible for listing in the California Register of Historic Resources (CRHR) and is not a tribal cultural resource, construction can recommence in the area. If the resource is eligible for listing in the CRHR or is a tribal cultural resource and the resource cannot be preserved in place, the archaeologist will define procedures for data collection in accordance with State and federal laws for preservation of cultural resources.</p>	Construction	Power and Lithium
<b>Geology and Soils</b>			
Geotechnical	<p>The project will conduct a geotechnical investigation that will include subsurface testing of soil and groundwater conditions and will determine appropriate foundation designs that are consistent with the current version of the California Building Code. All recommendations contained in the final geotechnical engineering report will be implemented during project construction. Project design will be consistent with applicable California Building Seismic Design Categories, based on site-specific soil characteristics.</p>	Investigation before construction; implement requirements during construction	Power and Lithium
Seismic Impacts	<p>Project buildings/facilities will be built in accordance with applicable California Building Code requirements. Building permits will be obtained for the project from the County before the start of construction.</p>	Obtain permit before construction; implement during construction	Power and Lithium
Septic System	<p>The septic system will be designed in compliance with the Imperial County performance standards, as outlined under Title 9, Division 10, Chapters 4 and 12 of the Imperial County Land Use Ordinance. A permit will be obtained from the Imperial County Department of Environmental Health before the start of construction. The system will be designed to protect beneficial uses and ensure that applicable water quality standards are not violated.</p>	Obtain approval before construction; implement approved design during construction	Power and Lithium
<b>Hazardous Materials</b>			

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Secondary Containment for Hazardous Materials	Curbs, berms, and concrete pits will be used where accidental releases of hazardous and acutely hazardous materials may occur. Containment areas will be drained to appropriate collection areas or neutralization tanks for recycling or off-site disposal. Traffic barriers will protect piping and tanks from potential traffic hazards.	During construction and operation	Power and Lithium
Brine Pond	The brine pond will be of earthen construction and double-lined with a high-density polyethylene liner and concrete liner, following standard engineering practices so that the contents will not leach into the soil.	During operation	Power
Fire Suppression System	The fire suppression system will reduce impacts from fires occurring at the site, thereby reducing potential harm to workers. Personnel will be allowed to smoke only in designated areas. Well sites, construction sites, and access roads will be cleared of all vegetation. The cleared areas will be maintained during drilling, construction, and operations. Water used for drilling also will be available for fire-fighting.	During operation	Power and Lithium
Job Hazard Analyses (JHAs) for Each Job or Task	JHAs will be prepared for each task or job during construction. JHAs will identify any hazards associated with a job or task before performing that job or task. This will provide an opportunity to evaluate measures that must be taken to minimize impacts from these potential hazards. The JHAs will be provided to workers engaged in the task, to protect their health and safety.	During construction	Power and Lithium
Adherence to Applicable California Occupational Safety and Health Administration Regulations and Standards	Adherence will prevent or minimize potential impacts by development of procedures, training, physical inspections, and the prescription of some minimum standards to design adequate systems. These requirements address numerous worker safety issues, including emergency action/evacuation, fire prevention, confined space entry, fall protection, hearing conservation, respiratory protection, personal protective equipment, lock-out/tag-out, electrical safety, excavation and trenching, hazard communication, ergonomics, first aid, bloodborne pathogens, cranes and hoists, vehicle/traffic, and chemical exposures.	During construction and operation	Power and Lithium
Safety Showers and Eyewash Stations	Safety showers and eyewash stations will be available on site, where chemicals are used or stored. The safety showers and eyewash stations will provide a means of flushing skin and eyes in cases of chemical splashing, particularly as related to corrosive materials. By providing an immediately available wash station, the contact time and possible injury from these chemicals can be minimized.	During construction and operation	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
<b>Hydrology and Water Quality</b>			
Prevention of Erosion	<p>A detailed Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented for the project, to minimize erosion during construction in compliance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The SWPPP will be required to include the following:</p> <ul style="list-style-type: none"> <li>• A detailed description of all best management practices (BMPs) that will be employed</li> <li>• An outline of the areas on site that will be disturbed during construction of the project</li> <li>• An outline of all areas that will be stabilized by temporary or long-term erosion control measures</li> <li>• A proposed schedule for implementation of erosion control measures</li> </ul> <p>The SWPPP will be prepared by a qualified SWPPP practitioner, with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs will be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices also will be required. Performance and effectiveness of these BMPs will be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.</p>	Prepare SWPPP before construction; implement SWPPP during construction	Power and Lithium
Brine Pond Monitoring Wells	Potential release from the brine pond to groundwater will be assessed with a system of monitoring wells placed around the periphery of the brine pond.	Operation	Power
Stormwater Retention	The plant site will be graded to direct surface water runoff toward a stormwater retention area, which will be surrounded by a berm to prevent overflow.	Construction	Power and Lithium



## PROJECT DESCRIPTION

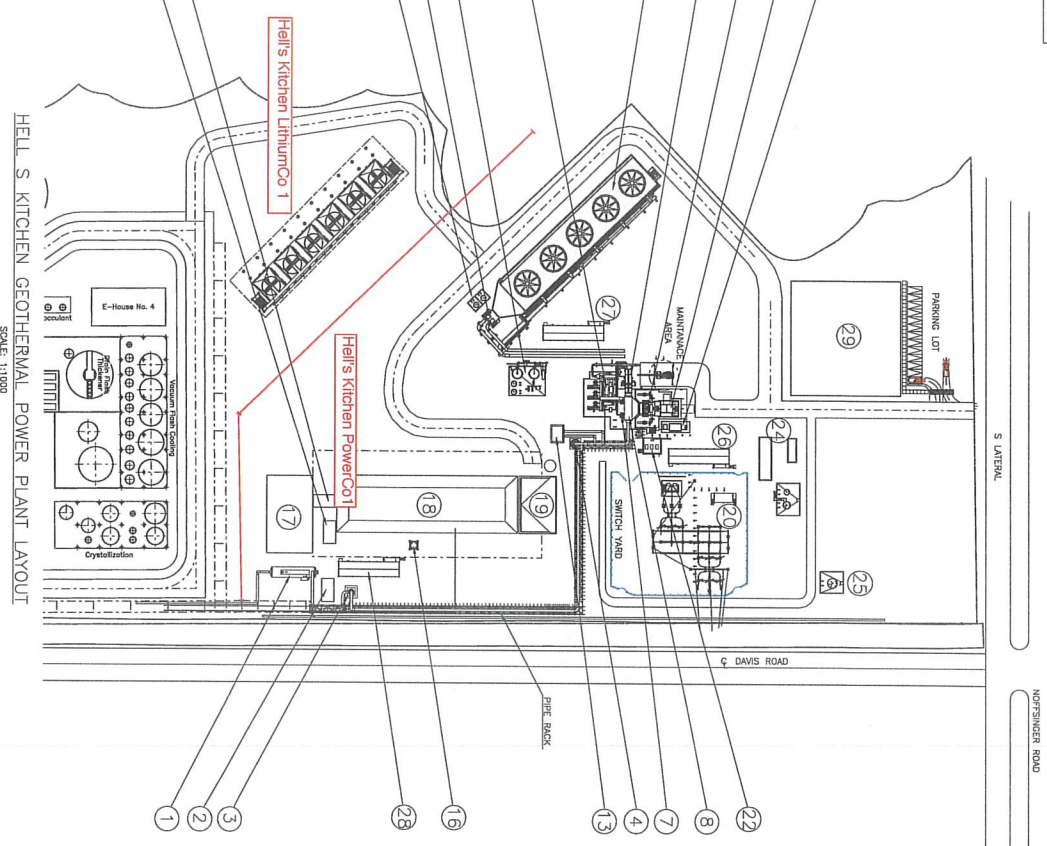
Title/Project Feature	Measure	Timing	Application
Casing Shallow Portions of Production and Injection Wells	Casing the shallow portions of the production and injection wells will minimize the potential release of both construction-related drilling fluids and production-related geothermal brines to the shallow groundwater aquifer.	Construction	Power
Protective Pipeline Design and Detailed Inspection Routine	Brine production and injection pipelines will be alloy pipe. Additional plant injection pipelines will be constructed of carbon steel or lined carbon steel material. All pipelines will be inspected routinely to prevent potential releases.	Operation	Power
Surface and Groundwater Quality Protection	The production and injection wells will be cased down to the geothermal reservoir, to avoid interaction with surface water and groundwater. Only non-toxic, nonhazardous drilling mud will be used during drilling operations.	Construction and operation	Power
Water Quality Protection from Runoff	Waste drilling mud and drill cuttings will be stored in the lined containment basin. Any runoff from the site will be discharged into the containment basin. After drilling operations are completed, the mud and associated drilling liquids will be allowed to evaporate. The solids will be tested for pH, oil and grease, and metals. The solids will be removed and disposed in a waste disposal facility authorized by the CRRWQCB to receive and dispose these materials.	Construction	Power
Production Wellheads	Piping at each production wellhead will be equipped with both remotely operated emergency shutoff valves and manual isolation valves, to prevent potential releases.	Operation	Power
<b>Noise</b>			
Prevention of Noise	To abate noise pollution, mufflers will be used on engine-driven equipment during both project construction and operation.	Construction and Operation	Power and Lithium
<b>Transportation</b>			

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Transportation Planning	A Transportation Plan will be prepared for implementation during all phases of the project. The Transportation Plan will address methods for reducing construction worker traffic volumes and project-related equipment and materials transport by implementing the following strategies: (1) provide a construction worker rideshare program; (2) schedule shift changes and deliveries to avoid conflict with peak-hour traffic patterns; (3) establish traffic controls for transport of facility hazardous and nonhazardous materials, components, main assembly cranes, and other large pieces of equipment; and (4) evaluate alternative transportation approaches depending on specific object sizes, weights, origin, destination, peak-hour traffic, and unique handling requirements.	Construction and Operation	Power and Lithium
Traffic Signs and Commuting	Signs will be placed along future construction roads, to identify speed limits, travel restrictions, and other standard traffic control information. Consideration will be given to limiting construction vehicles traveling on public roadways during the morning and late afternoon commute times, to minimize impacts on local commuters.	Construction and Operation	Power and Lithium
Restricted Roadway Access	The public will be restricted from accessing project roads. Use of other project unimproved roads will be restricted to emergency situations involving potential injury or loss of life.	Operation	Power and Lithium
Pave Driveways	Paving will be a minimum of 100 feet from the property line for commercial driveways that access County paved roads, as per County Standard Commercial Driveway Detail 410B.	Operation	Power and Lithium
<b>Utilities and Service Systems</b>			
Waste Management Plan	Before issuance of a grading permit or building permit, the applicant will prepare a Waste Management Plan, to be submitted to the ICPDS and ICDPW for review and approval. The Waste Management Plan will identify the projected waste to be generated by project activity and feasible methods to divert a minimum of 75 percent of waste from landfills, such as sorting and recycling of materials, re-use of materials, and waste reduction measures. The Waste Management Plan also will address containment and disposal of drill cuttings.	Before construction prepare plan; implement during construction	Power and Lithium

**PROJECT DESCRIPTION**

Title/Project Feature	Measure	Timing	Application
Sanitary Waste Disposal	Portable chemical sanitary facilities will be used by all personnel during construction. These facilities will be maintained by a local contractor.	Construction	Power and Lithium



HELL'S KITCHEN GEOTHERMAL POWER PLANT LAYOUT  
SCALE: 1:1000

LEGEND

ITEM	EQUIP. N°	QTY	DESCRIPTION
1	HPS-SEP-001	1	BRINE SEPARATOR
2	HPS-SC1-002	1	BRINE REJECTION PUMPS
3	HPS-SC1-002	1	SCHUBBER
4	HPS-DEM-003	1	DEMISTER
5		1	STEAM TURBINE
6		1	GENERATOR
7		2	CONDENSATE PUMPS
8	CMS-C1-001	1	CONDENSER
9		1	COOLING TOWER
10		2	CIRCULATING WATER PUMP
11		1	CHEMICAL SYSTEM
12		2	BO DISPERSAL/SCALE INHIBITOR TANKS
13	HPS-ROU-001	1	ROCK WATER
14		1	AEROBIC BRINE FILTRATION
15		1	FLASH TANKS
16	HPS-WF1-001	1	DRAIN TANK
17		1	PH MOD SYSTEM
18		1	EMERGENCY BRINE POND
19		1	HYDROBLAST PAD
20		1	SUBSTATION
21		1	LUBE OIL SKID
22		1	AIR COMPRESSOR
23		1	GAS REMOVAL SYSTEM
24		1	DIESEL GENERATORS
25		1	FIRE WATER SYSTEM
26		1	FDC 1
27		1	FDC 2
28		1	FDC 3
29		1	CONTROL BUILDING

- NOTES
- DIMENSIONS AND COORDINATES, IN FEET
  - WORKSHOPS MAINTENANCE BUILDING AND EMISSION WELL PAD, PARKING LOT AND EMERGENCY BRINE POND TO BE PROVIDED BY CTR.



**HATCH**  
GIVEVILLE  
RESOURCES

**HKG POWER CO. 1 PROJECT**  
365316

**HELL'S KITCHEN  
GEOTHERMAL POWER PLANT  
LAYOUT**

REVISIONS	DESCRIPTION	BY	CHKD	DATE	DRAWING APPROVAL STATUS: PRELIMINARY	SCALE	DWG. No.	PROJECT	REV
1	ISSUED FOR CLIENT REVIEW	MR	SD	10/20/2021			H365316-00000-240-292-0000	HELL'S KITCHEN GEOTHERMAL POWER PLANT LAYOUT	A

DRAWING TITLE	REG. PROFESSIONAL
HELL'S KITCHEN GEOTHERMAL POWER PLANT LAYOUT	

REFERENCE DRAWINGS
E-House No. 4

DRAWING No.

SCALE
1:1000

SHEET SIZE
A

# 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 Imperial Irrigation District	EMAIL ADDRESS	
2. MAILING ADDRESS (Street / P O Box, City, State) 333. East Barioni Blvd, Imperial CA	ZIP CODE 92251	PHONE NUMBER
3. APPLICANT'S NAME Hell's Kitchen LithiumCo 1 LLC	EMAIL ADDRESS jim.turner@cthermal.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 447 West Aten Road, Suite G, Imperial CA	ZIP CODE 92251	PHONE NUMBER (760) 604-0433
4. ENGINEER'S NAME N/A	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. 020-010-012; 020-010-013; 020-070-060	SIZE OF PROPERTY (in acres or square foot) 1,800 acres	ZONING (existing) S1G
7. PROPERTY (site) ADDRESS North of the intersection of Pound Road and Davis Road		
8. GENERAL LOCATION (i.e. city, town, cross street) Located approximately 3 miles west of the community of Niland		
9. LEGAL DESCRIPTION <u>See attached Project Description</u>		

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

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) <u>Hell's Kitchen Lithium 1 Project (see attached Project Description)</u>	
11. DESCRIBE CURRENT USE OF PROPERTY <u>Undeveloped</u>	
12. DESCRIBE PROPOSED SEWER SYSTEM <u>See attached Project Description</u>	
13. DESCRIBE PROPOSED WATER SYSTEM <u>See attached Project Description</u>	
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM <u>See attached Project Description</u>	
15. IS PROPOSED USE A BUSINESS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE?

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

James T. Turner                      December 10, 2021  
Print Name                                  Date  
*James T. Turner*  
Signature

\_\_\_\_\_  
Print Name                                  Date

\_\_\_\_\_  
Signature

### REQUIRED SUPPORT DOCUMENTS

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

APPLICATION RECEIVED BY:	_____	DATE	_____	REVIEW / APPROVAL BY	_____
APPLICATION DEEMED COMPLETE BY:	_____	DATE	_____	OTHER DEPT'S required.	_____
APPLICATION REJECTED BY:	_____	DATE	_____	<input type="checkbox"/> P. W.	_____
TENTATIVE HEARING BY:	_____	DATE	_____	<input type="checkbox"/> E. H. S.	_____
FINAL ACTION:	<input type="checkbox"/> APPROVED <input type="checkbox"/> DENIED	DATE	_____	<input type="checkbox"/> A. P. C. D.	_____
		DATE	_____	<input type="checkbox"/> O. E. S.	_____
		DATE	_____	<input type="checkbox"/> _____	_____
		DATE	_____	<input type="checkbox"/> _____	_____

**CUP #**  
\_\_\_\_\_

## SITE PLAN REQUIREMENTS

### PLAN MUST:

- a. Be drawn to scale upon substantial paper, 11" x 14" (min.) – (20 copies must be submitted.)
- b. Show name of owner, legal description and Assessor's Parcel Number.
- c. Show existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, etc.
- d. Show all existing and proposed structures (both above and below ground) location of sewer and water systems.
- e. Show adjacent property uses and approximate distances to nearest structures.
- f. Indicate name of person preparing site plan.
- g. Show North orientation.
- h. Show sufficient dimensions and information for proper evaluation to be done.

**CAUTION:** Incomplete or inaccurate applications, plans will cause the entire application to be rejected.

# VARIANCE

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 Imperial Irrigation District		EMAIL ADDRESS	
2. MAILING ADDRESS (Street / P O Box, City, State) 333 East Barioni Blvd, Imperial, CA		ZIP CODE 92251	PHONE NUMBER
3. ENGINEERS NAME N/A	CA. LICENSE NO. N/A	EMAIL ADDRESS N/A	
4. MAILING ADDRESS (Street / P O Box, City, State) N/A		ZIP CODE N/A	PHONE NUMBER N/A
5. ASSESSOR'S PARCEL NO. See attached Project Description		ZONING (existing) S1G	
6. PROPERTY (site) ADDRESS Davis Road		SIZE OF PROPERTY (in acres or square foot) 1,800 acres	
7. GENERAL LOCATION (i.e. city, town, cross street) South of Noffsinger Road, North of Pound Road, and adjacent to Davis Road			
8. LEGAL DESCRIPTION <u>see attached Project Description for Hell's Kitchen LithiumCo 1 Project</u>			
8. DESCRIBE VARIANCE REQUESTED (i.e. side yard set-back reduction, etc.) <u>Height variance for project structures that exceed 35 feet in height.</u>			
9. DESCRIBE REASON FOR, OR WHY VARIANCE IS NECESSARY : <u>The two limo silos will be up to 60 feet tall; the evaporator support structure will be up to 80 feet tall; cooling tower will be up to 50 feet tall and crystallizers will be 80 to 110 feet tall. The structure height is needed to meet engineering standards.</u> <u>see attached Project Description for details.</u>			
10. DESCRIBE THE ADJACENT PROPERTY			
East	<u>State of California Wildlife Area</u>		
West	<u>Undeveloped land/Salton Sea</u>		
North	<u>Undeveloped land</u>		
South	<u>Undeveloped land and geothermal development at Hudson Ranch</u>		

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

James T. Turner December 10, 2021  
Print Name Date  
James T. Turner  
Signature

\_\_\_\_\_  
Print Name Date

\_\_\_\_\_  
Signature

## REQUIRED SUPPORT DOCUMENTS

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

APPLICATION RECEIVED BY:	_____	DATE	_____	REVIEW / APPROVAL BY OTHER DEPT'S required. <input type="checkbox"/> P. W. <input type="checkbox"/> E. H. S. <input type="checkbox"/> A. P. C. D. <input type="checkbox"/> O. E. S. <input type="checkbox"/> _____ <input type="checkbox"/> _____
APPLICATION DEEMED COMPLETE BY:	_____	DATE	_____	
APPLICATION REJECTED BY:	_____	DATE	_____	
TENTATIVE HEARING BY:	_____	DATE	_____	
FINAL ACTION:	<input type="checkbox"/> APPROVED	<input type="checkbox"/> DENIED	DATE	

V #  
\_\_\_\_\_

## SITE PLAN REQUIREMENTS

### PLAN MUST:

- a. be drawn to scale upon substantial paper, 11" x 14" (min.) – (20 copies must be submitted).
- b. show name of owner, legal description and Assessor's Parcel Number.
- c. show existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, etc.
- d. show all existing and proposed structures (both above and below ground) location of sewer and water systems.
- e. show adjacent property uses and approximate distances to nearest structures.
- f. indicate name of person preparing site plan.
- g. show North orientation.
- h. show sufficient dimensions and information for proper evaluation to be done.

**CAUTION:** Incomplete or inaccurate applications, plans will cause the entire application to be rejected.



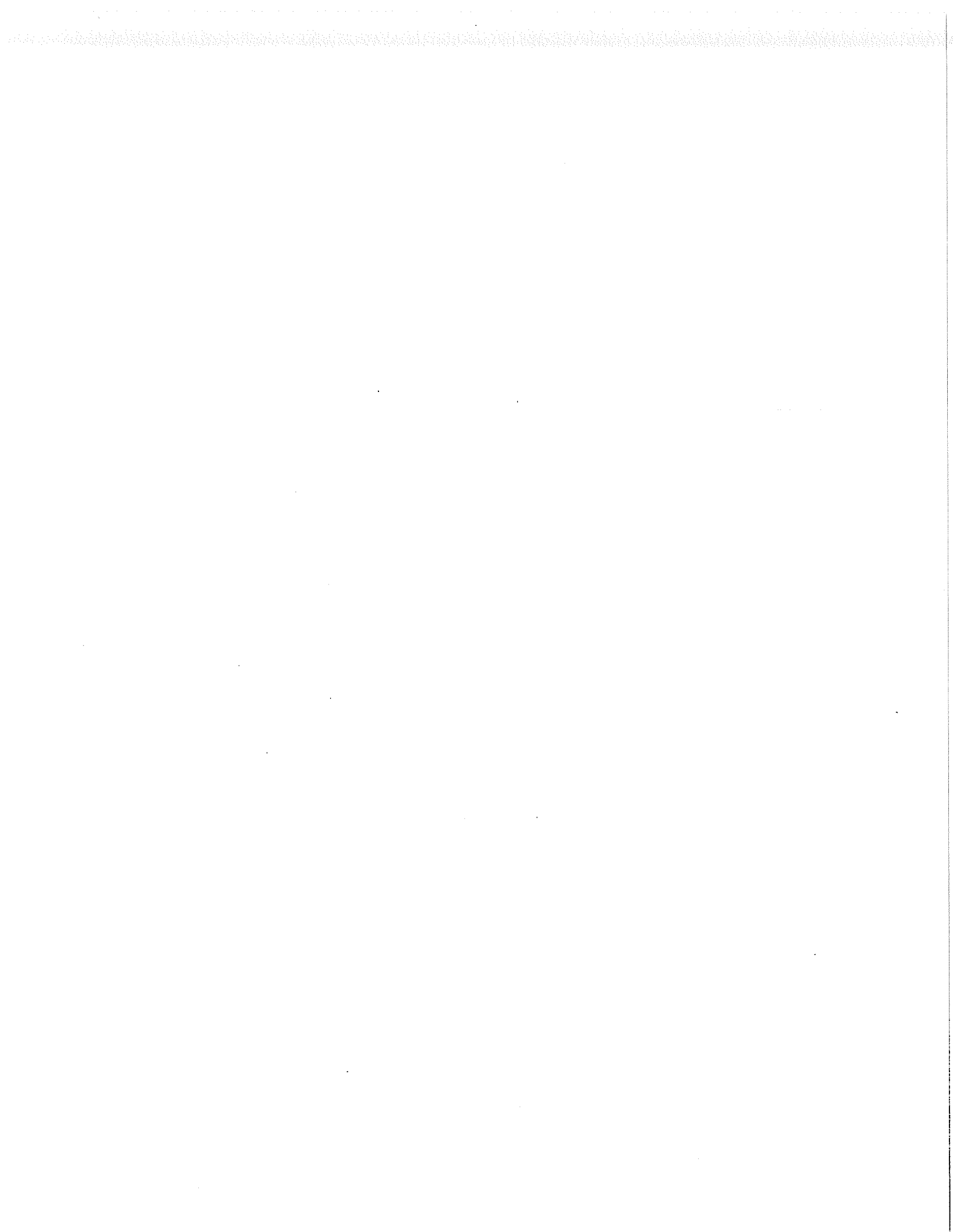
# **Hell's Kitchen LithiumCo 1 LLC**

## **Hell's Kitchen LithiumCo 1 Project**

### **Project Description**

**December 2021**

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## Acronyms and Abbreviations

AFY	acre-feet per year
APN	assessor's parcel number
CTR	Controlled Thermal Resources
HKL1	Hell's Kitchen LithiumCo 1 Project (Project)
HKP1	Hell's Kitchen PowerCo 1 Project
HMBP	Hazardous Materials Business Plan
IID	Imperial Irrigation District
kg	kilogram(s)
lb/hr	pounds per hour
LiCl	lithium chloride
M-2-G	medium industrial/geothermal overlay
MW	megawatt(s)
S-1-G	open space/geothermal overlay

## Introduction

### Project Overview

Hell's Kitchen LithiumCo 1 LLC, a wholly owned subsidiary of Hell's Kitchen HoldingCo 1 LLC (a subsidiary of Controlled Thermal Resources [CTR]) is proposing to construct and operate the Hell's Kitchen LithiumCo 1 Project (HKL1, Project). The Project will consist of mineral extraction and processing facilities capable of producing commercial qualities of lithium hydroxide, silica, bulk sulfide, and polymetallic products. The Project will include brine supply and return pipelines to process geothermal brine from the neighboring Hell's Kitchen PowerCo 1 Project (HKP1). The Project will also include an interconnecting power line, which will be on the transmission power poles with the HKP1 generation tie line, to supply power to Project facilities. The Project facilities will be in Sections 11 and 12, Township 11 North, Range 13 East, as shown on the U.S. Geological Survey Niland Quadrangle topographic map (Figure 1). CTR holds a geothermal mineral lease from Imperial Irrigation District (IID) for production of geothermal resources in Sections 3, 10, and 11, Township 11 North, Range 13 East.

### Project Objectives

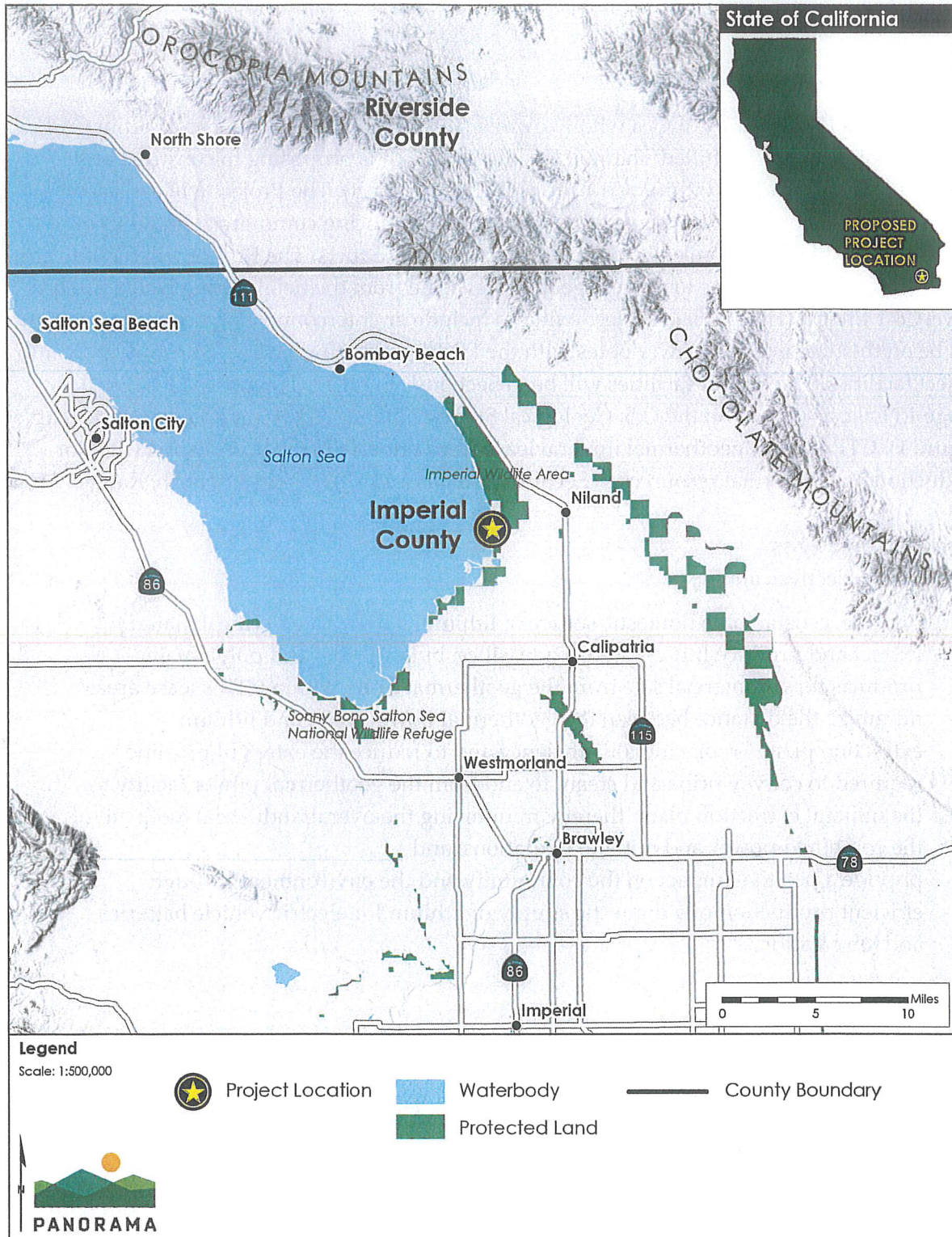
The Project objectives are to:

- provide a sustainable domestic source of lithium, a designated critical material;
- extract and produce lithium hydroxide, silica, bulk sulfide, and polymetallic products for commercial sale from the geothermal brine within CTR's lease area;
- minimize the distance between the geothermal power plant and lithium extraction plant for production efficiency and to reduce the extent of pipeline required to convey brine and steam to and from the geothermal power facility to the mineral extraction plant, thereby minimizing the overall industrial footprint of the combined power and mineral operations; and
- provide a positive impact on the community and the environment through efficient production of a domestic supply of lithium for electric vehicle batteries and job creation.

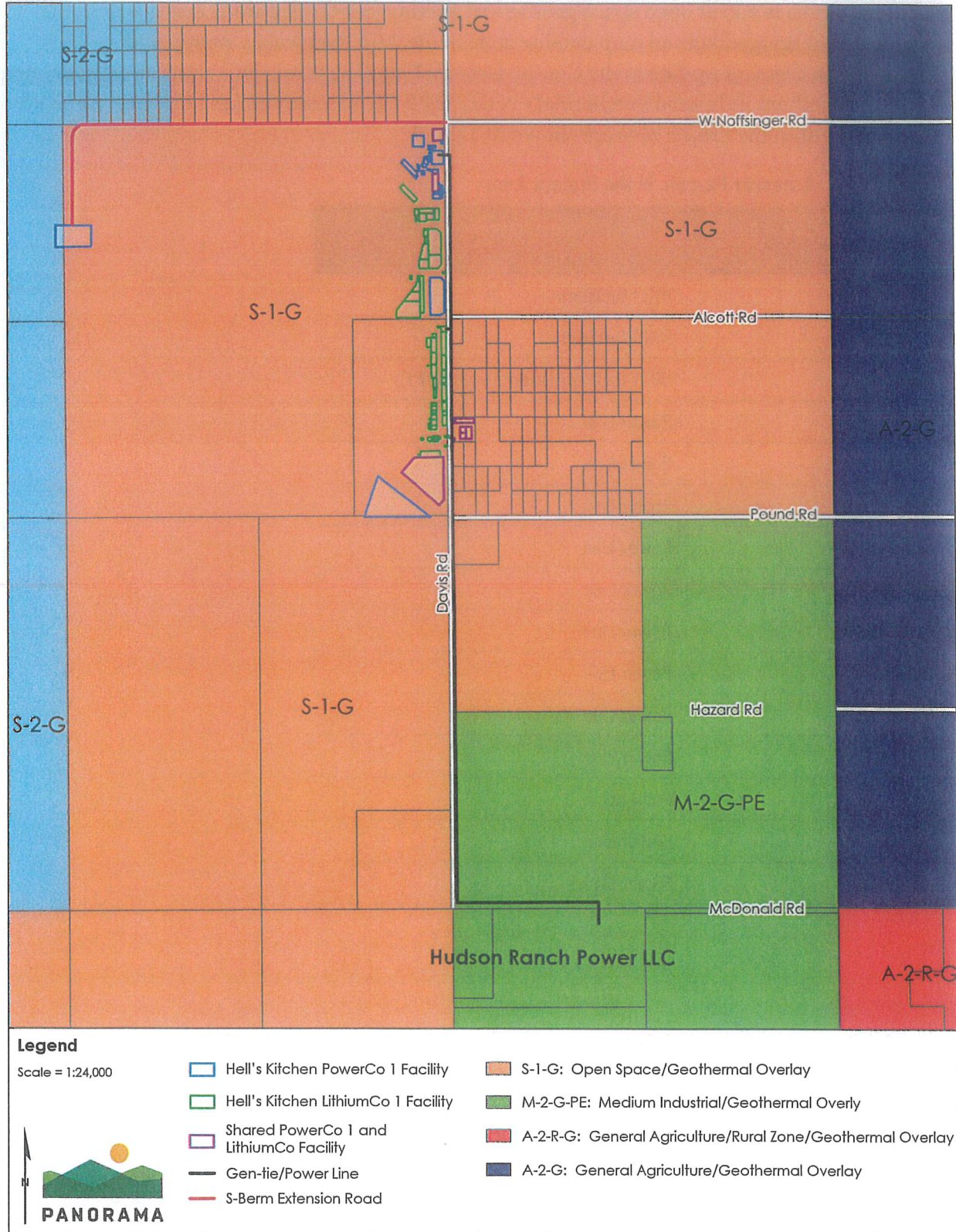
### Project Location

The Project area is within Section 11 and 12, Township 11 North, Range 13 East in Imperial County near the eastern shore of the Salton Sea (Figure 1 and Figure 2). The Project area is within CTR's lease area and lands owned by CTR. The HKL1 facilities will be immediately west of Davis Road and north of Pound Road in Imperial County. The power line will be east of Davis Road and north of McDonald Road within IID's transmission right-of-way and a new right-of-way. The Project area is approximately 3.6 miles west of the town of Niland (Figure 1).

**Figure 1 Project Location**



**Figure 2 Project Area Land Use and Zoning**



## Zoning

The Project area is zoned open space/geothermal overlay (S-1-G) (Figure 2) and is within the renewable energy/geothermal map overlay zone in the 2015 Renewable Energy and Transmission Element update to the County General Plan. The power line right-of-way is zoned S-1-G and medium industrial/geothermal overlay (M-2-G). Assessor parcel numbers (APNs) for all parcels within the Project area are shown in Table 1.

**Table 1 Assessor Parcels in the Project Area**

Assessor Parcel Number	Project Component
020-010-012	HKL1 facilities
020-010-013	HKL1 facilities
020-070-060	HKL1 facilities (shared with HKP1)
020-010-042	Power Line
020-060-001	Power Line
020-060-002	Power Line
020-060-039	Power Line
020-060-040	Power Line
020-070-026	Power Line
020-070-025	Power Line
020-070-029	Power Line
020-070-055	Power Line
020-010-031	Power Line
020-010-032	Power Line
020-010-035	Power Line



## HKL1 Facilities

### Structures

HKL1 will include construction of the following structures and buildings:

- a cooling tower
- truck entrance security
- a cooling and flocculation building
- brine crystallizers, clarifiers, thickeners, and filter presses
- a lithium recovery resin vessel and systems
- raw water filtration, fire water storage, and reverse osmosis facilities
- electrical buildings to house electric power switchgear and electrical metering
- reagent storage and preparation buildings
- two motor control centers and a control room building
- lithium product handling and packaging buildings (that will house the filtration and drying equipment for the lithium products and bagging and palletizing of finished products)
- polymetallic product handling facilities
- bulk sulfide product handling facilities
- silica product manufacturing facilities
- bulk boron product handling facilities
- two lime silos
- hydrochloric acid offloading and storage tanks
- a reverse osmosis water treatment facility

The HKL1 administration building, laboratory, maintenance shop, and warehouses will be shared with the neighboring HKP1 and constructed as part of HKP1. The sewage from the Project will be processed by the HKP1 septic system; therefore, no further permitting for sewage treatment will be required as part of the Project. The HKP1 water storage pond will be shared with the Project. The locations of Project facilities and shared HKP1 facilities are shown in Figure 3.

**Figure 3 Site Layout**



### **Structure Height and Need for Height Variance**

The two lime silos will be up to 60 feet tall. The evaporator support structure will be up to 80 feet in height and the cooling tower up to 50 feet tall. The crystallizers will be 80 to 110 feet tall. All other buildings and structures, including the production, handling, and warehouse buildings, will be single-story with a maximum height of 35 feet. The buildings will be an unobtrusive earth-tone color. All structures exceeding 35 feet in height will be constructed to meet Project design criteria and relevant standards, including the foundation designs for the site. The design standards and facility heights will be driven by engineering requirements for Project operation and manufacturers' specifications for the equipment that will be used during Project operation.

### **Site Access**

The Project site will be accessed from Davis Road via two existing and three new ingress/egress driveways. Davis Road will be upgraded with an aggregate base during HKP1 construction. Project traffic typically will access the site from Highway 111, via McDonald Road and Davis Road.

All County road ingress/egress will be constructed in conformance with Imperial County Public Works Department and Imperial County Fire Department requirements. Road access will be restricted during Project construction, and appropriate traffic controls will be in place. Davis Road will be paved from McDonald Road to Noffsinger Road at completion of Project construction.

### **Pipe Rack and Process Pipelines**

A pipe rack will be constructed from the Project's process area to the HKP1 project site. A geothermal brine delivery pipeline from HKP1 will feed brine to the Project's process area. Steam/steam-condensate pipelines also will be constructed on the pipe rack. The depleted brine will be delivered post-processing to the HKP1 injection system, for reinjection into the geothermal reservoir.

The geothermal brine delivery and return pipelines will be constructed with minimal use of flanged connections, to reduce the potential for pipeline leaks. Automatic valves will be integrated into the pipeline system, which will close or divert the geothermal brine in the event of a pipeline issue, to minimize the size of any potential spill. An Emergency Response Plan will be prepared, and this plan will be implemented if a fluid spill occurs.

### **Product Extraction Facilities**

The lithium extraction areas will be constructed on concrete pads with a containment curb. The lithium extraction processing areas will consist of a series of interconnected tanks, pipelines, and control valves.

## **Stormwater Retention, Grading, and Foundations**

Stormwater retention infrastructure will be constructed along the western boundary of the site. A berm/levee will run along the western boundary of the site, to contain any stormwater run-off and prevent stormwater run-on. Water accumulated in the stormwater retention basin will be allowed to evaporate or possibly will be used as a substitute for normal fresh water. The retention basin will be designed to meet State Water Resources Control Board requirements, and the design will include appropriate mosquito abatement, per Imperial County guidelines.

The developed Project facility pad generally will be flat but will be designed to effectively drain to the stormwater retention basin. The stormwater drainage system will be sized to accommodate 3 inches of precipitation in a 24-hour period (100-year storm event), and to comply with applicable local codes and standards. Buildings and equipment will be constructed in a manner to provide protection from a 100-year storm event. Spill containment areas and sumps subject to spills of miscible chemicals will drain to an enclosed oil/water separator and collected in a waste oil tank for off-site recycling. The site will be graded and constructed so that any geothermal fluid spills will be collected in sumps that drain to the brine pond rather than the stormwater retention basin.

Buildings and equipment will be constructed on foundations consistent with the overall site plan. Deep foundations for all major equipment are expected to require subsurface improvements in the form of steel and or concrete pilings. Shallow foundations for buildings are not expected to require piling supports.

## **Security Fence and Landscaping**

A security fence will be constructed around the Project site. The fence will be constructed to meet County standards for obscured fencing around processing areas.

## **Power Facilities**

A power line will be installed for the Project on the transmission structures that are being constructed for HKP1. An electrical substation will be constructed on site to obtain power from IID. Six electrical control buildings will be on site, and each will house pad-mounted transformers and switchgear. An emergency standby diesel generator will provide emergency power supply, in case of an IID electrical outage.

## **Parking and Internal Access Roads**

Parking will be available at the administration and control building area. Internal access roads will be designed to meet Imperial County Engineering Design Standards and will meet Fire Department requirements for fire access. A bridge will be constructed across the R Drain to connect the northern and southern portions of the Project site. All structures within IID right-of-way, including the bridge over the R Drain will require IID right-of-way and approval.

## Construction

### Site Preparation

Before construction of HKL1, the limits of the HKL1 site impact area will be staked and flagged. All vegetation within the HKL1 site impact area will be cleared. Vegetation will be removed using a brush hog or functional equivalent. The removed vegetation will be chipped on site for dust control, re-used in landscaping, or composted. Sediment and erosion control best management practices will be implemented in the work areas as needed to protect water quality and control sedimentation and erosion during construction.

Engineered fill material will be imported and compacted within the Project site to construct the Project facility pad. The compacted fill material will extend approximately 2 to 3 feet in elevation over existing grade. A berm will extend along the outer perimeter of the Project, as part of the stormwater infrastructure and to prevent flooding.

### Construction Schedule, Workforce, and Traffic

Project construction will begin when all necessary permits are obtained and the close of Project financing is completed. This is expected to occur in the fourth quarter of 2022. Construction is expected to be completed in the second quarter of 2024. Construction will be conducted Monday through Saturday from 7.a.m. to 6 p.m. over the 24-month construction period. Construction work also will occur during nighttime hours during periods of extreme heat in the summer. Approximately 200 construction workers on average and 350 workers are anticipated to be on site during peak construction periods.

Construction workers will commute to the site, and no on-site housing will be available. Construction parking will occur in undeveloped areas of the Project site, early in the site development phase. Additional parking will be available in existing parking areas off-site, with bussing of workers to reduce vehicle trips.

An average of 25 trucks per day are expected to travel to and from the Project site during construction, except during site grading (6-month duration), when about 60 trucks will travel to and from the site daily.

### Construction Equipment

Typical construction equipment anticipated to be required for the Project is as follows:

- off-highway trucks
- rollers
- crawler tractors
- excavators
- graders
- water trucks
- compactors
- concrete pump
- plate compactors
- rough terrain forklifts
- skid steer loaders
- tractor/loader/backhoe
- aerial lifts
- welders

- rubber-tired loaders
- scrapers
- cranes
- generator sets
- air compressors
- pavers
- paving equipment

### **Construction Water Supply Source and Requirements**

Up to 50,000 gallons per day of water is estimated to be needed during Project construction, for fugitive dust control during site grading and other construction activities. This water will be purchased from IID and will be transported to the site via a temporary pipeline or water truck.

### **Groundwater Dewatering**

Shallow groundwater that is encountered in excavations (e.g., structure foundations) will be removed from the excavation via a submersible pump and will be applied as irrigation in upland areas via perforated pipe, discharged through a sediment filter bag, or pumped to a Baker Tank and removed from the site. The groundwater dewatering method will comply with all water quality standards. A Colorado River Regional Water Quality Control Board (CRRWQCB) permit will be obtained before any groundwater discharge to land.

## **Production Plant Operation**

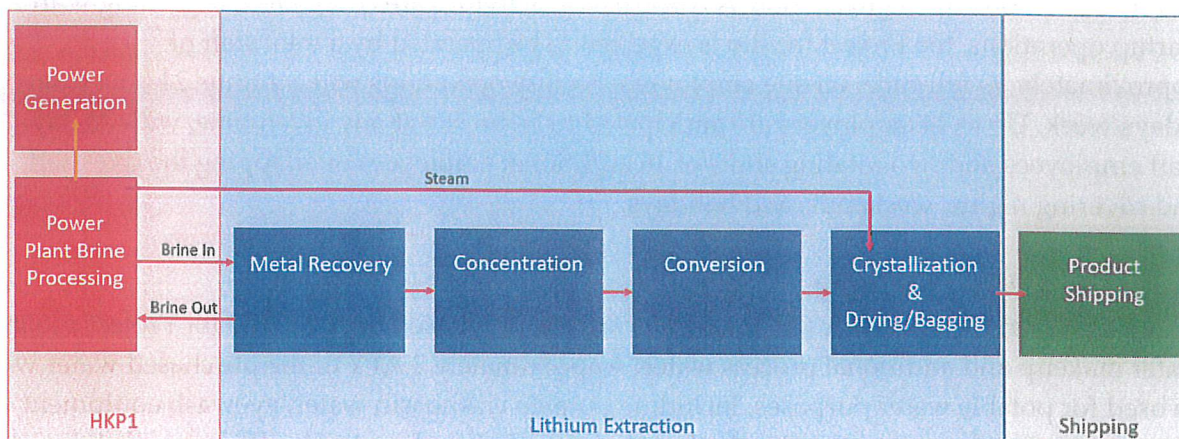
### **Overview**

The Project facility will use geothermal brine produced from geothermal fluid management activities at the neighboring HKP1 power plant, for the commercial production of lithium hydroxide, silica, bulk sulfide, and polymetallic products. The production operation will consist of the following general processing steps, which also are summarized in the flow diagram in Figure 4. The production processing steps may be altered over time, as production methods and efficiencies evolve and new or revised product lines are developed at the facility. The process will include the following steps:

- brine cooling
- silica, bulk sulfide, and polymetallic product production
- lithium and metals extraction
- concentration of lithium extraction
- processing of lithium extractant to lithium hydroxide
- drying and packaging of lithium and polymetallic products
- off-site product shipping

Each of the general processing steps is discussed further, next. After processing the geothermal brine, the depleted brine, will be returned to HKP1 for injection at the wells south of the Q drain. The injection well will be developed for HKP1.

**Figure 4 Lithium Processing Flow Diagram**



### **Metal Recovery**

Geothermal brine from HKP1 will feed two parallel vacuum flash brine cooling trains, sized for the full operating flow of approximately 5 million pounds per hour (lb/hr). The cooled brine will be fed to the minerals extraction process. Silica, bulk sulfide, and polymetallic products will be extracted from the brine, using proprietary technology. Silica, bulk sulfide, and polymetallic products will be filtered and shipped off-site in roll-off bins. The process will include soda ash and lime grits handling. A lithium chloride (LiCl) product stream also will be produced, using a proprietary extraction process. The LiCl will be processed in the subsequent lithium process steps.

### **Lithium Production**

The LiCl product stream will be concentrated and purified. The purified, concentrated LiCl will be transported via pipeline from the lithium purification/concentration operation to the lithium production buildings. Proprietary technology will be used to convert the LiCl into a  $\text{LiOH}\cdot\text{H}_2\text{O}$  product.

The  $\text{LiOH}\cdot\text{H}_2\text{O}$  product stream will be crystallized and transported to a lithium product handling, production, and warehouse building, where the crystals will be separated from the lithium-rich process fluid in a filtration system.  $\text{LiOH}\cdot\text{H}_2\text{O}$  crystals will be dried and packaged in bulk bags. Packaging is expected to be into 20-kilogram (kg) bags or into 1,000 kg super sacks.

### **Product Shipping to Offsite Markets**

The HKL1 plant will produce multiple products for off-site shipment to market by truck. The average annual amount of product shipped out of the plant operating at 5,000,000 lb/hr brine flow capacity is estimated to be approximately 5,100 lb/hr dry lithium product ( $\text{LiOH}\cdot\text{H}_2\text{O}$ ), 3,100 lb/hr silica, 9,800 lb/hr bulk sulfide, and 60,000 lb/hr polymetallic products. All products will be transported by freight truck on existing roadways to shipping distribution points.

## **Plant Operation Work Force and Schedule**

Project operation will begin as soon as construction activities are completed. Beginning with startup operations, the Project facility is expected to be operated by a total staff of approximately 90 full-time, on-site employees. Facility operations will continue 24 hours/day, 7 days/week. Up to 44 employees are anticipated to be on site at any given time, with 28 day-staff employees and two rotating shifts of 16 additional employees overlapping the day-staff and covering nights, weekends, and holidays.

## **Operational Water Supply**

About 6,500 acre-feet per year (AFY) of water will be purchased from the IID for Project cooling water makeup and additional process water. Approximately 3 AFY of the purchased water will be used for potable water purposes, including potable washbasin water, eyewash equipment water, water for showers and toilets in the administration and control buildings, and sink water in the sample laboratory. A Water Supply Assessment is being prepared for the Project, to analyze the impacts associated with the Project's construction and operational water requirements.

## **Energy Use**

The Project will have an average demand of 35 megawatts (MW) and peak power demand of up to 40 MW during operation. The power will be purchased from IID on an interim basis, until a power project is developed that can supply renewable power directly to this HKL1 Project.

## **Plant Operations Traffic**

Approximately 82 trucks per day are expected to travel in and out of the Project site during normal operation. Daily truck traffic will include approximately 46 trucks for product shipping. All trucks used for product shipping are planned to be electric. Truck traffic also will include approximately 36 truck deliveries of reagent chemicals, cooling tower treatment chemicals, consumptive media, product packaging materials, and fuel. Outgoing general waste that is generated on site will be removed by truck as needed and is expected to require less than one truck per day.

## **Hazardous Materials**

### **Hazardous Material to be Used during Project Construction and Operation**

Hazardous materials that are expected to be used during Project construction will include:

- unleaded gasoline
- diesel fuel
- oil
- hydraulic fluids
- lubricants
- solvents



- adhesives
- paint materials

The following hazardous materials will be stored on site and used during facility operation:

- unleaded gasoline (vehicle operation)
- diesel fuel (heavy equipment operation and emergency generator)
- transformer oil (electrical transformers)
- hydraulic fluid (heavy equipment operation)
- hydrochloric acid (32% by weight)
- calcium oxide
- sodium sulfide
- sodium hydroxide
- manganese

No feasible alternatives exist to avoid use of these materials for construction or operation of construction vehicles and equipment, or for painting and caulking buildings and equipment. Hydrochloric acid, calcium oxide, sodium hydroxide, and sodium sulfide will be required for the mineral extraction process. Manganese will be produced for commercial sale. Manganese will be stored in indestructible containers for shipping.

#### **Hazardous Materials Management**

Hell's Kitchen LithiumCo 1 will develop and implement a Hazardous Materials Business Plan (HMBP), in compliance with California Health and Safety Code, Division 20, Chapter 6.95, Sections 25500–25519 and California Code of Regulations, Title 19, Division 2, Chapter 4. The HMBP will be provided to the California Office of Emergency Services, the Imperial County Fire Department, and the Certified Unified Program Agency for Imperial County (the local California Department of Toxic Substances Control office), for review and approval before plant operation. The HMBP will include, at a minimum, procedures for:

- hazardous materials handling, use, and storage;
- emergency response;
- spill control and prevention;
- employee training; and
- reporting and record keeping.

Portable bins or other storage containers will be on site for storage of maintenance lube oils, chemicals, paints, and other construction materials, as needed. Secondary containment will be provided in all petroleum hydrocarbon and hazardous material storage areas, and all brine processing areas. Safety showers and eyewash stations will be provided in or adjacent to chemical storage and use areas. Safety equipment will be provided for staff use if required during chemical containment and cleanup activities. All staff working with chemicals will be trained in proper handling and emergency response to chemical spills or accidental releases. Water hose connections will be provided near the chemical storage and feed areas, to flush spills and leaks, and absorbent materials will be stored on site for spill cleanup.

## Hazardous Materials Transportation

Hazardous material carriers and hazardous waste transporters are required by law to adhere to applicable local, State, and federal regulations regarding proper truck signage, indicating the materials being transported, carrying a shipping/waste manifest of the types and concentrations of materials being transported, and other appropriate measures. Hazardous material carriers also are responsible for their loads, reporting spills, and initiating appropriate emergency response to releases of any transported hazardous materials, from the point of origin up to the destination of the hazardous material delivery.

Hell’s Kitchen LithiumCo 1 LLC will communicate with the locally responsible emergency response agencies before shipment of any bulk hazardous materials to or from the Project site. Continuing coordination and communications with these agencies relevant to hazardous material shipments will be undertaken as required by the agencies. Hell’s Kitchen LithiumCo 1 LLC will also develop an Emergency Action Plan for responding to spills or releases of hazardous substances by hazardous material carriers in the Project area. This plan will conform to all applicable federal, State, and local requirements for notifications, reporting, and emergency response of hazardous substance release incidents. The plan also will describe cleanup of spilled substances and site reclamation, if required. In the unlikely event of a hazardous materials spill during transportation of materials to or from the plant site, Hell’s Kitchen LithiumCo 1 LLC will cooperate with the responsible agencies and provide all available information and knowledge about the materials to facilitate the spill response cleanup and spill site remediation.

## Solid Waste

Construction and operation of the facility will generate both nonhazardous and hazardous waste (see Table 2). All Project solid waste (nonhazardous or hazardous) will be disposed at an approved waste disposal facility that is authorized to accept such waste.

**Table 2 Representative Projected Solid Waste Streams**

Waste Stream	Waste Classification	Treatment
<b>Projected Construction Waste Streams</b>		
Scrap wood, steel, glass, plastic, paper, calcium silicate insulation, mineral wood insulation	Nonhazardous	Waste disposal facility
Empty hazardous material containers drums	Recyclable Hazardous	Recondition or recycle
Oily rags generated during normal construction activities; lube oil flushes	Hazardous	Waste disposal facility
Spent batteries; lead acid	Hazardous Recyclable	Recycle

Spent batteries; alkaline type, sizes AAA, AA, C and D	Hazardous	Waste disposal facility
Sanitary waste-portable chemical toilets, construction office holding tanks, septic tank	Sanitary	Pumped by licensed contractors and transported to sanitary water treatment plant
<b>Projected Plant Operating Waste Streams</b>		
Used hydraulic fluids, oils, grease, oily filters	Recyclable Hazardous	Recycle
Spent batteries; lead acid	Recyclable Hazardous	Recycle
Laboratory waste	Hazardous	Waste disposal facility
Used oil	Recyclable Hazardous	Recycle
Oily rags	Hazardous	Waste disposal facility

### Nonhazardous Wastes

Inert solid waste from construction activities may include lumber, excess concrete, metal, glass scrap, and empty nonhazardous containers. Management of such waste will be the responsibility of the construction contractor(s). Typical management practices required for nonhazardous waste management include recycling, when possible, proper storage of waste and debris to prevent wind dispersion, and weekly pickup and disposal of wastes to local Class III landfills.

The primary source of solid waste during operation will be office waste and other waste generated by workers. Non-hazardous waste will be collected in appropriate on-site storage receptacles, designated for waste and recycling. Office waste and general refuse will be removed by a local, approved sanitation service. Recyclable materials will be brought to a recycling center.

### Hazardous Wastes

Hazardous wastes may be generated over the course of construction from spills of hazardous materials used during construction, empty hazardous material containers, or spill cleanup wastes. Hazardous materials that are expected to be used during construction include paints, oil and lubricants, solvents, and welding materials. Used oil will be recycled, and oil or heavy metal contaminated materials (e.g., filters) requiring disposal will be transported to an off-site waste disposal facility that is authorized to accept such wastes. Scale from pipe and equipment cleaning operations will be disposed in a similar manner.

All hazardous wastes generated during construction and operation will be handled and disposed in accordance with applicable laws, ordinances, regulations, and standards. Any hazardous wastes generated during construction will be collected in hazardous waste accumulation containers near the point of generation and moved daily to the contractor's 90-

day hazardous waste storage area on site. The accumulated wastes subsequently will be delivered to an authorized waste management facility. Hazardous wastes will be managed and disposed properly in a licensed Class I waste disposal facility that is authorized to accept the waste.

## **Decommissioning and Site Reclamation**

The projected life of the HKL1 plant is a nominal 50 years. Hell's Kitchen LithiumCo 1 LLC will prepare a Site Abandonment Plan, in conformance with Imperial County requirements, for consideration by the Planning Commission before Project approval. This plan will describe the proposed equipment dismantling and site restoration program, in conformance with the wishes of the respective landowners/lessors and Imperial County requirements in effect at the time of abandonment and will be implemented at the end of HKL1 plant operation. Hell's Kitchen LithiumCo 1 LLC will provide the County with a bond, letter of credit, or other acceptable surety that guarantees restoration of the land at the HKL1 plant site to its pre-development condition.

## **Environmental Protection Measures**

Environmental protection features, which are considered to be part of the Project, are listed in Table 3.

**PROJECT DESCRIPTION**

**Table 3 Environmental Protection Measures**

Title/Project Feature	Measure	Timing	Application
<b>Aesthetics</b>			
Structure Color and Fencing	<p>A tan color will be used on painted surfaces of project facilities where appropriate, to blend more naturally with the brown and tan hues of the existing setting. The engineering standards will reflect the approved paint colors for painted surfaces for major process equipment. Fencing will be constructed of non-reflective materials or will be treated or painted to reduce visual effects. In addition, reflectivity of surfaces will be reduced by using non-reflective elements where appropriate.</p>	Operation	Power and Lithium
Lighting	<p>Lighting on the project site will be limited to areas required for operations or safety, will be directed downward on site to avoid backscatter, and will be shielded from public view to the extent practical. Lighting that is not required to be on during nighttime hours will be controlled with sensors, timers, or switches operated so that lighting will be on only when needed.</p>	Operation	Power and Lithium
<b>Air Quality</b>			
Fugitive Dust Suppression Plan.	<p>Before beginning construction, the project proponent will submit a Dust Control Plan to the ICAPCD for approval, identifying all sources of PM<sub>10</sub> emissions and associated mitigation measures to be implemented during project construction and operational phases. The project proponent will submit a "Construction Notification Form" to the ICAPCD 10 days before the start of any earth-moving activity. The Dust Control Plan that is submitted to the ICAPCD will meet all applicable requirements for control of fugitive dust emissions, including the following, designed to achieve the no greater than 20 percent opacity performance standard for dust control:</p> <ul style="list-style-type: none"> <li>• All disturbed areas, including bulk material storage, that are not being actively used will be effectively stabilized; visible emissions will 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 PM with 5 percent or greater silt content.</li> <li>• All on-site and off-site unpaved roadway segments being used for 50 or more average vehicle trips per day will be effectively stabilized, to limit visible emissions to no</li> </ul>	Prepare plan before construction; implement during construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
	<p>greater than 20 percent opacity for dust emissions, by the use of restricting vehicle access, paving, chemical stabilizers, dust suppressants, and/or watering.</p> <ul style="list-style-type: none"> <li>• All unpaved traffic areas 1.0 acre or more in size with 75 or more average vehicle trips per day will be effectively stabilized, and visible emissions will be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.</li> <li>• The transport of bulk materials on public roads will 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 will be cleaned and/or washed at the delivery site after removal of bulk material, before using the trucks to haul material on public roadways.</li> <li>• 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, will 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 in an urban area.</li> <li>• Movement of bulk material handling or transfer will be stabilized before handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line, except when such material or activity is exempted from stabilization by the rules of ICAPCD.</li> <li>• Any temporary unpaved road will be stabilized effectively, and visible emissions will be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants, and/or watering.</li> <li>• Fugitive dust generation during construction will be minimized by watering, as needed to meet Imperial County standards for fugitive dust control. To further reduce fugitive dust emissions, project vehicle traffic on unpaved roads will be kept below 15 miles per hour.</li> <li>• A publicly visible sign will be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number also will be visible, to ensure compliance with applicable regulations.</li> </ul>		

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Construction Exhaust Emissions Control Plan	<p>Before the start of construction, the project proponent will prepare a Construction Exhaust Emissions Control Plan. This plan will provide a detailed list of control measures to minimize exhaust emissions during project construction, including fuel use, engine maintenance, and procedures, as follows:</p> <ul style="list-style-type: none"> <li>• The Construction Exhaust Emission Control Plan will provide a detailed list of control measures to minimize exhaust emissions during project construction, including fuel use, engine maintenance, and procedures.</li> <li>• The construction contractor will be required to use construction equipment using diesel engines with certified NO<sub>x</sub> emissions rated as Tier 3 or better. All off-road diesel-powered equipment that is greater than 50 horsepower to be used on site during construction will meet USEPA Tier 4 off-road emission standards.</li> <li>• When commercially available, fossil-fueled equipment will be replaced with electrically driven equivalents (provided they are not run via a portable generator set).</li> <li>• Idling times will be minimized, either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure under Title 13, Section 2485 of California Code of Regulations). Clear signage will be provided for construction workers at all access points.</li> <li>• All construction equipment will be maintained and properly tuned in accordance with manufacturers' specifications. All equipment will be checked by a certified mechanic and determined to be running in proper condition before operation.</li> <li>• Where access to alternative sources of power are available, portable diesel engines will be prohibited.</li> <li>• Haul trucks will be 2010 model year trucks or newer (a gross vehicle weight rating of at least 14,001 pounds), or best commercially available equipment, which meet CARB's 2010 engine emissions standards at 0.01 g/hp-hour of particulate matter and 0.20 g/hp-hour of NO<sub>x</sub> emissions or newer, cleaner trucks.</li> <li>• The VOC architectural coating limits specify that the use of paints and solvents with a VOC content of 100 grams per liter or less for interior and 150 grams per liter or less for exterior surfaces will be required.</li> </ul>	Prepare plan before construction; implement during construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Air Quality Permitting	An application will be submitted to the ICAPCD for an Authority to Construct permit for site construction activities and any operational equipment or emission sources requiring a permit. The application specifies a detailed list of control measures to reduce fugitive emissions from O&M activities, including watering of unpaved roads, vehicle speed limits, windbreaks, transport container covers, and cleaning and sweeping procedures. The project will comply with the ICAPCD permit conditions of approval to limit emissions from project activities.	Obtain permit before construction; comply with the permit during construction	Power and Lithium
Well Flow Testing Program	Specific design features will be used, such as well test units to minimize the release of particulate matter and metals during well drilling and initial testing. The well flow testing program will include flow rate and duration limits.	Construction	Power
Emissions Mitigation	Consistent with the requirements of ICAPCD Policy 5, the project proponent will pay an emission mitigation fee sufficient to offset the amount by which the project's NO <sub>x</sub> emissions exceed the 100 pounds per day threshold. ICAPCD allows a project to pay in-lieu impact fees using the most current Carl Moyer Cost Effective methodology to reduce excess NO <sub>x</sub> emissions. Under the ICAPCD program, the exact amount of the fee cannot be calculated until the time of construction, when more precise data regarding the construction equipment types and hours of operation are known, allowing the ICAPCD to calculate the fee. Before any earth-moving activity, the project proponent will submit to the ICAPCD a complete list of all construction equipment to be used during the construction phase, identifying make, model, year, horsepower, and estimated hours of usage.	Before construction	Power and Lithium
Hydrogen Sulfide Abatement	The project will employ a proven industry standard hydrogen sulfide abatement system to minimize hydrogen sulfide emissions from both the vent gas and the portion of condensate being used as cooling tower make-up. The abatement system will remove at least 95 percent of the H <sub>2</sub> S in the non-condensable gases. In addition, particle emissions from the cooling towers will be minimized by using high-efficiency drift eliminators.	Operation	Power
Electric Truck Hauling	The project will commit to using 100 percent electrical vehicles for hauling mineral products.	Operation	Lithium



## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Generators That Meet Pollutant Emission Limits	The proposed standby/blackstart diesel engine generator, the emergency diesel generator, and the emergency fire pump engine will meet the applicable USEPA and CARB air pollutant emission limits. Each engine will be tested for less than 50 hours per year (at 100% load).	Operation	Power and Lithium
Provide Charging Stations	The project will include charging stations for electric vehicles and electric trucks.	Operation	Power and Lithium
HCl Scrubbers	HCl storage tanks will include scrubbers with 100% efficacy.	Operation	Power and Lithium
<b>Biological Resources</b>			
Bird Flight Diverters	Bird flight diverters will be installed on any new transmission and power lines serving the project, to limit bird mortality associated with introducing new transmission lines in bird flyways. Flight diverters make transmission lines more visible to birds. The transmission and power lines will be designed to meet Avian Power Line Interaction Committee (APLIC) guidelines.	Operation	Power and Lithium
Bird Nest Avoidance	A Nesting Bird Plan will be prepared that defines procedures for avoidance of nesting birds during project construction. The project will be scheduled to start construction activities outside the nesting season (February 1 through August 31), to the extent feasible. In the event that construction has to start during the nesting season, a qualified biologist will conduct surveys of the project area no more than 72 hours before any ground disturbance. If an active nest is observed in the project area, the qualified biologist will employ appropriate procedures for nest avoidance, and construction activities will not begin in the area of the active nest until all nesting activities have ceased and the young have fledged the nest.	Construction	Power and Lithium
Minimize Disturbance During Bird Nesting Season	Noise barriers, such as hay bales or functional equivalent, will be applied when construction is occurring during the bird nesting season and adjacent to habitat for special-status nesting birds, including California black rail and Yuma Ridgway's rail. The noise will be properly maintained to limit noise levels at occupied habitat to no more than 65 dBA.	Construction	Power and Lithium
Special-Status Wildlife Species	A preconstruction survey for special-status species with potential to occur in the project area will be conducted no more than 14 days before the start of construction. The	Construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Environmental Awareness Training	results of the survey will be provided to Imperial County and the California Department of Fish and Wildlife.		
Power Wash Equipment	An environmental awareness training program will be implemented for all phases of construction. The worker training will be available to all personnel on site and administered by a qualified biologist assigned to the project site. Training materials and briefings will include discussion of the federal and State ESAs, the consequences of noncompliance with these acts, identification and values of wildlife and natural plant communities, hazardous substance spill prevention and containment measures, and review of all required and recommended mitigation measures.	Construction	Power and Lithium
Jurisdictional Wetlands and Riparian Areas	All construction equipment to be used during construction will be required to be power washed before arrival at the project site, to prevent the transportation and establishment of noxious weeds in the project area.	Construction	Power and Lithium
Limit Disturbance to Approved Areas	The project will provide restoration/compensation for all unavoidable impacts on areas under the jurisdiction of USACE, the CRRWQCB, and CDFW. Impacts on jurisdictional areas will be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible, the project applicant will provide the necessary mitigation required as part of wetland permitting. The location(s) of the mitigation will be determined in consultation with USACE, CDFW, and/or CRRWQCB as part of the wetland permitting process. Mitigation ratios will be developed through consultation with the permitting agencies.	Define mitigation requirements before construction; implement mitigation during and post-construction	Power and Lithium
Cultural and Tribal Cultural Resources	All areas to be disturbed during construction will be delineated with flagging or fencing before the start of construction. All disturbances will be confined to approved work areas, and all employees will be instructed that their activities must be confined to locations within the approved areas.	During construction	Power and Lithium
<b>Cultural and Tribal Cultural Resources</b>			
Tribal Cultural Resources	A Native American monitor will need to observe all ground-disturbing activities (including project-related off-site utility and roadway improvements). The Native American monitor will need to consult with the archaeological monitor regarding objects and remains encountered during grading or excavation that may be considered sacred or important. The Native American tribe will be notified 2 weeks before the start of	Construction	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Unanticipated Discoveries	<p>ground-disturbing activities. A copy of the notification also will be provided to the Imperial County Planning and Development Services Department.</p> <p>If an unanticipated discovery is made during construction, all construction will be halted immediately within 50 feet of the find and a qualified archaeologist and Native American monitor will be contacted to evaluate the significance of the resource. If the resource is not eligible for listing in the California Register of Historic Resources (CRHR) and is not a tribal cultural resource, construction can recommence in the area. If the resource is eligible for listing in the CRHR or is a tribal cultural resource and the resource cannot be preserved in place, the archaeologist will define procedures for data collection in accordance with State and federal laws for preservation of cultural resources.</p>	Construction	Power and Lithium
<b>Geology and Soils</b>			
Geotechnical	<p>The project will conduct a geotechnical investigation that will include subsurface testing of soil and groundwater conditions and will determine appropriate foundation designs that are consistent with the current version of the California Building Code. All recommendations contained in the final geotechnical engineering report will be implemented during project construction. Project design will be consistent with applicable California Building Seismic Design Categories, based on site-specific soil characteristics.</p>	Investigation before construction; implement requirements during construction	Power and Lithium
Seismic Impacts	<p>Project buildings/facilities will be built in accordance with applicable California Building Code requirements. Building permits will be obtained for the project from the County before the start of construction.</p>	Obtain permit before construction; implement during construction	Power and Lithium
Septic System	<p>The septic system will be designed in compliance with the Imperial County performance standards, as outlined under Title 9, Division 10, Chapters 4 and 12 of the Imperial County Land Use Ordinance. A permit will be obtained from the Imperial County Department of Environmental Health before the start of construction. The system will be designed to protect beneficial uses and ensure that applicable water quality standards are not violated.</p>	Obtain approval before construction; implement approved design during construction	Power and Lithium
<b>Hazardous Materials</b>			

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Secondary Containment for Hazardous Materials	Curbs, berms, and concrete pits will be used where accidental releases of hazardous and acutely hazardous materials may occur. Containment areas will be drained to appropriate collection areas or neutralization tanks for recycling or off-site disposal. Traffic barriers will protect piping and tanks from potential traffic hazards.	During construction and operation	Power and Lithium
Brine Pond	The brine pond will be of earthen construction and double-lined with a high-density polyethylene liner and concrete liner, following standard engineering practices so that the contents will not leach into the soil.	During operation	Power
Fire Suppression System	The fire suppression system will reduce impacts from fires occurring at the site, thereby reducing potential harm to workers. Personnel will be allowed to smoke only in designated areas. Well sites, construction sites, and access roads will be cleared of all vegetation. The cleared areas will be maintained during drilling, construction, and operations. Water used for drilling also will be available for fire-fighting.	During operation	Power and Lithium
Job Hazard Analyses (JHAs) for Each Job or Task	JHAs will be prepared for each task or job during construction. JHAs will identify any hazards associated with a job or task before performing that job or task. This will provide an opportunity to evaluate measures that must be taken to minimize impacts from these potential hazards. The JHAs will be provided to workers engaged in the task, to protect their health and safety.	During construction	Power and Lithium
Adherence to Applicable California Occupational Safety and Health Administration Regulations and Standards	Adherence will prevent or minimize potential impacts by development of procedures, training, physical inspections, and the prescription of some minimum standards to design adequate systems. These requirements address numerous worker safety issues, including emergency action/evacuation, fire prevention, confined space entry, fall protection, hearing conservation, respiratory protection, personal protective equipment, lock-out/tag-out, electrical safety, excavation and trenching, hazard communication, ergonomics, first aid, bloodborne pathogens, cranes and hoists, vehicle/traffic, and chemical exposures.	During construction and operation	Power and Lithium
Safety Showers and Eyewash Stations	Safety showers and eyewash stations will be available on site, where chemicals are used or stored. The safety showers and eyewash stations will provide a means of flushing skin and eyes in cases of chemical splashing, particularly as related to corrosive materials. By providing an immediately available wash station, the contact time and possible injury from these chemicals can be minimized.	During construction and operation	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
<b>Hydrology and Water Quality</b>			
Prevention of Erosion	<p>A detailed Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented for the project, to minimize erosion during construction in compliance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The SWPPP will be required to include the following:</p> <ul style="list-style-type: none"> <li>• A detailed description of all best management practices (BMPs) that will be employed</li> <li>• An outline of the areas on site that will be disturbed during construction of the project</li> <li>• An outline of all areas that will be stabilized by temporary or long-term erosion control measures</li> <li>• A proposed schedule for implementation of erosion control measures</li> </ul> <p>The SWPPP will be prepared by a qualified SWPPP practitioner, with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. Emphasis for BMPs will be placed on controlling discharges of oxygen-depleting substances, floating material, oil and grease, acidic or caustic substances or compounds, and turbidity. BMPs for soil stabilization and erosion control practices and sediment control practices also will be required. Performance and effectiveness of these BMPs will be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.</p>	Prepare SWPPP before construction; implement SWPPP during construction	Power and Lithium
Brine Pond Monitoring Wells	Potential release from the brine pond to groundwater will be assessed with a system of monitoring wells placed around the periphery of the brine pond.	Operation	Power
Stormwater Retention	The plant site will be graded to direct surface water runoff toward a stormwater retention area, which will be surrounded by a berm to prevent overflow.	Construction	Power and Lithium
Casing Shallow Portions of	Casing the shallow portions of the production and injection wells will minimize the potential release of both construction-related drilling fluids and production-related geothermal brines to the shallow groundwater aquifer.	Construction	Power

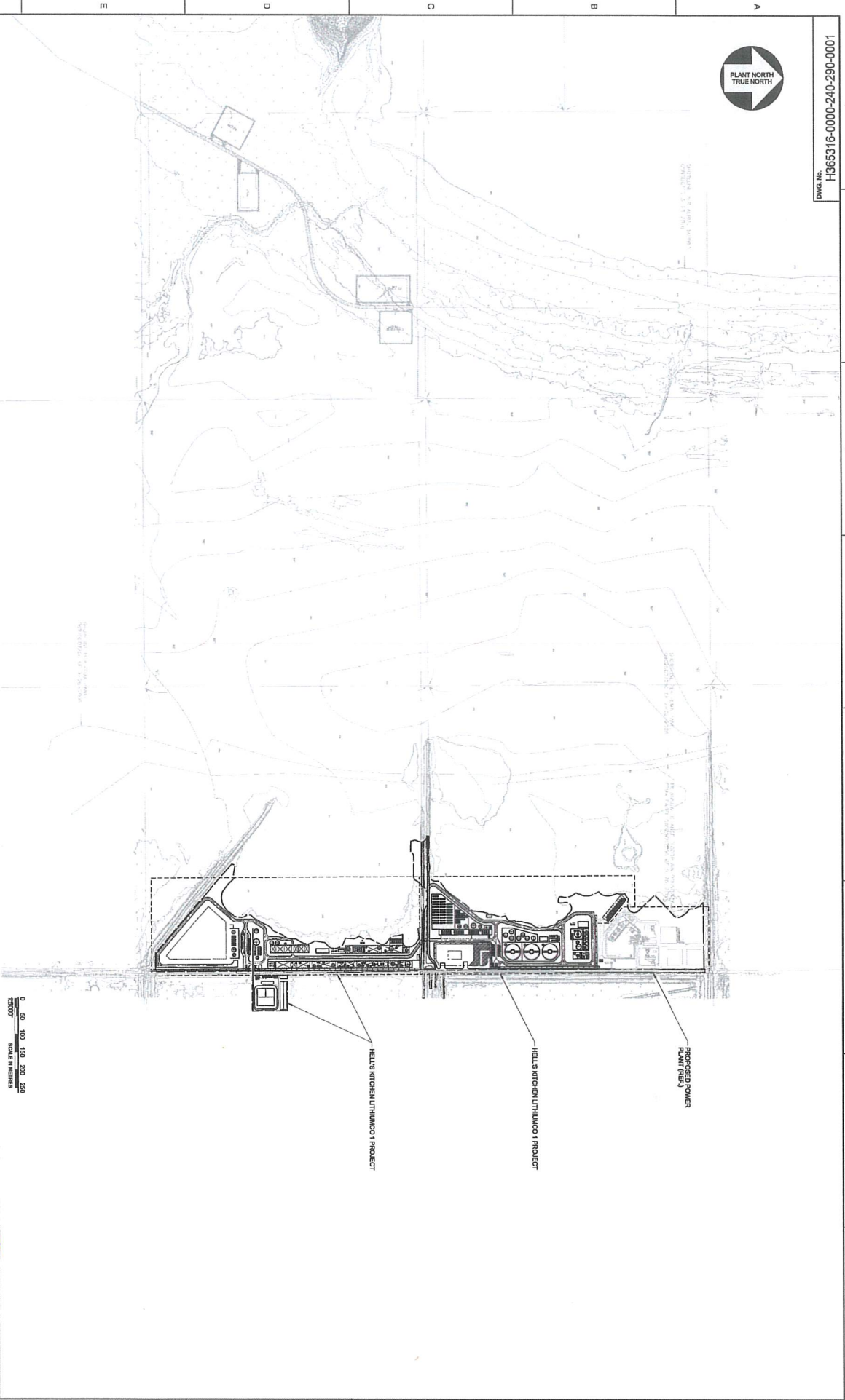
## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Production and Injection Wells			
Protective Pipeline Design and Detailed Inspection Routine	Brine production and injection pipelines will be alloy pipe. Additional plant injection pipelines will be constructed of carbon steel or lined carbon steel material. All pipelines will be inspected routinely to prevent potential releases.	Operation	Power
Surface and Groundwater Quality Protection	The production and injection wells will be cased down to the geothermal reservoir, to avoid interaction with surface water and groundwater. Only non-toxic, nonhazardous drilling mud will be used during drilling operations.	Construction and operation	Power
Water Quality Protection from Runoff	Waste drilling mud and drill cuttings will be stored in the lined containment basin. Any runoff from the site will be discharged into the containment basin. After drilling operations are completed, the mud and associated drilling liquids will be allowed to evaporate. The solids will be tested for pH, oil and grease, and metals. The solids will be removed and disposed in a waste disposal facility authorized by the CRRWQCB to receive and dispose these materials.	Construction	Power
Production Wellheads	Piping at each production wellhead will be equipped with both remotely operated emergency shutoff valves and manual isolation valves, to prevent potential releases.	Operation	Power
<b>Noise</b>			
Prevention of Noise	To abate noise pollution, mufflers will be used on engine-driven equipment during both project construction and operation.	Construction and Operation	Power and Lithium
<b>Transportation</b>			
Transportation Planning	A Transportation Plan will be prepared for implementation during all phases of the project. The Transportation Plan will address methods for reducing construction worker traffic volumes and project-related equipment and materials transport by implementing the following strategies: (1) provide a construction worker rideshare program; (2) schedule shift changes and deliveries to avoid conflict with peak-hour traffic patterns; (3) establish traffic controls for transport of facility hazardous and nonhazardous materials, components, main assembly cranes, and other large pieces of equipment; and (4) evaluate alternative transportation approaches depending on	Construction and Operation	Power and Lithium

## PROJECT DESCRIPTION

Title/Project Feature	Measure	Timing	Application
Traffic Signs and Commuting	Signs will be placed along future construction roads, to identify speed limits, travel restrictions, and other standard traffic control information. Consideration will be given to limiting construction vehicles traveling on public roadways during the morning and late afternoon commute times, to minimize impacts on local commuters.	Construction and Operation	Power and Lithium
Restricted Roadway Access	The public will be restricted from accessing project roads. Use of other project unimproved roads will be restricted to emergency situations involving potential injury or loss of life.	Operation	Power and Lithium
Pave Driveways	Paving will be a minimum of 100 feet from the property line for commercial driveways that access County paved roads, as per County Standard Commercial Driveway Detail 410B.	Operation	Power and Lithium
<b>Utilities and Service Systems</b>			
Waste Management Plan	Before issuance of a grading permit or building permit, the applicant will prepare a Waste Management Plan, to be submitted to the ICPDS and ICDPW for review and approval. The Waste Management Plan will identify the projected waste to be generated by project activity and feasible methods to divert a minimum of 75 percent of waste from landfills, such as sorting and recycling of materials, re-use of materials, and waste reduction measures. The Waste Management Plan also will address containment and disposal of drill cuttings.	Before construction prepare plan; implement during construction	Power and Lithium
Sanitary Waste Disposal	Portable chemical sanitary facilities will be used by all personnel during construction. These facilities will be maintained by a local contractor.	Construction	Power and Lithium

DWG. No. H365316-0000-240-290-0001



**NOT FOR CONSTRUCTION**

**HATCH**

**HELL'S KITCHEN  
CONTROLLED THERMAL RESOURCES**

**HELL'S KITCHEN  
GEOHERMAL LITHIUM PLANT PFS  
OVERALL PLOT PLAN**

DESIGN NO. H365316-0000-240-290-0001	CONTRACT NO. H365316-0000-240-290-0001
DRAWING NO. H365316-0000-240-290-0001	DRAWING TITLE
REFERENCE DRAWINGS	

REG. PROFESSIONAL

No.	DESCRIPTION	DATE
A	ISSUED FOR PERMIT AND CLIENT REVIEW	2021-09-24

ROLE	NAME	SIGNATURE	DATE
DESIGNER	I. DENNISON	[Signature]	2021-09-24
CHECKER	S. SANKIN	[Signature]	2021-09-24
LEAD ENG.	I. DENNISON	[Signature]	2021-09-24
LEAD DISC. ENG.	S. SANKIN	[Signature]	2021-09-24
ENG. MANAGER	I. DENNISON	[Signature]	2021-09-24
PROJ. MANAGER	I. DENNISON	[Signature]	2021-09-24

SCALE: 1:3000	DWG. NO. H365316-0000-240-290-0001
DATE: 09/24/21	REV. B

1 2 3 4 5 6 7 8

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# 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 Imperial Irrigation District		EMAIL ADDRESS	
2. MAILING ADDRESS (Street / P O Box, City, State) 333 East Barioni Blvd, Imperial, CA		ZIP CODE 92251	PHONE NUMBER
3. APPLICANT'S NAME Hell's Kitchen Power Co1 LLC		EMAIL ADDRESS jim.turner@cthermal.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 447 West Aten Road, Suite G, Imperial, CA		ZIP CODE 92251	PHONE NUMBER 760-604-0433
4. ENGINEER'S NAME N/A	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. 020-010-012; 020-070-029; 020-070-060		SIZE OF PROPERTY (in acres or square foot) 1,800 acres	ZONING (existing) S1G
7. PROPERTY (site) ADDRESS Southwest of the intersection of Noffsinger Road and Davis Road			
8. GENERAL LOCATION (i.e. city, town, cross street) North of Pound Road, south of Noffsinger Road, and west of Davis Road; approximately 3 miles west of the community of Niland			
9. LEGAL DESCRIPTION <u>See attached Project Description</u>			

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

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) <u>Hell's Kitchen Power Plant 1 Project (see attached Project Description)</u>	
11. DESCRIBE CURRENT USE OF PROPERTY <u>Undeveloped</u>	
12. DESCRIBE PROPOSED SEWER SYSTEM <u>See attached Project Description</u>	
13. DESCRIBE PROPOSED WATER SYSTEM <u>See attached Project Description</u>	
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM <u>See attached Project Description</u>	
15. IS PROPOSED USE A BUSINESS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? Construction up to 200; Operation approximately 15

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

James T. Turner December 10, 2021  
 Print Name Date  
 Signature [Signature]  
 Signature

### REQUIRED SUPPORT DOCUMENTS

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

APPLICATION RECEIVED BY: _____	DATE _____	REVIEW / APPROVAL BY _____
APPLICATION DEEMED COMPLETE BY: _____	DATE _____	OTHER DEPT'S required.
APPLICATION REJECTED BY: _____	DATE _____	<input type="checkbox"/> P. W.
TENTATIVE HEARING BY: _____	DATE _____	<input type="checkbox"/> E. H. S.
FINAL ACTION: <input type="checkbox"/> APPROVED <input type="checkbox"/> DENIED	DATE _____	<input type="checkbox"/> A. P. C. D.
		<input type="checkbox"/> O. E. S.
		<input type="checkbox"/> _____
		<input type="checkbox"/> _____

**CUP #**  
\_\_\_\_\_

## SITE PLAN REQUIREMENTS

### PLAN MUST:

- a. Be drawn to scale upon substantial paper, 11" x 14" (min.) – (20 copies must be submitted.)
- b. Show name of owner, legal description and Assessor's Parcel Number.
- c. Show existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, etc.
- d. Show all existing and proposed structures (both above and below ground) location of sewer and water systems.
- e. Show adjacent property uses and approximate distances to nearest structures.
- f. Indicate name of person preparing site plan.
- g. Show North orientation.
- h. Show sufficient dimensions and information for proper evaluation to be done.

**CAUTION:** Incomplete or inaccurate applications, plans will cause the entire application to be rejected.

# VARIANCE

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 Imperial Irrigation District		EMAIL ADDRESS	
2. MAILING ADDRESS (Street / P O Box, City, State) 333 East Barioni Blvd, Imperial, CA		ZIP CODE 92251	PHONE NUMBER
3. ENGINEERS NAME N/A	CA. LICENSE NO. N/A	EMAIL ADDRESS N/A	
4. MAILING ADDRESS (Street / P O Box, City, State) N/A		ZIP CODE N/A	PHONE NUMBER N/A
5. ASSESSOR'S PARCEL NO. See attached Project Description		ZONING (existing) S1G	
6. PROPERTY (site) ADDRESS Davis Road		SIZE OF PROPERTY (in acres or square foot) 1,800 acres	
7. GENERAL LOCATION (i.e. city, town, cross street) South of Noffsinger Road, North of Pound Road, and adjacent to Davis Road			
8. LEGAL DESCRIPTION <u>see attached Project Description for Hell's Kitchen PowerCo 1 Project</u>			
8. DESCRIBE VARIANCE REQUESTED (i.e. side yard set-back reduction, etc.) <u>Height variance for project structures that exceed 35 feet in height.</u>			
9. DESCRIBE REASON FOR, OR WHY VARIANCE IS NECESSARY : <u>The 230-kV gen-tie line and cooling tower must be taller than 35 feet due to engineering standards/requirements. see attached Project Description for details.</u>			
10. DESCRIBE THE ADJACENT PROPERTY			
East	<u>State of California Wildlife Area</u>		
West	<u>Undeveloped land/Salton Sea</u>		
North	<u>Undeveloped land</u>		
South	<u>Undeveloped land and geothermal development at Hudson Ranch</u>		

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

James T. Turner December 10, 2021

Print Name

Date

James T. Turner  
Signature

Print Name

Date

Signature

## REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN

B. FEE

C. OTHER

D. OTHER

APPLICATION RECEIVED BY: \_\_\_\_\_

DATE \_\_\_\_\_

REVIEW / APPROVAL BY  
OTHER DEPT'S required.

APPLICATION DEEMED COMPLETE BY: \_\_\_\_\_

DATE \_\_\_\_\_

P. W.

APPLICATION REJECTED BY: \_\_\_\_\_

DATE \_\_\_\_\_

E. H. S.

TENTATIVE HEARING BY: \_\_\_\_\_

DATE \_\_\_\_\_

A. P. C. D.

FINAL ACTION:

APPROVED

DENIED

DATE \_\_\_\_\_

O. E. S.

\_\_\_\_\_

\_\_\_\_\_

V #

\_\_\_\_\_

## SITE PLAN REQUIREMENTS

### PLAN MUST:

- a. be drawn to scale upon substantial paper, 11" x 14" (min.) – (20 copies must be submitted).
- b. show name of owner, legal description and Assessor's Parcel Number.
- c. show existing property dimensions, size, adjacent roads, canals, right-of-ways, easements, etc.
- d. show all existing and proposed structures (both above and below ground) location of sewer and water systems.
- e. show adjacent property uses and approximate distances to nearest structures.
- f. indicate name of person preparing site plan.
- g. show North orientation.
- h. show sufficient dimensions and information for proper evaluation to be done.

**CAUTION:** Incomplete or inaccurate applications, plans will cause the entire application to be rejected.