DOCKETED	
Docket Number:	23-AFC-03
Project Title:	Black Rock Geothermal Project (BRGP)
TN #:	253339
Document Title:	Cover Letter and CURE Data Requests Set 2 - Black Rock Geothermal Project
Description:	N/A
Filer:	Alisha Pember
Organization:	California Unions for Reliable Energy
Submitter Role:	Intervenor
Submission Date:	11/27/2023 4:56:17 PM
Docketed Date:	11/27/2023

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037
TEL: (650) 589-1660
FAX: (650) 589-5062
kfederman@adamsbroadwell.com

SACRAMENTO OFFICE
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4721
TEL: (916) 444-6201
FAX: (916) 444-6209

ARIANA ABEDIFARD
KEVIN T. CARMICHAEL
CHRISTINA M. CARO
THOMAS A. ENSLOW
KELILAH D. FEDERMAN
RICHARD M. FRANCO
ANDREW J. GRAF
TANYA A. GULESSERIAN
DARION N. JOHNSTON
RACHAEL E. KOSS
AIDAN P. MARSHALL
TARA C. RENGIFO

Of Counsel
MARC D. JOSEPH
DANIEL L. CARDOZO

November 27, 2023

Samantha Neumyer
Ellison, Schneider, Harris & Donlan LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816

Jerry Salamy
Jacobs
2485 Natomas Park Drive, Suite 600
Sacramento, California 95833

Re: CURE Data Requests Set 2 for Black Rock Geothermal Project (23-AFC-03)

Dear Ms. Neumyer and Mr. Salamy:

California Unions for Reliable Energy ("CURE") submits this second set of data requests to Black Rock Geothermal, LLC, an indirect wholly owned subsidiary of BHE Renewables, LLC, ("Applicant") for the Black Rock Geothermal Project ("Project"), pursuant to Title 20, section 1716(b), of the California Code of Regulations. The requested information is necessary to: (1) more fully understand the Project; (2) assess whether the Project will be constructed and operated in compliance with all laws, ordinances, regulations, and standards; (3) assess whether the Project will result in significant environmental impacts; (4) assess whether the Project will be constructed and operated in a safe, efficient, and reliable manner; and (5) assess potential mitigation measures.

Pursuant to section 1716(f), written responses to these requests are due within 30 days. If you are unable to provide or object to providing the requested information by the due date, you must send a written notice of your objection(s) and/or inability to respond within 20 days.

Please contact me at kfederman@adamsbroadwell.com if you have any questions. Thank you for your cooperation with these requests.

Sincerely,

Kelilah Federman

Kelilah D. Federman

KDF:acp

6709-025acp

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: BLACK ROCK GEOTHERMAL PROJECT (BRGP) APPLICATION FOR CERTIFICATION	Docket No. 23-AFC-03

CALIFORNIA UNIONS FOR RELIABLE ENERGY DATA REQUESTS SET 2

November 27, 2023

Kelilah D. Federman
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000
South San Francisco, CA 94080
(650) 589-1660
kfederman@adamsbroadwell.com

Attorneys for California Unions for Reliable Energy

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: BLACK ROCK GEOTHERMAL PROJECT (BRGP) APPLICATION FOR CERTIFICATION	Docket No. 23-AFC-03

CALIFORNIA UNIONS FOR RELIABLE ENERGY DATA REQUESTS SET 2

The following data requests are submitted electronically via California Energy Commission ("CEC") Docket No. 23-AFC-03 by California Unions for Reliable Energy ("CURE") to Black Rock Geothermal, LLC ("Applicant"). Please provide your responses as soon as possible, but no later than Wednesday, December 27, 2023, to:

Kelilah Federman
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000
South San Francisco, CA 94080
(650) 589-1660
kfederman@adamsbroadwell.com

Please identify the person who prepared the Applicant's responses to each data request. If you have any questions concerning the meaning of any data requests, please let us know.

BLACK ROCK GEOTHERMAL PROJECT
CURE Data Requests Set 2 (Nos. 100-242)

SOILS AND AGRICULTURAL RESOURCES

BACKGROUND: IMPERIAL COUNTY GENERAL PLAN AGRICULTURAL ELEMENT, GOAL 1, OBJECTIVE 1.8

The AFC at 5.11-1 provides the following overview of the regional setting for agricultural resources around the Project site: "Imperial County is a rural agricultural county in the southern portion of the Imperial Valley. … Imperial County is a leading agricultural area because of both environmental and cultural factors, including good soils, a year-round growing season, the availability of adequate water supply transported from the Colorado River by a complex canal system, extensive areas committed to agricultural production, a gently sloping topography, and a climate that is well-suited for growing crops and raising livestock. Approximately 20% of Imperial County is irrigated for agricultural purposes (588,416 acres). Irrigation agriculture in Imperial Valley is extremely diverse and includes many types of vegetable crops such as lettuce, carrots, onions, tomatoes, cauliflower, and broccoli; alfalfa, Sudan grass, and other animal feed; sugar beets; wheat and other grains; melons; cotton; and various citrus, fruits, and nuts (Imperial County Final Programmatic Environmental Impact Report [IC PEIR] Renewable Energy & Transmission Element Update 2015)."

Goal 1 in the Imperial County General Plan's Agricultural Element (adopted 1993) contains Objective 1.8, which states, "Allow conversion of agricultural land to nonagricultural uses including renewable energy only where a clear and immediate need can be demonstrated, based on economic benefits, population projections and lack of other available land (including land within incorporated cities) for such nonagricultural uses. Such conversion shall also be allowed only where such uses have been identified for nonagricultural use in a city or county general plan, and are supported by a study to show a lack of alternative sites." The AFC at 5.6-13 evaluated the objectives under Goal 1, including Objective 1.8. The AFC acknowledged that "[t]he Project is not directly consistent with Goal 1 due to the conversion of Important Farmland to nonagricultural uses," but cited to Section 1 in the AFC to support the "purpose and need for the conversion of agricultural land to nonagricultural uses, …." The AFC concluded that "[d]ue to the established purpose and need, limited accessible geothermal resources, and zoning which allows for geothermal energy production, impacts would be less than significant."

DATA REQUESTS:

100. State whether a study has been performed regarding alternative sites other than the analysis of *Power Plan Site Alternatives* at AFC page 6-2. If so, please provide a copy of this study.

BACKGROUND: WELL PADS AND PIPELINES

Imperial County Municipal Code Division 17 governs geothermal projects, and thus this Project is subject to these provisions. Section 91702.00, subsection (C) states that "[e]very site shall be designed to retain the maximum amount of usable agricultural land and the site shall not interfere with the irrigation and drainage pattern, and shall comply with requirements and regulations of Imperial irrigation [*sic*] district."

As stated in the AFC at 5.11-11, however, "[w]ell pads and associated distribution pipeline impacts [were] not considered in [the AFC in] evaluating Important farmland impacts because the land will continue to be used for farming purposes during Project operation." Yet, "preparation of a drilling site requires grading (clearing and leveling) of approximately 2 to 4.5 acres per well pad," and "[a]t each well pad, the high temperature well head valve area (commonly called the cellar) will be fenced." (AFC at 2-42; 2-57) The AFC at 2-9 estimates that "five initial production wells will be located on three well pads, and seven injection wells will be located on four well pads. … The Applicant identified additional wells and well pads for future wells, known as makeup wells, that would potentially be drilled during the Project's operational life to support continual power generation at full capacity."

DATA REQUESTS:

101. Identify on a map or otherwise describe with sufficient detail the number and location of the "additional wells and well pads for future wells…that would potentially be drilled," as identified by the Applicant.

102. Provide the Applicants' analysis of the environmental impacts from construction of seven (7) initial well pads, potential future well pads.
103. Provide the total acreage of temporarily impacted areas to construct the Project's well pads and associated distribution pipelines.

104. Provide the total acreage of permanently impacted areas to construct the Project's well pads and associated distribution pipelines.

105. Describe the farming operations that may continue on lands with well pads and associated distribution pipelines during Project operations.

106. Identify statutes, regulations, or guidelines that require clearing of vegetation on and/or around well pads during operations.

107. Provide the length of fencing that will be installed as security fencing around the Project site boundary, including the laydown areas.

BACKGROUND: REUSE OF PRIME AND STATEWIDE IMPORTANT SOIL TYPES

According to the AFC at 5.11-20, "of the total 63.10 acres of land permanently affected by the [Project] site, 96% are located on land described by [Farmland Mapping and Monitoring Program] and Imperial County as Important Farmland. [The Project] would permanently convert approximately 7.33 acres of Prime farmland, 50.94 acres of farmland of Statewide Importance, and 2.25 acres of farmland of Local Importance from agricultural production to activities associated with geothermal production during Project use (approximately 40 years)." However, the AFC at 5.11-20 determines that the Project would not result in a substantial loss of farmland in part because "most soils in the Project area designated as Prime and Statewide Important soil types will be reserved for reuse, as feasible."

DATA REQUESTS:

108. Provide the Applicant's estimate of the volume of soils in the Project area designated as Prime and Statewide Important soil types that may be reserved for reuse that is the basis for the Applicant's statement that the Project would not result in substantial loss.

109. Explain how the soils in the Project area designated as Prime and Statewide Important soil types may be reused.

110. Provide any studies, reports, or other information relied upon or utilized to support the conclusion that soils may be used for reuse.

111. Explain how the "mixing of soils and rock, [during Project construction]" may affect the feasibility of reusing the soils. (AFC at 5.11-14)

BACKGROUND: EROSION CONTROL BEST MANAGEMENT PRACTICES

The AFC at 5.11-14 analyzes construction-related impacts on soils. The AFC at 5.11-14 concludes that "[i]mpacts during the construction of the [Project] may include alteration of the existing soil profile, increased soil erosion, and soil compaction. Alteration of the existing soil profiles, including mixing of soils and

rock, will alter the physical, chemical, and biological characteristics of the native soils and underlying geology. Clearing the protective vegetative cover and subsequent soil disturbance will likely result in short-term water and wind erosion rate increases. The loss of topsoil can increase the sediment load in surface receiving waters downstream of the construction site. Soil compaction can decrease infiltration rates, resulting in increased runoff and erosion rates." Nevertheless, these impacts are determined to be less-than-significant. (AFC at 5.11-14) The AFC at 5.11-13 explains that "[t]he use of erosion control best management practices (BMPs) to control water and wind erosion during construction activities and the placement of impervious surfaces and BMPs on disturbed areas within the [Project] area will be implemented to effectively control soil loss during and after construction."

DATA REQUESTS:

112. Identify the erosion control best management practices ("BMPs") that may be used to control water and wind erosion during construction activities.

Describe the monitoring that may be implemented to ensure that the BMPs are properly implemented and effective (e.g., frequency, location).

BACKGROUND: SOIL COMPACTION

The AFC at 5.11-14 states, "[t]he clay-type soils at the [Project] site have a potential for moderate wind erosion. Soil BMPs will be implemented throughout construction. Wind erosion potential is highest when dry, fine sandy, or silty material is left exposed. Compaction of site soils is expected to reduce the overall potential for wind erosion. Soil stockpiles will be covered if they are not active prior to precipitation events, protected with a temporary sediment barrier during the rainy season, and located away from stormwater and drainage collection areas. Regular watering of exposed soils and the establishment of short- and long-term erosion control measures will be used to further reduce soil loss attributable to erosion."

DATA REQUESTS:

113. Describe the frequency, location, and duration of soil compaction of site soils during construction.

BACKGROUND: MITIGATION OPTIONS FOR IMPACTS TO AGRICULTURAL RESOURCES

"Imperial County has established measures to mitigate impacts to agricultural resources based on guidance received from the Department of

Conservation Division of Land Resource Protection, which are applicable to geothermal energy technology." (AFC at 5.11-24) "Farmland mitigation will be provided in conformance with Imperial County requirements." (*Id.*) Imperial County requires Projects to mitigate impacts from the conversion of Important Farmland, in compliance with the Imperial County Mitigation Monitoring and Reporting Program (IC PEIR 2015) with one of the three following options for approval by Imperial County and provide approval documentation to the CPM:

> Option 1: The Project Proponent of a future renewable energy facility will procure Agricultural Conservation Easements on a 'two-to-one' [Prime Farmland] or 'one-to-one' [Non-Prime Farmland] basis on land of equal size, of equal quality farmland, outside of the development footprint. The Conservation Easement will meet the Department of Conservation's regulations and will be recorded prior to issuance of any grading or building permits; or
>
> Option 2: The Project Proponent of a future renewable energy facility will pay an 'Agricultural In- Lieu Mitigation Fee' in the amount of '30 percent' [Prime Farmland] or '20 percent' [Non-Prime Farmland] of the fair market value per acre for the total acres of the proposed site based on five comparable sales of land used for agricultural purposes as of the effective date of the permit, including program costs on a cost recovery/time and material basis. The Agricultural In-Lieu Mitigation Fee will be placed in a trust account administered by the Imperial County Agricultural Commissioner's office and will be used for such purposes as the acquisition, stewardship, preservation, and enhancement of agricultural lands within Imperial County; or
>
> Option 3: The Project Proponent of a future renewable energy facility and the County will enter into an enforceable Public Benefit Agreement or Development Agreement that includes an Agricultural Benefit Fee payment that is (1) consistent with Board Resolution 2012-005; and (2) must be held by the County in a restricted account to be used by the County only for such purposes as the stewardship, preservation, and enhancement of agricultural lands within Imperial County, and to implement the goals and objectives of the Agricultural Benefit program, as specified in the Development Agreement, including addressing the mitigation of agricultural job loss on the local economy; the future renewable energy project and other recipients of the future renewable energy project's Agricultural Benefit Fee funds; or emphasis on creation of jobs in the agricultural sector of local economy for the purpose of offsetting jobs displaced by the future renewable energy project.

DATA REQUESTS:

114. Please explain how the Applicant complying with Option 1 identified above and in the AFC at page 5.11-24 would mitigate the Project's impacts from the conversion of agricultural lands.

115. Please explain how the Applicant complying with Option 2 identified above and in the AFC at page 5.11-24 would mitigate the Project's impacts from the conversion of agricultural lands.

116. Please explain how the Applicant complying with Option 3 identified above and in the AFC at page 5.11-24 would mitigate the Project's impacts from the conversion of agricultural lands.

BACKGROUND: OVERHAUL CYCLE AND OUTAGES

The AFC at 2-49 and-50 explains that "[t]he geothermal steam turbine and fluid equipment for [the Project] is planned to be overhauled on a 3-year (triennial) cycle with a planned warranty outage in Year 1 and triennial outages starting in Year 3."

DATA REQUESTS:

117. Describe the process for overhauling the geothermal steam turbine and fluid equipment every 3 years.

118. Provide a description of the waste streams that may be generated from overhauling the geothermal steam turbine and fluid equipment each 3-year cycle.

119. Provide a description of the impacts from the waste streams that may be generated from overhauling the geothermal steam turbine and fluid equipment each 3-year cycle.

120. Describe the forced outage rate for the generating unit.

121. State or estimate the number of forced outages expected in a year.

122. State or estimate the length of the planned outage in Year 1.

123. State or estimate the length of the triennial outages starting in Year 3.

BACKGROUND: GEOTHERMAL SCALE WASTES

The AFC Table 5.14-2 for "Potential Wastes Generated during Project Operations" identifies geothermal scale as a hazardous waste from hydroblasting scale debris from pipes, process valves, and vessels. (AFC at 5.14-4; -5) Approximately 3,000 tons per year of geothermal scale is estimated to be generated at the Black Rock Geothermal facility alone. (*Id.* at 5.14-5) The waste will be deposited offsite at a Treatment, Storage, or Disposal Facility ("TSDF"). (*Id.*)

DATA REQUESTS:

124. Identify the chemical composition of the scale wastes.

125. Provide documentation to support the estimated volume of geothermal scale annually.

BACKGROUND: FILTER CAKE

Approximately 800 tons of hazardous filter cake and 14,000 tons of nonhazardous filter cake will be generated each year by the Project. (AFC at 5.14-5) The AFC at 5.14-4 assumes that "…95 percent of the filter cake that will be characterized as nonhazardous. Approximately five percent will likely be characterized as hazardous due to elevated concentrations of heavy metals..." "The nonhazardous filter cake waste from the Project site will be transported to the Desert Valley Company's monofill for disposal. The monofill, located in Brawley, California, is an active Class II Solid Waste Management Facility used for the disposal of designated geothermal nonhazardous waste streams and byproducts." (*Id.* at 5.14-6) The AFC does not contain sufficient information to confirm the assumed 95% nonhazardous and 5% hazardous split for filter cake or to evaluate the potential impacts of handling, transporting, and disposing of filter cake.

DATA REQUESTS:

126. Describe the chemical composition data for the filter cake and provide all supporting documentation, including laboratory data sheets.

127. Explain the basis of the assumed 95% nonhazardous and 5% hazardous split for filter cake. Provide all engineering calculations, historic data, and chemical composition data and identify all assumptions.

128. Describe the procedures that will be used at the Desert Valley Company's monofill to dispose of filter cake.

BACKGROUND: CONTAMINATION AT EXISTING GEOTHERMAL FACILITIES

On May 16, 2023, CalEnergy Operating Corporation ("CalEnergy") submitted to the Department of Toxic Substances Control ("DTSC") the second Five-Year Review report as required by the Covenants to Restrict Use of Property entered between DTSC and CalEnergy for the following facilities:

- Central Services: 480 West Sinclair Road
- Elmore Facility: 786 West Sinclair Road

- Leathers Facility: 342 West Sinclair Road
- Region 1, Units 1 & 2: 6920 Lack Road
- Region 1, Units 3 and 4: 6922 Crummer Road
- Vulcan/Del Ranch (Hoch) Facilities: 7001 and 7029 Gentry Road. (CalEnergy 2023)

The objective of the second Five-Year Review report is to assess the effectiveness of the remedial actions carried out under the Corrective Action Consent Agreement, Docket SRPD GIC851471, entered into on or around March 7, 2007, in accordance with Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). (*Id.*) Contamination at the sites was initially discovered on or around September 21, 2000 and included, but was not limited to, arsenic, lead, and other metals determined to be hazardous. (*Id.*) The contamination at the sites allegedly resulted from accumulation of filter cake, scale inside equipment, and sediments held in surface impoundments and was "due to activities such as high-pressure water washing (hydroblasting) and surface impoundment sediment removal," "during routine or emergency maintenance of the facilities…." (*Id.*)

The Five-Year Review report states that "…through these activities solid scale and brine precipitates were released to onsite surface soils in the vicinity of these maintenance operations that resulted in the adoption of the Covenants to Restrict Use of Property. Other factors that contributed to the accumulation of these materials in now restricted areas include improper storage of facility equipment and to a lesser extent the existence of 'geocrete' or concrete stabilized filter cake that underlies several locations throughout Covenant restricted areas and which for the most part lays buried beneath asphalt." (*Id.*)

Remedial action was completed for each facility in 2011. (*Id.*) "[F]or the areas where geocrete might be present but unexposed no actions were taken and stayed undisturbed per agreement with the DTSC." (*Id.*)

DATA REQUESTS:

129. Identify on a map or describe in sufficient detail the locations where any Project components, areas used during construction, and/or transportation routes overlap with or are adjacent to areas where geocrete or concrete stabilized filter cake may be present.

130. If areas containing geocrete or concrete stabilized filter cake are identified in response to the Data Request above, explain how this Project will safeguard human health, safety, and the environment from any potential hazards.

131. Describe any mitigation measures to reduce potentially significant impacts from these hazards.

132. Describe how this Project will avoid, minimize, or mitigate solid scale and brine precipitates from contaminating soils particularly during hydroblasting activities, to prevent the contaminations issues discovered on or around September 21, 2000 at the existing CalEnergy facilities.

REFERENCES:

CalEnergy 2023 – CalEnergy. Second Five-Year Review of CalEnergy Facilities. May 16, 2023. Available Online At: https://www.envirostor.dtsc.ca.gov/getfile?filename=/public%2Fdeliverable_documents%2F2158985733%2FCalEnergy%20-%20Second%20Five%20Year%20Review%20Report%20051623.pdf.

WATER RESOURCES

BACKGROUND: GROUNDWATER RESOURCES

The AFC at 5.15-1 to 5.15-9 describes the occurrence and quality of the surface water and groundwater resources of the Salton Trough and the Project area more specifically. Surface water resources include the saline Salton Sea, the New and Alamo rivers and other streams that drain into Salton Sea. (AFC at 5.15-2) Additionally, discharge from irrigated agricultural fields as well as imported Colorado River water are important resources in the general vicinity of the Project area. (*Id.*)

The description of groundwater resources and quality describes several subsurface water bearing units as a single resource. (*Id.* at 5.15-5—6) Groundwater is known to occur in a perched aquifer, a shallow (near-surface) layer, as well as in the deeper main aquifer. (*Id.*) Although the AFC describes the groundwater quality as poor quality with high total dissolved solids ("TDS") and little development for municipal, domestic, and industrial uses, it is unclear whether this applies to the deeper main aquifer in the area. (*Id.* at 5.15-6) The deeper main regional aquifer is reported to range from fresh to brackish. (*Id.*)

DATA REQUESTS:

133. Provide general cross-sections of the subsurface across the Salton Trough and Project area to illustrate groundwater resources.

134. Provide a map showing groundwater TDS or chloride concentration contours in the perched zone, shallow groundwater aquifer, and the deeper main aquifer.

BACKGROUND: PIPELINES FOR PRODUCTION AND INJECTION WELLS

Pipelines will connect the production wells to the geothermal facility. (AFC at 2-17) According to the AFC at 2-17, "[t]he pipelines will have a 50-foot right of way (ROW) plus an additional 10% to accommodate several expansion loops required along the length of the pipelines. One or more pipelines would be constructed within each ROW. The production well lines will have emergency shut-down valves (ESVs). Piping from the wellhead to the ESVs will be made of Inconel 625 or an equivalent corrosion-resistant alloy or functionally equivalent. The pipeline material from the ESVs to the HP separator located at the power plant will be made of 2507 super duplex stainless steel or an equivalent corrosion-resistant alloy or functionally equivalent. Each production well will be instrumented with temperature transmitters that will be monitored remotely in the control room. The pipeline design is modeled using stress analysis software programs to determine the best

location and spacing requirements of thermal expansion loops. For personnel protection and to prevent energy loss, the pipelines are insulated."

With regards to the pipelines serving the injection wells, "[a] ROW for three injection lines will exit the southern border of the plant site and follow existing roads to the new injection wells. The pipelines would require a 50-foot ROW for construction plus an additional 10% to accommodate several expansion loops required along the length of the pipelines. One or more pipelines would be constructed within each ROW. The aboveground injection distribution pipelines will be constructed of 2205 duplex stainless-steel or an equivalent corrosion-resistant alloy for spent geothermal fluid. Appropriate materials of construction, for the condensate injection and aerated fluids include, for example, high-density polyethylene (HDPE), stainless steel, and carbon steel). The pipes are installed on supports and are elevated above grade." (AFC at 2-20)

Therefore, the Project's pipelines will be located along existing roadways and fields. A release from these pipelines, due to seismic activity, or an accident with farm or other vehicles, could contaminate local soils, groundwaters, irrigation supplies, nearby marshes, or the Salton Sea itself.

Additionally, Imperial County Municipal Code section 91702.02, subsection (F) states that "[i]n operations where it is necessary to transport geothermal brines, fluids, etc. across public waters, operators shall employ double-walled pipes and methods for determining when damage has been done to the inner layer of pipe so that corrective measures can be taken, or apply other safety techniques as approved by the planning director and after review by the Imperial irrigation district."

DATA REQUESTS:

135. Provide information regarding historic pipeline releases over the past ten (10) years at the ten (10) facilities owned and operated by BHE Renewables, operating as CalEnergy. For each release, please identify the date of the release, the amount of fluid released, the cause of the release, the environmental consequences of the release, the steps taken to cleanup the release, and any changes in design that were implemented to prevent similar future releases.

136. Identify all features of the production pipelines that would mitigate a release.

137. Identify all features of the injection pipelines that would mitigate a release.

138. State whether geothermal brines, fluids, etc. will be transported across public waters during Project construction and/or operations. If so, describe in sufficient detail or identify on a map where such locations exist.

139. Discuss whether the pipes will be double-walled in compliance with Imperial County Municipal Code section 91702.02, subsection (F).

140. If geothermal brines, fluids, etc. will be transported across public waters during Project construction and/or operations, explain the "methods for determining when damage has been done to the inner layer of pipe so that corrective measures can be taken…."

141. Discuss whether a trough or sump beneath the pipelines to collect any released fluids will be utilized. If not, please explain why not.

BACKGROUND: REINJECTION OF FLUIDS

According to the AFC at 5.14-4, "[t]he primary discharge will consist of spent geothermal fluid from the secondary clarifiers that will be reinjected via the injection wells to replenish the geothermal resource." "Three types of injection wells are used to return the geothermal fluids back to the reservoir: wells for spent geothermal fluid, aerated fluid, and condensate. Spent geothermal fluid comes from the process described [at AFC 5.1-1—5.1-2]. Aerated fluid is oxygenated and near ambient temperature, which comes from the RPF surface impoundment and similar sources. Condensate comes from the cooling tower as an aerated mix of condensed steam and cooling tower make-up water." (AFC at 5.1-2) The AFC explains that "[a]erated fluid is oxygenated and near ambient temperature, which comes from RPF surface impoundment and similar sources. Condensate comes from the cooling tower as an aerated mix of condensed steam and cooling tower make up water." (AFC at 2-2) The AFC explains that "remixing the fluids" is avoided due to "risks [of] scaling and excess solids precipitation." (*Id.*) Additionally, remixing of the three fluids may cause "reactions between fluid streams," which "are caused by differentials in oxygen content, pH and temperature." (*Id.*)

DATA REQUESTS:

142. Discuss whether the Project will reinject geothermal fluid and/or wastewater from any other operations or localities via the Project's injection wells.

143. State whether less fluid extracted from production wells will be reinjected into injection wells. If so, quantify in acre feet the volume of fluid extracted and the volume of fluid to be reinjected.

144. Provide a discussion of whether any imbalance between the fluid extracted from the geothermal resources and the fluid reinjected underground may increase—gradually or otherwise—the TDS of the geothermal reservoir over time.

BACKGROUND: FRESHWATER NEEDS FOR WELL DRILLING AND REPLACEMENT WELLS

The AFC at 5.15-9 states that "the source of external freshwater for the facility will be IID canal water" "The water will be used for cooling tower makeup and other process uses as well as the reverse osmosis (RO) potable water system" (AFC at 5.10-8). Based on these uses alone, the AFC estimates that the Project would require 1,125 acre-feet per year of water when operating at full plant load. (AFC at 5.15-13). The AFC, however, omits a discussion and estimation of the freshwater needed to drill the Project's production, injection, replacement, and monitoring wells, in addition to well maintenance activities throughout the expected forty (40) year life of the Project.

DATA REQUESTS:

145. Quantify in acre feet the volume of freshwater needed to drill the Project's production wells.

146. Quantify in acre feet the volume of freshwater needed to drill the Project's injection wells.

147. Quantify in acre feet the volume of freshwater needed to drill the Project's drill replacement wells for the life of the Project.

148. Quantify in acre feet the volume of freshwater needed to drill the Project's drill monitoring wells for the brine pond.

149. Quantify in acre feet the volume of freshwater needed for well maintenance activities (e.g., cleaning scale) for the life of the Project.

150. Quantify in acre feet the additional water needed to directionally drill the Project's wells as compared to vertically drilling the wells.

BACKGROUND: AGRICULTURAL HABITAT

Several of the special-status bird species that occur in the Biological Study Area ("BSA") are associated with agricultural fields that provide specific habitat conditions. These habitat conditions are often a function of crop type. For example, because burrowing owls require open habitat with low vegetation, they only forage in agricultural fields that provide those characteristics.

The Project would permanently convert 7.33 acres of Prime farmland, 50.94 acres of farmland of Statewide Importance, and 2.25 acres of farmland of Local Importance from agricultural production to activities associated with geothermal production during Project use (approximately 40 years). (AFC at 5.11-20) According to the AFC, the crops growing in the BSA during the botanical surveys included alfalfa, beets, Bermuda grass, corn, cultivated oats, romaine lettuce, and wheat. (AFC at 5.2-17) To better understand the Project's impacts on special-status birds and their habitats, additional information is necessary on the specific crops that are grown in the specific areas that would be impacted by the Project.

DATA REQUESTS:

151. Identify the crops that are grown (or were growing at the time of the surveys) in fields that would be impacted by the Project.

152. Identify the crops grown in the fields that would be used as borrow pits.

BACKGROUND: SPECIAL-STATUS BIRDS

Table 5.2A-4 in Appendix 5.2A of the AFC provides a list of wildlife species that were observed during the reconnaissance-level survey of the BSA. Several of the species on that list are considered "special status" based on the criteria established on page 5.2-5 of the AFC. However, the AFC provides insufficient information on, or analysis of, the following special-status species that were detected in the BSA, as disclosed in AFC, Appendix 5.2A, Table 5.2A-4:

- American avocet (Bird of Conservation Concern)
- Costa's hummingbird (Bird of Conservation Concern)
- Northern harrier (CA Species of Special Concern)
- Sandhill crane (greater subspecies is state Threatened, lesser subspecies is a CA Species of Special Concern)
- Snowy plover [interior population] (CA Species of Special Concern)

DATA REQUESTS:

153. Identify on a map, or describe in sufficient detail, the specific location(s) where each of the species listed above (American avocet, Costa's hummingbird, Northern harrier, Sandhill crane, Snowy plover) was detected.

154. Identify which subspecies of sandhill crane (i.e., greater or lesser) was detected in the BSA.

155. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the American avocet and its habitat.

156. Describe any mitigation that would be necessary to minimize significant impacts to the American avocet.

157. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the Costa's hummingbird and its habitat.

158. Describe any mitigation that would be necessary to minimize significant impacts to the Costa's hummingbird and its habitat.

159. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the northern harrier and its habitat.

160. Describe any mitigation that would be necessary to minimize significant impacts to the northern harrier and its habitat.

161. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the sandhill crane.

162. Describe any mitigation that would be necessary to minimize significant impacts to the sandhill crane and its habitat.

163. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the snowy plover and its habitat.

164. Describe any mitigation that would be necessary to minimize significant impacts to the snowy plover and its habitat.

BACKGROUND: MOUNTAIN PLOVER

The mountain plover is a California Species of Special Concern. The AFC states that mountain plover has a low potential to occur, and that no suitable breeding habitat occurs in the BSA. (AFC Appendix 5.2A, Table 5.2A-2) Mountain

plover is known to forage and overwinter in agricultural lands and numerous California Natural Diversity Database occurrences have been observed in BSA vicinity. (*Id.*) But, the Applicant's Data Adequacy Supplement Set 2 for the Elmore North Geothermal Project states that suitable winter foraging habitat for the mountain plover "is present in agricultural lands that are burned, grazed, or fallow and in some of the disturbed land cover areas (Appendix DA 5.2-1d)." (TN 250678) Although Appendix DA 5.2-1d identifies the land cover types in the BSA, it does not identify the subset of agricultural lands and disturbed land cover areas that provide suitable habitat for the mountain plover.

DATA REQUESTS:

165. Provide a map that identifies habitat, or potential habitat, for mountain plovers in the BSA.

166. Quantify the approximate acreage of mountain plover habitat that would be impacted by the Project.

167. Provide all documentation supporting the Applicant's analysis of direct, indirect, and cumulative impacts to the mountain plover and its habitat.
168. Describe any mitigation measures that would be necessary to mitigate significant impacts to the mountain plover.

BACKGROUND: WHITE-FACED IBIS

The white-faced ibis is a special-status species that irregularly breeds at and around the Salton Sea. (CDFW 2023) This species was incidentally detected during the Applicant's reconnaissance-level survey of the BSA, as confirmed by AFC Table 5.2-2. According to the AFC, habitat for the white-faced ibis consists of freshwater willow marshes with dense thickets of bulrush (*Scirpus* sp. or *Schoenoplectus* sp.) for nesting, interspersed with areas of willow for foraging. (AFC at 5.2-11) The AFC then states that no suitable nesting habitat for the white-faced ibis is present within the BSA. (*Id.* at Table 5.2-2)

The AFC's description of white-faced ibis habitat (nesting and foraging) suggests the species is limited to freshwater willow marshes. This conflicts with scientific literature. According to the Cornell Laboratory of Ornithology (2023): "[f]or nesting, White-faced Ibises select shallow marshes with scattered areas of taller emergent vegetation such as cattail, bur-reed, or bulrush. In California, they sometimes nest in stands of saltcedar (tamarisk) that have been flooded." (Cornell 2023) In their review of wintering white-faced ibises in California, Shuford et al. (1996) identified the Imperial Valley as a key wintering area for the species, and reported that the vast majority of ibises in the Coachella Valley-Salton Sea-Imperial Valley area appeared to forage in irrigated agricultural lands, particularly alfalfa

and wheat. (Shuford, *et al*. 1996) Based on this information, the BSA contains foraging habitat for the white-faced ibis, and it may contain nesting habitat (i.e., in the Invasive Southwest Riparian Woodland and Shrubland, or North American Arid West Emergent Marsh land cover types).

DATA REQUESTS:

169. Provide a scientific citation that supports the AFC's description of nesting and foraging habitat for the white-faced ibis.

170. Provide all documentation (e.g., studies, reports, literature) for the AFC's determination that there is no suitable nesting habitat for the white-faced ibis in the BSA.

REFERENCES:

CDFW 2023 – California Department of Fish and Wildlife. 2023. Salton Sea Bird Species [web page]. Accessed August 4, 2023. Available Online At: <https://wildlife.ca.gov/Regions/6/Salton-Sea-Birds/Salton-Sea-Bird-Species>. (Accessed 4 August 2023).

Cornell 2023 – Cornell Laboratory of Ornithology. 2023. All About Birds [web site]. Accessed August 4, 2023. Available Online At: <https://www.allaboutbirds.org/guide/White-faced_Ibis/id>. (Accessed 4 August 2023).

Shuford, *et al.* 1996 – Shuford WD, Hickey CM, Safran RJ, Page GW. 1996. A review of the status of the White-faced Ibis in winter in California. Western Birds 27:169-196.

BACKGROUND: LAND COVER TYPE MAPPING

Jacobs identified and mapped nine land cover types within the BSA. However, the scale of the map provided in the AFC (Figure 5.2-4) precludes the ability to identify where the following land cover types are located in relation to the Project's impact areas: 1) Invasive Southwest Riparian Woodland and Shrubland, 2) North American Arid West Emergent Marsh, 3) Canals and Drains, and 4) Open Water.

DATA REQUESTS:

171. Provide large-scale maps that clearly depict areas that would be impacted by the Project in relation to the nine land cover types within the BSA.

BACKGROUND: IMPACTS ON THE RED HILL BAY RESTORATION PROJECT

Several of the production wells and associated pipelines proposed for the Project are located in the Red Hill Bay Project area. (AFC at Figure 1-4) The Red Hill Bay Project was awarded a Proposition 84 grant to create over 500 acres of shallow marine habitat and decrease the overall amount of dust emissions from Red Hill Bay (DWR 2023). The permitting, planning, and design phases of the project are complete, and initial construction activities began in 2016. (DWR 2023)

In June 2020, the Imperial County Air Pollution Control District ("ICAPCD") issued Notices of Violation of its rules to IID and to the U.S. Fish and Wildlife Service for the Red Hill Bay wetlands habitat project site. (IID 2023) ICAPCD pursued abatement hearing proceedings against IID alone. (*Id.*) On April 16, 2021, the ICAPCD's Hearing Board issued an Order for Abatement to IID requiring the implementation of a shallow flooding project at the Red Hill Bay project site instead of the Best Available Control Method ("BACM") air quality project proposed by IID to meet BACM requirements as set forth in ICAPCD's rules. Following settlement discussions on May 2, 2022, the ICAPCD Hearing Board unanimously approved a Stipulated Order for Abatement for the Red Hill Bay site with the following stipulations:

> (a) IID to submit to the ICAPCD for review and comment, an initial Red Hill Bay Implementation Plan for BACM for fugitive dust no later than 60 calendar days after the issuance of the Order;
>
> (b) IID to install, operate, and maintain temporary surface roughening to support vegetation establishment at the Red Hill Bay site no later than six months after issuance of the Order;
>
> (c) IID shall complete all necessary improvements and infrastructure, vegetation and seeding to support BACM implementation as soon as possible but no later than three years after the issuance of the Order;
>
> (d) IID shall achieve the performance criteria for vegetation, gravel or chemical stabilization BACM; and
>
> (e) IID shall submit written semi-annual reports summarizing monitoring data and implementation progress by January 31 and July 31, with the first report due on January 31, 2023 and a final report due January 31, 2027. (*Id.*)

IID met the stipulated milestones through 2022 and will continue to install, operate and maintain the BACM on the Red Hill Bay site according to the Stipulated Order. (*Id.*)

DATA REQUESTS:

172. Provide information regarding the status of the Red Hill Bay Project.

173. Discuss whether the construction, drilling, installation, and/or operation of the Project's production wells and pipelines in the Red Hill Bay Project area would impact or otherwise interfere with the Red Hill Bay Project and/or the Order for Abatement described above.

REFERENCES:

DWR 2023 – California Department of Water Resources. 2023. Red Hill Bay [web page]. Accessed September 8, 2023. Available Online At: <https://water.ca.gov/Programs/Integrated-Regional-Water-Management/Salton-Sea-Unit/Red-Hill-Bay>.

IID 2023 – Imperial Irrigation District. 2022 Annual Report of Imperial Irrigation District Pursuant to SWRCB Revised Order WRO 2002-0013. March 30, 2023. Available Online At: <https://www.iid.com/water/library/qsa-water-transfer/state-water-resources-control-board>

BACKGROUND: IMPACTS TO CANALS, DRAINS, AND DESERT PUPFISH HABITAT

The AFC provides conflicting information on Project impacts to canals and drains. AFC Table 5.2-6 indicates the Project would impact a total of 28.26 acres of canals and drains, of which 2.08 acres would be permanent. However, page 5.2-16 of the AFC states: "[i]mpacts to canals and drains are included for completeness; no IID infrastructure will be impacted by this Project."

AFC Figure 5.2-4 provides a map of the land cover types in the BSA and the Project's proposed facilities. The color used on the map to depict the Project's pipeline appears to be the same color as the one used to depict canals and drains. This makes it difficult to identify the location of the Project's facilities (and associated impacts) in relation to the canals and drains.

Direct and indirect impacts to IID's drains must be disclosed and analyzed. In its comment letter on the Notice of Preparation for the Hudson Ranch II Geothermal Project DEIR, IID explained that "33.3% of water delivered to agricultural users is discharged into the IID's drainage system. Reduction in field drainage due to land use conversion has an incremental effect on both drain water quality and volume of impacted drain and subsequent drainage path to the Salton Sea. This affects drainage habitat (flora and fauna) and the elevation of the Salton

Sea (shoreline habitat and exposed acreage that may have air quality issues). Additional certain direct-to-Sea drains have been identified as pupfish drains which require additional protection under state and federal ESAs." (IID 2011)

Desert pupfish are known to occur in IID drains and they are presumed present in the Project area. (TN 250678) Several of the Project's facilities (including the geothermal plant) would be located in an agricultural field south of Red Hill Bay. Irrigation runoff from fields directly south of Red Hill Bay is pumped over a berm into Red Hill Bay (IID 2017). The pumped water creates a wetted area, which has contained desert pupfish. (*Id.*) The volume, depth, and quality of water in IID's drains are critical components of desert pupfish habitat. For example, when low water levels occur, desert pupfish become more susceptible to predation by birds and competition with exotic fish species (CH2MHILL 2002, IID 2017). Therefore, even if the Project does not directly impact canals and drains, converting agricultural fields to industrial facilities could indirectly impact desert pupfish habitat by reducing the volume of water entering the drains and "wetted area" in Red Hill Bay.

DATA REQUESTS:

174. Provide all documentation supporting the Applicant's analysis of the Project's direct and indirect impacts on canals and drains during construction and operations.

175. Describe any mitigation that would be necessary to minimize significant impacts on canals and drains during construction and operations.

176. Provide a map that clearly distinguishes the canals and drains from the Project's proposed facilities.

177. Provide a map that identifies the path of agricultural return flows (irrigation runoff) from the agricultural fields that would be impacted by the Project.

178. State whether the Applicant analyzed how reduced agricultural return flows associated with the Project would indirectly impact: (a) habitat for the desert pupfish, and (b) vegetation communities that are dependent on the agricultural return flows. If so, please provide all supporting documentation.

179. Describe whether the Applicant quantified flow reductions associated with the Project in relation to baseline conditions and provide all supporting documentation.

REFERENCES:

CH2MHILL 2002 – CH2MHILL. Draft EIR/EIS for the IID Water Conservation and Transfer Project/Draft Habitat Conservation Plan. Vol 2, Appendix A to Appendix C. 2002. Available Online At: <https://www.iid.com/water/library/qsa-water-transfer/environmental-assessments-permits/draft-eir-eis>.

IID 2011 – Imperial Irrigation District. Comment letter on the Notice of Preparation Hudson Ranch II Geothermal Project DEIR. May 26, 2011. Available Online At: <http://imperial.granicus.com/MetaViewer.php?view_id=2&clip_id=375&meta_id=47354>.

IID 2017 – Imperial Irrigation District. Draft Initial Study for the Red Hill Bay Wetlands Restoration Project. November 2017. Available Online At: <https://ecos.fws.gov/ServCat/DownloadFile/161293>.

BACKGROUND: IMPACTS TO AQUATIC RESOURCES

The AFC at 5.2-20 states that "[t]he aquatic resource delineation found no aquatic resources within potential disturbance areas." The AFC at 5.2-25 further states that "[c]onstruction of the plant and other Project facilities (injection well pads, pipelines, and borrow site) will have no impacts to federal or state jurisdictional wetlands or waters." However, the AFC's description of the land cover types in the BSA suggests that there may be aquatic resources within areas that would be impacted by the Project.

The *North American Arid West Emergent Marsh*, *Canals and Drains*, and *Open Water* land cover types in the BSA contain aquatic resources. According to AFC Table 5.2-6, these land cover types would be impacted by the Project. In addition, the AFC at 5.2-18 states that the *Disturbed with Vegetation* land cover type "includes previously disturbed wetlands now with dead vegetation." This statement indicates that aquatic resources (wetlands) occur in the *Disturbed with Vegetation* land cover type, which would be impacted by the Project. The AFC at 5.2-18 describes the *Invasive Southwest Riparian Woodland and Shrubland* community in the BSA as "a seminatural vegetation type that forms in temporarily flooded areas along rivers or streams or in depressions. This vegetation type is dominated by two invasive species, salt cedar and giant reed. Other associated species include common reed (*Phragmites australis*) and arrowweed (*Pluchea sericea*)." All four of these plant species usually occur in wetlands (USACE 2020), and the fact that the *Invasive Southwest Riparian Woodland and Shrubland* community occurs in areas that are flooded (albeit temporarily) indicates it possesses aquatic resources. AFC Table 5.2-6 indicates the Project would impact

the *Disturbed with Vegetation*, *Invasive Southwest Riparian Woodland and Shrubland, North American Arid West Emergent Marsh*, *Canals and Drains*, and *Open Water* land cover types.

The aquatic resource delineation provided in Appendix 5.2C of the AFC omits the information needed to assess the presence of, and impacts to, wetlands and other aquatic resources. The delineation was limited to six sample points that coincided with aquatic resources depicted on the United States Fish and Wildlife Service's ("USFWS") National Wetlands Inventory ("NWI") and the United States Geological Survey's ("USGS") National Hydrography Dataset maps. No aquatic resources were detected at the six sampling locations. However, according to the AFC at 5.2-14, "[w]etlands and watercourses associated with IID drains and canals were excluded from this delineation…," and it appears no sampling was conducted in areas where Jacobs detected aquatic resources (e.g., the *Invasive Southwest Riparian Woodland and Shrubland* and *Open Water* land cover types, among others) in order to evaluate whether the area qualifies as jurisdictional water under Section 404 of the Clean Water Act, the Porter-Cologne Water Quality Control Act, or Section 1602 of California Fish and Game Code.

DATA REQUESTS:

180. Provide a map that depicts the Project's impact area(s) in relation to the "previously disturbed wetlands" located within the *Disturbed with Vegetation* land cover type.

181. Describe the characteristics of "previously disturbed wetlands now with dead vegetation," as set forth in the AFC.

182. Provide the sampling data used to make the determination that there are no state or federally jurisdictional features (e.g., wetlands) in the *Disturbed with Vegetation*, *Invasive Southwest Riparian Woodland and Shrubland, North American Arid West Emergent Marsh*, *Canals and Drains*, and *Open Water* land cover types. If these land cover types would not be impacted by the Project, please provide a revised version of AFC Table 5.2-6.

183. Provide an approved jurisdictional determination or a preliminary jurisdictional determination.

REFERENCES:

USACE 2020 – U.S. Army Corps of Engineers. National Wetland Plant List, version 3.5. 2020. Available Online At: <http://wetland-plants.usace.army.mil/>.

BACKGROUND: RESTORATION OF TEMPORARY IMPACT AREAS

The AFC at 5.2-22 states that "temporary effects to vegetation and wildlife habitat would occur during construction where vegetation is damaged by dust, crushed by vehicles, or removed for Project use." The AFC states that soils at some of the temporary work areas (e.g., laydown yards and construction crew camps) will be compacted and covered with gravel (AFC at 5.2-18), and that all temporary work areas will be restored to preconstruction conditions. (AFC at 5.11-20) The AFC lacks the requisite information to demonstrate that construction activities at the Project's temporary work areas would have only temporary impacts on vegetation and wildlife habitat, and "will be restored to preconstruction conditions." (*Id.*) Information regarding the criteria, performance standards, timing, and techniques that would be implemented to restore temporary work areas is needed to determine the adequacy and feasibility of the proposed measures.

DATA REQUESTS:

184. Discuss the criteria, performance standards, timing, and techniques that will be implemented to restore temporary work areas to preconstruction conditions.

185. Please explain how soil conditions would be restored at the laydown yards, construction crew camps, and others areas where soils will be compacted and (potentially) covered with gravel.

186. Please clarify whether vegetation would be planted at the temporary work areas as part of the restoration efforts.

187. Quantify the maximum amount of time that would occur between initial ground disturbance and restoration of preconstruction conditions at the temporary work areas.

188. Identify and describe biological performance standards for restoration of temporary work areas.

BACKGROUND: AGRICULTURAL LAND AS REGIONALLY IMPORTANT HABITAT

The AFC states at 5.2-22 that "[l]osses resulting from this Project are not considered significant, by themselves or cumulatively with other projects, because agricultural land, developed land, and disturbed areas (for example, roads) are not considered regionally important as habitat for wildlife." This statement is inconsistent with scientific literature. For example, agricultural land in the Imperial Valley is known to provide critically important habitat for numerous bird

species, including the burrowing owl, mountain plover, white-faced ibis, and long-billed curlew. (CH2MHILL 2002)

DATA REQUESTS:

189. Provide all documentation (e.g., citations, webpage links, studies, reports) supporting the AFC's statement that agricultural land is not considered regionally important as habitat for wildlife in the Imperial Valley.

REFERENCES:

CH2MHILL 2002 – CH2MHILL. Draft EIR/EIS for the IID Water Conservation and Transfer Project/Draft Habitat Conservation Plan. Vol 2, Appendix A to Appendix C. 2002. Available Online At: <https://www.iid.com/water/library/qsa-water-transfer/environmental-assessments-permits/draft-eir-eis>.

BACKGROUND: BURROWING OWL MITIGATION

In Data Adequacy Supplement Set 2, (TN 250678) the Applicant states: "[t]he Applicant proposes to mitigation [*sic*] of 100% of permanent impacts to burrowing owl foraging habitat, which is 125.93 acres of agricultural land." The Applicant further states that compensatory mitigation for Project impacts to burrowing owl and burrowing owl habitat may be achieved by purchasing credits from Mojave Desert Tortoise Umbrella Bank Site 8, and that the service area of the bank overlaps the Project site. (TN 250678) According to the Regulatory In-Lieu Fee and Bank Information Tracking System ("RIBITS") website, Umbrella Bank Site 8 currently has 106.3 available credits. (RIBITS) Therefore it appears the bank would not have enough credits to compensate for impacts to 125.93 acres of burrowing owl habitat, unless a compensation ratio less than 1:1 is applied.

The RIBITS website provides a map that shows the Project site within the service area of Umbrella Bank Site 8. (RIBITS) However, the map provided on the bank's website depicts the service area as within the border of the Colorado Desert Recovery Unit (for desert tortoise), which is on the east side of the Salton Sea and Imperial Valley. This is consistent with the description in the Conservation Bank Enabling Instrument for the Mojave Desert Tortoise Conservation Bank, which states: "[t]he service area for this species [burrowing owl] is the same as that of desert tortoise (including the desert areas of San Bernardino, Riverside, and Imperial Counties, and excluding Kern and Los Angeles Counties) (see Exhibit B-1.a. Map)." (Exhibit B-2) Exhibit B-1.a. in the Conservation Bank Enabling Instrument further suggests that the bank's service area does not overlap the Project site. Therefore, it appears the map provided on the RIBITS website does not accurately depict the bank's service area.

DATA REQUESTS:

190. State whether the Applicant will provide compensatory mitigation for permanent impacts to non-agriculture land cover types that may provide foraging habitat for burrowing owls (e.g., the *North American Warm Desert Playa* land cover type).

191. Provide documentation to confirm that the Project site is within the burrowing owl service area of Umbrella Bank Site 8.

192. State the compensation ratio that would be applied to the Project's impacts on burrowing owls and their habitat.

193. Discuss how impacts to burrowing owls and their habitat would be mitigated if either: (a) the Project site is not within the bank's service area, or (b) the bank does not have sufficient credits to satisfy the Project's compensatory mitigation requirements.

REFERENCES:

RIBITS – Regulatory In-Lieu Fee and Bank Information Tracking System. Mojave Desert Tortoise Umbrella Bank Site 8. Available Online At: https://ribits.ops.usace.army.mil/ords/f?p=107:43:::::P43_BANK_ID:5679.

Exhibit B-2 – Bank Enabling Instrument for the Mojave Desert Tortoise Conservation Bank. Exhibit B-2. Available Online At: https://ribits.ops.usace.army.mil/ords/f?p=107:0:9319792691257:APPLICATION_PROCESS=AP_DB_DOC:::AI_STRING,AI_ID:inline,87789.

BACKGROUND: CONSTRUCTION MITIGATION MANAGEMENT TO AVOID HARASSMENT OR HARM

Section 5.2.3.6 of the AFC states that the Project owner will manage the construction site and related facilities in a manner to avoid or minimize impacts to local biological resources. It then provides a list of 10 "typical measures," including the measure to "[m]inimize use of rodenticides and herbicides in the BSA." It is unclear if these 10 measures would in fact be implemented to avoid and minimize impacts to biological resources.

DATA REQUESTS:

194. Identify the specific measures the Applicant would implement to avoid and minimize impacts to biological resources.

195. Identify the specific types of rodenticides and herbicides that would or may be used in the BSA.

196. Describe how application of rodenticides and herbicides would be minimized in the BSA.

197. Provide all documentation supporting the Applicant's analysis regarding how application of rodenticides and herbicides would impact birds and other biological resources in the BSA.

BACKGROUND: CONSTRUCTION MONITORING TO AVOID HARASSMENT OR HARM

Section 5.2.3.8 of the AFC states:

> The Project owner will perform monitoring throughout construction to ensure construction-related impacts remain at or below levels of significance set forth in the BRMIMP. The monitoring results will be compared to the pre-construction baseline surveys' indices and to other local population values … Protocol-level surveys will be completed for appropriate habitats within 1,000 feet of the plant site and within 1,000 feet of all linear facilities or within specified areas in the Salton Sea area during each year that construction is occurring and for the year following construction.

The proposed approach to avoid harassment or harm of wildlife is vague and confusing. It appears that the objective of the monitoring is to collect the data needed to evaluate impact significance thresholds. If this is correct, the adequacy of the proposed monitoring cannot be evaluated until the specific thresholds that would be evaluated have been identified. Furthermore, if monitoring data are required to assess the significance of construction-related impacts, there is no basis for the AFC's determination that those impacts would be less-than-significant.

DATA REQUESTS:

198. Provide the significance thresholds that the Applicant proposes to use for determining impacts caused by harassment or harm of wildlife.

199. Identify the specific indices and "other local population values" that would be assessed to evaluate the significance of construction-related impacts.

200. Identify the specific protocols that would be used for the surveys and explain when those surveys would be conducted in relation to commencement of construction activities.

201. State the timeline for comparing the construction monitoring data to the pre-construction survey data and discuss any statistical analysis that would be used to make this comparison.

202. Describe the actions that would be taken if the construction monitoring data indicates exceedance of the significance thresholds.

203. Explain how monitoring data collected the year following construction would be used to avoid or minimize construction-related impacts.

BACKGROUND: IMPACTS FROM LIGHTING

The AFC at 5.2-23 discusses the negative effects night lighting can have on wildlife. It then states: "[w]ith implementation of lighting mitigation measures, the impacts to special-status wildlife will be less than significant." Mitigation Measure VIS-2 is intended to mitigate the impacts of lighting and states that "[t]he applicant shall coordinate with the [CEC] and/or Imperial County on appropriate night lighting design and materials prior to final design. Lighting shall comply with Imperial County Municipal Code Section 91702.02(L), as feasible." Imperial County Municipal Code Section 91702.02(L) does not exist and compliance with the Imperial County Municipal Code *as feasible* does not ensure impacts would be less than significant, especially in absence of the associated feasibility analysis.

DATA REQUESTS:

204. Identify the mitigation measures that would reduce lighting impacts on wildlife to less than significant levels.

205. Provide a copy of Imperial County Municipal Code Section 91702.02(L). If this section of the code does not exist, identify the proper section of the code.

206. Provide analysis of how feasible it will be for the Applicant to comply with sections of the Imperial County Municipal Code pertaining to lighting.

BACKGROUND: CUMULATIVE IMPACTS

The AFC at 5.2-26 states that "[w]ith mitigation, the Project itself will not have significant adverse effects on biological resources. The cumulative impacts to

specific environmental resources resulting from the Project considered together with other projects in the area also would be less than significant. Other projects would be required individually to comply with applicable biological resource-related LORS, undergo a CEQA environmental review process, and implement mitigation for their identified impacts."

DATA REQUESTS:

207. Define the geographic scope of the AFC's analysis of cumulative impacts to biological resources.

208. Provide a map that delineates the boundaries of the projects considered in the AFC's analysis of cumulative impacts to biological resources.

209. Explain how the purchase of credits from the Mojave Desert Tortoise Umbrella Bank Site 8 in San Bernardino County would reduce cumulative impacts on the burrowing owl population that occupies Imperial Valley.

BACKGROUND: AVIAN COLLISIONS

The AFC at 5.2-30 identifies the following mitigation measures for impacts from avian collisions with the Project's gen-tie lines:

> The Project owner will install an agency-approved marker on the grounding wire of the proposed gen-tie lines. These markers will be placed and maintained on the highest-bird-use portions of the proposed gen-tie lines. Monitoring of the entire proposed gen-tie line, and sections of unmarked but comparable gen-tie line in the BSA, will be implemented for the first two years of operation, and may continue for up to 10 years (to determine effectiveness of remedies) if impacts are found to be excessive by a working group of interested agency personnel. Remedial actions to address collision deaths will be included in a Bird Collision Deterrent Proposal and Monitoring Plan.

The efficacy of the proposed mitigation cannot be adequately evaluated because the AFC does not identify the locations of the "highest-bird-use portions of the proposed gen-tie lines," the data that were analyzed to identify those locations, or the line markers that have been "agency-approved." In addition, the AFC defers the formulation of acceptable thresholds for collision deaths to an unidentified working group and without demonstrating the group's expertise in avian population dynamics.

DATA REQUESTS:

210. Identify on a map or describe in sufficient detail the "highest-bird-use portions of the proposed gen-tie lines" and provide the data that were analyzed to identify those locations.

211. Specify the agency that would approve the line marker and state the types of line markers that have been approved by that agency.

212. State how often the line marker will need to be maintained and/or replaced.

213. Quantify the number of collision deaths that would trigger the need for remedial actions.

214. Identify the statistical methods to compare collision deaths at the Project's gen-tie line against unmarked lines in the BSA.

215. Discuss the methods to estimate carcass persistence and searcher efficiency (the probability that a searcher will observe a carcass or feather spot present within the searched area).

216. Provide information about the interested agency personnel that may serve on the working group.

BACKGROUND: MITIGATION FOR BURROWING OWL RELOCATION

The AFC describes the proposed measures that are intended to avoid and minimize potential adverse effects of the Project on biological resources. Specifically regarding surveys and habitat compensation for burrowing owls, the AFC at 5.2-31 states that "[t]he Project owner will protect in an amount that will ensure the successful relocation of each impacted pair of owls or impacted unpaired resident bird (as determined by the CPM-approved impact criteria)." However, without disclosing what the Project owner would protect (e.g., habitat, burrows, or both), the efficacy of this measure cannot be determined.

The AFC at 5.2-31 continues:

> For each occupied burrowing owl burrow that must be destroyed, existing unsuitable burrows on other lands will be enhanced (for example, cleared of debris or enlarged) or new burrows installed at a ratio that will ensure the successful relocation of impacted burrowing owl. The actual requirement will be determined after the CPM reviews the burrowing owl preconstruction surveys and monitoring.

The AFC does not provide sufficient information to adequately evaluate this measure. For example, the AFC does not explain the burrow replacement ratio, management practices associated with the replacement burrows, and the location of "other lands" that may serve as receptor sites for owls evicted from the Project site. The probability that a burrowing owl relocation project will be successful is highly dependent on these variables. Studies (e.g., Trulio 1995) have shown that evicted owls are most likely to colonize replacement burrows if the burrows are located within the owl's territory (approximately 75 to 100 meters). Consequently, replacement burrows more than 100 meters from the eviction burrow may greatly reduce the chances that new burrows will be used. (CDFG 2012) In addition, any long-term reliance on artificial burrows as natural burrow replacements must include semi-annual to annual cleaning, maintenance, or replacement as an ongoing management practice. (*Id.*)

DATA REQUESTS:

217. Discuss what the Project owner "will protect in an amount" (e.g., habitat, burrows, or both) for each impacted pair of owls or impacted unpaired resident bird.

218. Identify on a map or describe in sufficient detail the location of "other lands" that could serve as receptor sites for burrowing owls evicted from the Project site.

219. Describe any mechanisms to ensure management practices on those lands are compatible with burrowing owl conservation.

220. State the number of burrows that would be enhanced or installed for each impacted pair of owls or impacted unpaired resident bird.

221. Explain whether the Project owner would conduct semi-annual to annual cleaning, maintenance, or replacement of the burrows.

222. State the criteria to evaluate the success of the burrowing owl relocation efforts.

REFERENCES:

CDFG 2012 – California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game, Sacramento, CA. 34 pp.

Trulio 1995 – Trulio L. 1995. Passive relocation: A method to preserve burrowing owls on disturbed sites. Journal of Field Ornithology 66:99–106.

BACKGROUND: DRILLING MUD

Construction of the Project's production and injection wells will require drilling. Hydraulic drilling fluids can contain chemicals (e.g., surfactants, hydrochloric acid, caustic potash, and diesel fuel) that are harmful to wildlife. (Ramirez 2009) Wildlife may be exposed to these chemicals if drilling mud is stored or dried in open spaces, such as earthen mud pits. Birds are attracted to these pits by mistaking them for bodies of water. Insects entrapped in mud pit fluids also attract songbirds, bats, amphibians, and small mammals. If the mud pits contain oil, condensates, or other hydrocarbons or hydraulic fracturing fluids, the risk of wildlife mortality is very high. (*Id.*) The AFC omits the chemicals that may be present in the drilling mud and also does not discuss how and where the drilling mud will be stored, dried, and disposed. Without this information and analysis, the hazards to wildlife cannot be properly evaluated.

DATA REQUESTS:

223. State the expected chemical composition of drilling mud.

224. Provide all documentation supporting the Applicant's analysis of the impacts that drilling mud and mud pits may have on wildlife.

225. Describe any mitigation measures to reduce significant impacts to wildlife from drilling mud and mud pits.

REFERENCES:

Ramirez 2009 – Ramirez P, Jr. 2009. Reserve Pit Management: Risk to Migratory Birds. U.S. Fish and Wildlife Service Region 6, Cheyenne, Wyoming. 32 pp.

BACKGROUND: NOISE IMPACTS ON WILDLIFE

The AFC at 5.2-24 states that "[b]ased on Huntington Beach Energy Project testimony by bird hearing expert Robert Dooling, Ph.D., USFWS's commonly used 60 A-weighted decibels (dBA) is an overly conservative noise threshold for birds. The A-weighting scale was developed based on human hearing. Audiograms show that birds are as much as 15 to 20 decibels less sensitive to low frequency noises, such as that from construction equipment (CEC 2014). For the purposes of this analysis, 80 dBA was used as the bird noise threshold."

The AFC's analysis is inconsistent with the numerous studies demonstrating that noise levels substantially below 80 dBA may negatively impact wildlife. (Shannon et al. 2016) Additionally, the AFC's reliance on the 80 dBA threshold is not wholly supported by Dr. Robert J. Dooling's testimony because Dr. Dooling did not expressly endorse a 80 dBA threshold.

In fact, two years after providing his testimony for the Huntington Beach Energy Project, Dr. Dooling and other experts identified appropriate thresholds of significance as part of the "Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds" developed for CalTrans. (CalTrans 2016)

DATA REQUESTS:

226. Provide the range of noise frequency levels (Hz) that would be generated by Project construction equipment.

227. Provide the range of noise frequency levels (Hz) that would be generated during Project operations.

228. Provide the sound pressure (dB) and frequency levels (Hz) that would be generated by the Project's wells.

229. Provide the sound pressure (dB) and frequency levels (Hz) that would be generated by the geothermal plant.

230. Provide evidentiary support for the 80 dBA noise threshold for birds other than the Huntington Beach Energy Project testimony by bird hearing expert Robert Dooling, Ph.D.

231. Explain whether the Applicant analyzed the Project's noise impacts during construction and operations on burrowing owls based on the audiogram of the species or the composite average for owls if the specific audiogram of burrowing owls is unknown.

232. If the Applicant performed this analysis, please provide the analysis.

233. State the noise threshold level for impacts to other wildlife taxa (e.g., mammals).

234. State the maximum noise levels of steam blows during construction of the Project without a temporary silencer and with a temporary silencer.

REFERENCES:

CEC 2014 – California Energy Commission. 2014 Jun 30. AE Southland Development, LLC's Opening Testimony Preliminary Identification of Contested Issues, and Witness and Exhibits Lists: FSA Comments. Huntington Beach Energy Project. Docket No. 12-AFC-02.

Dooling, *et al.* 2016 – Dooling RJ, Popper AN. 2016. Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds. The California Department of Transportation, Sacramento, CA.

Dooling, *et al.* 2019 – Dooling RJ, Buehler D, Leek MR, Popper AN. 2019. The impact of urban and traffic noise on birds. Acoustics Today 15(3):19-27.

Ortega 2012 – Ortega CP. 2012. Effects of Noise Pollution on Birds: A Brief Review of Our Knowledge. Ornithological Monographs 74:6-22.

Pater, *et al.* 2009 – Pater LL, Grubb TG, Delaney DK. 2009. Recommendations for improved assessment of noise impacts on wildlife. The Journal of Wildlife Management 73(5):788-795.

Shannon, *et al.* 2016 – Shannon G, McKenna MF, Angeloni LM, Crooks KR, Fristrup KM, Brown E, Warner KA, Nelson MD, White C, Briggs J, McFarland S. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. Biological Reviews 91(4):982-1005.

BACKGROUND: PRECONSTRUCTION SURVEYS TO AVOID HARASSMENT OR HARM

The AFC at 5.2-30 states:

> Prior to mobilization, the Project owner will conduct preconstruction surveys for burrowing owls at a level that establishes the occurrence and abundance of the species. Preconstruction surveys also will include burrowing mammal species, such as American badger, desert kit fox, and Yuma hispid cotton rat, and active nests of migratory birds during the nesting season (generally February 1 through August 31). The Designated Biologist will make recommendations to the Project owner to avoid or minimize impacts to the special-status species based on completed pre-construction surveys.

Additional information is required to assess the efficacy of the proposed mitigation in reducing harassment of or harm to wildlife.

DATA REQUESTS:

235. Identify all burrowing mammal species that will be included in the preconstruction surveys described at AFC page 5.2-30.

236. Describe the pre-construction survey techniques, including, but not limited to, timing, duration, survey methods, and level of effort, that will be implemented for the burrowing owl.

237. Describe the pre-construction survey techniques, including, but not limited to, timing, duration, survey methods, and level of effort, that will be implemented for the American badger.

238. Describe the pre-construction survey techniques, including, but not limited to, timing, duration, survey methods, and level of effort, that will be implemented for the desert kit fox.

239. Describe the pre-construction survey techniques, including, but not limited to, timing, duration, survey methods, and level of effort, that will be implemented for the Yuma hispid cotton rat.

240. Describe the pre-construction survey techniques, including, but not limited to, timing, duration, survey methods, and level of effort, that will be implemented for nesting birds.

241. Describe all actions that will be taken to avoid or minimize impacts to occupied animal burrows located in disturbed areas during Project construction.

242. If the Project proposes to relocate animals out of disturbance areas, please answer the following:
    a. Describe the relocation techniques that will be implemented; and
    b. Identify the criteria for evaluating success of the relocation efforts.

Dated: November 27, 2023

Respectfully submitted,

Original Signed by:

/s/ Kelilah D. Federman

Kelilah D. Federman
Adams Broadwell Joseph & Cardozo
601 Gateway Blvd., Suite 1000

South San Francisco, CA 94080
(650) 589-1660

kfederman@adamsbroadwell.com

Attorneys for California Unions for Reliable Energy