DOCKETED	
Docket Number:	23-AFC-01
Project Title:	Morton Bay Geothermal Project (MBGP)
TN #:	254015
Document Title:	Morton Bay Geothermal Project CURE Data Response Set 2 (Responses to Data Requests 100 to 244)
Description:	N/A
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Submission Date:	1/19/2024 2:34:08 PM
Docketed Date:	1/19/2024

CURE Data Response Set 2 (Responses to Data Requests 100 to 244)

Submitted to
California Energy Commission

Prepared by
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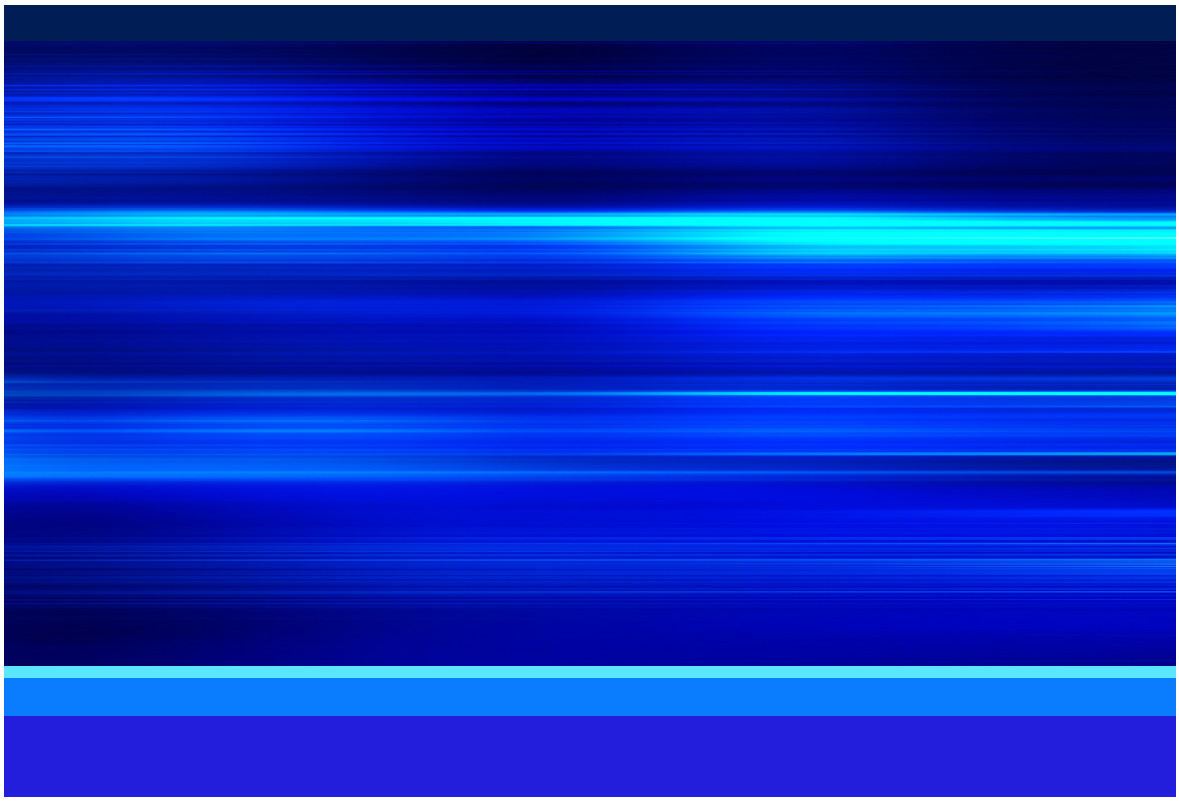
With assistance from
Jacobs

Morton Bay Geothermal Project
(23-AFC-01)
January 18, 2024



Introduction

Attached are Morton Bay Geothermal LLC's[1] (Applicant) responses to the California Unions for Reliable Energy's (CURE) *Data Requests Set 2* regarding the Application for Certification (AFC) for the Morton Bay Geothermal Project (MBGP) (23-AFC-01). This submittal includes a response to Data Requests (DR) 100 through 244.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as presented *CURE Data Requests Set 2* and are keyed to the DR numbers.

New or revised graphics or tables are numbered in reference to the DR number. For example, the first table used in response to DR 28 would be numbered Table DR28-1. The first figure used in response to DR 28 would be Figure DR 28, and so on. Figures or tables from the MBGP AFC that have been revised have a "R" following the original number, indicating a revision.

Additional tables, figures, or documents submitted in response to a DR (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

[1] An indirect, wholly owned subsidiary of BHE Renewables, LLC ("BHER").

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Attachment

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Acronyms and Abbreviations

AFC	Application for Certification
afy	acre-foot per year
APLIC	Avian Power Line Interaction Committee
APN	Assessor's Parcel Numbers
BHER	BHE Renewables, LLC
BMP	Best Management Practice
BRGP	Black Rock Geothermal Project
BRMIMP	Biological Resources Mitigation Implementation and Monitoring Plan
BSA	Biological Study Area
CalGEM	California Department of Conservation, Geologic Energy Management Division
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
COC	Condition of Certification
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DA	Data Adequacy
dB	decibel
dBA	A-weighted decibels
DR	Data Response
DTSC	California Department of Toxic Substances Control
DVC	Desert Valley Company
EIR	Environmental Impact Report
ENGP	Elmore North Geothermal Project
EPA	U.S. Environmental Protection Agency
Hz	hertz

ICAPCD	Imperial County Air Pollution Control District
IC PEIR	Imperial County Renewable Energy and Transmission Element Update Programmatic Environmental Impact Report
IID	Imperial Irrigation District
KGRA	Known Geothermal Resource Area
kHz	kilohertz
LUC	Land Use Covenant
MBGP	Morton Bay Geothermal Project
MBTA	Migratory Bird Treaty Act
MGS	Mohave Ground Squirrel
OHWM	Ordinary High Water Mark
RIBITS	Regulatory In-Lieu Fee and Bank Information Tracking System
SBSSNWR	Sonny Bono Salton Sea National Wildlife Refuge
SWPPP	Stormwater Pollution Prevention Plan
TDS	total dissolved solids
TN	transaction number
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1. Soils and Agricultural Resources (DR 100-114)

Background: Imperial County General Plan Agricultural Element, Goal 1, Objective 1.8 (DR 100)

The AFC at 5.11-1 provides the following overview of the regional setting for agricultural resources around the Morton Bay Geothermal Project ("MBGP" or "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 5.6-12 evaluated the objectives under Goal 1, including Objective 1.8. The AFC acknowledges 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 concludes 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." (AFC at 5.6- 12.)

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.

Response: Beyond the parcel selected for MBGP, parcels APN 020-100-004, 020-010-026, 020-100-032, 020-010-028, 020-010-029, and 020-100-033 (shown in Figure 2-3 of the AFC) were considered as potential sites that are proximal to the geothermal resource with high heat flows and allow for reasonable access through production pipeline distances. However, these parcels were rejected as they would have caused greater impacts on special-status species habitat and wetlands. along with construction challenges. Additionally, parcels APN 020-010-032 and 020-010-035 were considered yet the underlying minerals are not controlled by the Applicant, which risks surface disturbance of MBGP site from the mineral leaseholder. Well and pipeline siting avoided placement on Obsidian Butte, Red Hill and near any mud pots, which are considered sensitive areas.

Overall, a major determining factor in site selection for MBGP is the adequacy of the geothermal resource to support operations. The MBGP site was ultimately chosen because of the presence of adequate geothermal resources, in terms of heat flows, to support the proposed generating capacity of the facility and the ability to site the necessary production and injection wells to sustain sufficient production and

injection capacity for the project life. The adequacy of the geothermal resource for the MBGP site was confirmed using numerical reservoir simulation and accepted as adequate by CEC and California Department of Conservation, Geologic Energy Management Division. The results were provided to CEC in a report entitled "Numerical Reservoir Simulation of the Salton Sea Geothermal Resource for Power Generation," dated May 2023 (TN# 250042). After defining the geothermal resource adequacy and well locations, pipeline distances between the wells and power plant were kept as short as reasonable to retain the geothermal fluid's enthalpy with a basis towards reducing production pipeline lengths relative to injection pipelines. The production fluid is hotter and critical for converting the fluid to electricity. Site selection was also filtered by parcels to avoid or reduce impacts to species habitat, environmental sensitivity, presumed tribal cultural sensitivity, accessibility and existing land use. Finally, parcel ownership and availability were considered for final siting locations.

The Applicant is unaware of available geothermal resource of this magnitude in other KGRAs in Imperial County. In turn, no other KGRAs were considered for this project.

Background: Well Pads and Pipelines (DR 101-107)

Imperial County Municipal Code Division 17 governs geothermal projects, and 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 requirement and regulations of Imperial irrigation [sic] district."

As stated in the AFC at 5.11-10, however, "[w]ell pads and associated distribution pipeline impacts are not considered 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," (AFC at 2-45) and "[a]t each well pad, the high temperature well head valve area (commonly called the cellar) will be fenced." (AFC at 2-63.) The AFC at 2-9 estimates that "[n]ine initial production wells will to be located on six well pads, and 11 injection wells will be located on five 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." The AFC at 5.2-1 also states that "[o]ne additional injection well pad has no associated wells but is included in Project area."

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.*

Response: Please see Figure 1-4R of the Morton Bay Geothermal Project General Arrangement Refinement filing (TN# 253188).

102. *Provide the Applicants' analysis of the environmental impacts from construction of eleven (11) initial well pads, potential future well pads.*

Response: Sections 5.1 through 5.16 of the AFC (TN# 249723) include an analysis of the project in its entirety, including construction of the 12 well pads and 20 wells.

103. *Provide the total acreage of temporarily impacted areas to construct the MBGP's well pads and associated distribution pipelines.*

Response: Approximately 101.1 acres will be temporarily disturbed during construction the Project's well pads and associated distribution pipelines. This assumes a 150-foot temporary buffer surrounding the well pad permanent buffer boundaries and a 50-foot temporary buffer surrounding the pipeline permanent buffer boundaries for operations and maintenance activities.

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

Response: Approximately 74.9 acres will be permanently disturbed for the well pads and pipelines. This assumes a 50-foot permanent buffer surrounding the well pads and a 25-foot permanent buffer surrounding the pipelines for operations and maintenance activities.

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

Response: Farming operations, similar to what have been historically conducted, will continue during Project operations. Please see the Applicant's Data Response Set 2 (Revised Responses to Data Requests 5 and 6), TN# 253618) for information regarding the crops that have been grown.

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

Response: While there are no known regulations regarding clearing of vegetation on and/or around well pads, vegetation clearing will be performed as needed.

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

Response: The planned perimeter of the fence around the site proper is approximately 7,500 linear feet. The planned perimeter of the designated laydown is approximately 4,300 linear feet.

Background: Reuse of Prime and Statewide Important Soil Types (DR 108-111)

According to the AFC at 5.6-3 and 5.11-11: "Of the total 158.25 acres of permanent impacts associated with the Project, approximately 4% is located on Important Farmland, consisting of approximately 6.25 acres of farmland of Statewide Importance along the associated gen-tie line to the IID switching station." The AFC at 5.11-22 states: "Land designated as farmland of Statewide Importance at the IID switching site will be reserved for reuse, as feasible."

Data Requests:

108. *Provide the Applicant's estimate of the volume of soils in the switching site 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.*

Response: As described in the AFC, where practical and using typical engineering practices, the top six inches of topsoil may be moved to the borrow pits to the extent feasible. Most soils in the Project area are designated as Prime Farmland and Farmland of Statewide Importance soils. Assuming 6.25 acres of

Farmland of Statewide Importance and the removal of the top six inches, a maximum of 136,125 ft^3 of Farmland of Statewide Importance topsoil may be reserved for agricultural reuse to the extent feasible.

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

Response: All soil types as referenced above are considered to be reusable. To the extent reasonable, topsoil will be reused for agricultural and/or revegetation of disturbed lands.

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

Response: Reuse of soils at a site to the extent feasible is a common construction and industry practice.

111. Explain how the "mixing of soils and rock" during MBGP construction affects the feasibility of reusing the soils. (AFC at 5.11-16)

Response: The reference to "mixing of soils and rock" in the AFC referred to the potential alteration of the existing soil profile as a result of construction. A layer of geotextile fabric will be placed prior to gravel surfacing at the laydown areas to minimize the potential for the mixing of soils and gravel.

Background: Erosion Control Best Management Practices (DR 112-113)

The AFC at 5.11-19 concludes: "Impacts during the construction of the switching station 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 5.11-19) The AFC at 5.11-16 explains: "The 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 MBGP area will be implemented to effectively control soil loss during and after construction."

Data Requests:

112. Identify the erosion control BMPs that may be used to control water and wind erosion during construction activities.

Response: During construction, BMPs may include a combination of silt fences, straw wattles, inlet protections and the permanent perimeter site berm may be utilized to prevent water discharge from the site. In addition, if needed, water trucks may be employed to control dust/erosion from construction activities.

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

Response: As discussed in Section 5.11.4 of the AFC, the development of a Stormwater Pollution Prevention Plan (SWPPP) will be required before any earth moving activities commence at the site. The SWPPP will be designed to comply with California's General Permit (CGP) for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ as amended by

Order No. 2012-0006-DWQ (NPDES No. CAS000002) issued by the State Water Resources Control Board (SWCRB). A complete Construction Site Monitoring Program is included within the SWPPP and will address items such as visual inspections of BMPs, visual monitoring of the site related to qualifying storm events, visual monitoring of the site for non-stormwater discharges, and sampling and analysis of runoff if applicable or if required by the RWQCB. Further the SWPPP will specifically include required monitoring time frames for site BMPs monitoring which may include the following:

- BMPs are properly installed;
- Identify any BMPs that need maintenance to operate effectively;
- BMPs that have failed; and
- BMPs that could fail to operate as intended.

Background: Soil Compaction (DR 114)

The AFC at 5.11-19 states: "The clay-type soils at the switching station 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 soil 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:

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

Response: Soils will be compacted in proper lift depths as they are placed across the entire site throughout the course of the construction schedule.

2. Waste Management (DR 115-130)

Background: Overhaul Geothermal Steam Turbine and Fluid Equipment on a 3-Year Cycle (DR 115-121)

The AFC at 2-55 explains: "The geothermal steam turbine and fluid equipment for MBGP is planned to be overhauled on a 3-year (triennial) cycle with a planned warranty outage in Year 1."

Data Requests:

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

Response: Inspections are conducted three months to a year prior to each outage to identify the need and availability for major equipment components. Advanced planning, work packages, outage schedule and other project management methods are used to allocate internal plant resources and external support from general contractors and original equipment manufacturers to manage and minimize downtime. The process itself involves safe shut down, lock-out/tag-out, nondestructive evaluation/inspection, preventive maintenance, equipment cleaning, repair/replacement of components (as needed), reinspection for record keeping/equipment closure and plant start up.

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

Response: The waste streams from the overhauling of the steam turbine are described in the Waste Management Section of the AFC Table 5.14-2 (TN# 249723).

117. 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.

Response: Please see Waste Management Subsection 5.14.4.2 of the AFC (TN# 249723), which describes the maintenance wastes generated from the operation of the facility.

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

Response: There is no forced outage rate at this time for the BRGP. The project is designed for 95% availability with the remaining 5% allocated for curtailments, equipment derates, and/or forced outages. The generating unit is designed for the planned triennial outage, which are intended to be staggered with BRGP and ENGP.

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

Response: Please see the response to DR 118.

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

Response: The planned warranty outage in Year 1 is estimated to be 10 days.

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

Response: The planned triennial outages starting in Year 3 are estimated to be 20 days.

Background: Geothermal Scale Wastes (DR 122-123)

Historically, scale formation within project facilities has been a major problem in the Salton Sea area. The AFC Table 5.14-4 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) Approximately 3,500 tons per year of geothermal scale is estimated to be generated at the Morton Bay facility alone. (Id.) The waste will be deposited offsite at a Treatment, Storage, or Disposal Facility ("TSDF"). (Id.)

Data Requests:

122. Identify the chemical composition of the scale wastes.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Geothermal scale waste composition will be classified based on analytical test results in accordance with federal[2] and state[3] hazardous waste criteria requirements.

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

Response: Volume of geothermal scale were estimated based on waste generated from the Salton Sea geothermal operating facilities tracked by the DTSC manifest system[4] and industry knowledge.

Background: Filter Cake (DR 124-126)

Approximately 1,300 tons of hazardous geothermal filter cake and 24,000 tons of nonhazardous geothermal filter cake will be generated each year by the MBGP. (AFC at 2-31) According to the AFC at 2-28: "The largest nonhazardous waste stream will be filter cake generated during operations as discussed in Section 5.14 Waste Management." The AFC assumes that 95% of the filter cake will be characterized as nonhazardous and approximately 5% will be characterized as hazardous due to elevated concentrations of heavy metals. (Id. at 2-28, 5.14-6.) "The nonhazardous filter cake waste from the Project site will be transported to the Desert Valley Company 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:

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Based on publicly available filter cake data[5], it is estimated that amorphous silica constitutes 50%, Iron 15%, and metals such as Arsenic, Copper, Lead, and Cadmium among others.

[2] https://dtsc.ca.gov/federal-toxicity-characteristics/

[3] California Code of Regulations (westlaw.com)

[4] https://hwts.dtsc.ca.gov/

[5] Filter cake composition link: Characterizing the Geothermal Lithium Resource at the Salton Sea (escholarship.org)

125. *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.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Hazardous waste filter cake data from the Salton Sea geothermal operating facilities tracked by the DTSC manifest system[6] and nonhazardous filter cake data disposed at the landfill[7] were used in general estimate the potential filter cake disposal split % for MBGP.

126. *Describe the procedures that will be used at the Desert Valley Company's monofil to dispose of filter cake.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Procedures that will be used at the Desert Valley Company's monofill to dispose of filter cake may be found in the Desert Valley Company (DVC) Monofill Expansion Project Final EIR[8].

Background: Contamination at Existing Geothermal Facilities (DR 127-130)

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 &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

[6] https://hwts.dtsc.ca.gov/

[7] https://geotracker.waterboards.ca.gov/

[8] https://www.icpds.com/planning/environmental-impact-reports/final-eirs/desert-valley-company-dvc-monofill-expansion-project-feir

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:

127. *Identify on a map or describe in sufficient detail the locations where any MBGP 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.*

Response: No 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.

128. *If areas containing geocrete or concrete stabilized filter cake are identified in response to the Data Request 127, explain how MBGP will safeguard human health, safety, and the environmental from any potential hazards.*

Response: Please see response to DR 127.

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

Response: Please see response to DR 127.

130. *Describe how MBGP 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.*

Response: Please see response to DR 127. Plant design includes designated hydro blast pad area, filter press area and class II surface impoundments to effectively manage geothermal related waste.

3. Water Resources (DR 131-149)

Background: Groundwater Resources (DR 131-132)

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 MBGP 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 to 5.15-6) 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 5.15-7) The deeper main regional aquifer is reported to range from fresh to brackish. (Id. at 5.15-11)

Data Requests:

131. *Provide general cross-sections of the subsurface across the Salton Trough and MBGP area to illustrate groundwater resources.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

Background: Pipelines for Production and Injection Wells (DR 133-140)

Pipelines will connect the production wells to the geothermal facility. (AFC at 2-16) 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 ESV's will be made of Inconel 625 or an equivalent corrosion-resistant alloy (or functionally equivalent). The pipeline material from the ESV's 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). 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 (or functionally equivalent) 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 2-21)

Therefore, the MBGP'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:

133. *Provide documentation regarding historic pipeline releases over the past ten (10) years at the ten (10) facilities owned and operated by the BHE Renewables, operating as CalEnergy.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

134. *For each historic pipeline 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.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: The pipelines will be constructed to industry standards of *corrosion-resistant alloy or functionally equivalent*. In addition, the Applicant will monitor pipeline performance criteria (temperature, pressure, flow) continuously in the control room to ensure the pipelines are operating as designed. This monitoring would immediately note any changes to the pipeline performance and alert the operators to inspect and shutdown any wells for detailed inspection. The operations staff will also perform a visual inspection of the pipelines during each work shift.

During maintenance outages, the Applicant will also conduct non-destructive examination of the pipelines to identify/track degradation in the wall integrity in order to avoid forced outages of a pipeline.

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

Response: Please see response to DR 135. During maintenance outages, the Applicant will also conduct non-destructive examination of the pipelines to identify any degradation in the wall integrity in order to avoid a release from the pipelines.

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

Response: The geothermal brine/fluid pipelines will cross several Imperial Irrigation District (IID) supply and drain canals. Figure 1-4R, Figure DA4.0-1a, and Figure DA4.0-1b of the Revised General Arrangement Refinement filing (TN# 253188) presents the locations of the crossings of these features.

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

Response: For pipelines transporting geothermal brines/fluids across public waters, Imperial County Code section 91702.02 does not limit pipelines to double-walled pipes. Instead, other safety techniques may be approved by the Planning Director following review by IID. The specific design of the brine/fluid pipelines has not been finalized. However, these lines will be designed in conformance with Imperial County Municipal Code section 91702.02(F) following review by IID and the County.

139. *If geothermal brines, fluids, etc. will be transported across public waters during MBGP 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…"*

Response: Please see the response to DR 138.

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

Response: Please see the response to DR 136.

Background: Reinjection of Fluids (DR 141-143)

According to the AFC at 5.14-4: "The 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 processes described [at AFC 5.1-1 to 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 2-2, 5.1-2) The AFC explains that "remixing the fluids" is avoided due to "risks [of] scaling and excess solids precipitation." (AFC at 2-2) 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:

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

Response: MBGP will not reinject geothermal fluid and/or wastewater from any other operations or localities via the Project's injection wells.

142. *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 injected.*

Response: Less fluid extracted from production wells will be reinjected. Total produced is 10,676,285 pounds per hour and total injected is 10,052,122 pounds per hour. Produced fluid consists of two-phase flow and mass flow rates (rather than volumetric flow rates) are the accurate unit for flow rates.

143. *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.*

Response: The forecast of TDS, through year 2065, is included in the report for the *Numerical Reservoir Simulation of the Salton Sea Geothermal Resource for Power Generation*, dated May 2023 (TN# 250042).

Background: Freshwater Needs for Well Drilling and Replacement Wells (DR 144-149)

The AFC at 2-23 states: "The water source for the MBGP will be IID canal water. … The water will be used for cooling tower makeup, dilution water, fire water, other process and maintenance uses, and for the RO potable water system." Based on these uses alone, the AFC estimates that the Project would require 5,560 acre-feet per year (afy) of water when operating at full plant load for uses including plant water, dilution water, plant wash down, and cooling tower makeup. (AFC at 2-24). The AFC, however, omits a discussion and estimation of the freshwater needed to drill the MBGP'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:

144. *Quantify in acre feet the volume of freshwater needed to drill the MBGP's production wells.*

Response: Water usage for drilling wells varies on a well-by-well basis based on formation properties and drilling conditions. Approximately 35 acre-feet (total for all production wells) may be used for drilling all nine of MBGP's production wells.

145. *Quantify in acre feet the volume of freshwater needed to drill the MBGP's injection wells.*

Response: Water usage for drilling wells varies on a well-by-well basis based on formation properties and drilling conditions. Approximately 33 acre-feet (total for all injection wells) may be used for drilling all of 11 MBGP' s injection wells.

146. *Quantify in acre feet the volume of freshwater needed to drill replacement wells for the life of the MBGP.*

Response: Water usage for drilling wells varies on a well-by-well basis based on formation properties and drilling conditions. An estimate of 11 acre-feet may be used for drilling of the MBGP's replacement wells.

147. *Quantify in acre feet the volume of freshwater needed to drill MBGP's drill monitoring wells for the brine pond.*

Response: As discussed in DR 144, water usage for drilling wells varies on a well-by-well basis based on formation properties and drilling conditions. It is estimated less than 100 gallons of freshwater water per well will be used to drill background monitoring wells for BHER brine ponds. Background monitoring well depths are anticipated to be 15 – 25 feet below ground surface. Industry standard for shallow background monitoring wells is via direct push track drill rigs or via a sonication drill rig. In both cases freshwater is rarely used in the shallow drilling process and is not expected to be necessary for installation and construction of BHER brine pond background monitoring wells. In some cases, soil from below the drill casing can rise a few feet into the casing due to pressure differences. In this case, approximately 0-100 gallons of pressurized water is sometimes used to clear soils from within the casing and set the bottom of the well.

148. *Quantify in acre feet the total volume of freshwater needed for well maintenance activities (e.g., cleaning scale) for the life of MBGP.*

Response: Water usage is estimated to be approximately 561 acre feet for well maintenance activities assuming a project life of 40 years.

149. *Quantify in acre feet the additional water needed to directionally drill the MBGP's wells as compared to vertically drilling the wells.*

Response: No difference in water usage is expected between directional and vertical wells.

4. Biological Resources (DR 150-242)

Background: Agricultural Habitat (DR 150-151)

For the purposes of biological resources analysis, the Applicant's biologists surveyed a Biological Study Area ("BSA") of 1,487.01 acres. (AFC at 5.2-1) Several special-status bird species that occur in the 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.

MBGP would impact 1,486.98 acres of agriculture, of which 168.34 acres would be permanent, according to Table 5.2-7 on page 5.2-24 of the AFC. 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 5.2-18) To better understand the MBGP'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 MBGP.

Data Requests:

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

Response: Crop information was provided in DR Set 2 (Revised Responses to Data Requests 5 and 6), TN# 253618, docketed on December 14, 2023.

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

Response: Please see response to DR 150.

Background: Special-Status Birds (DR 152-163)

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 5.2-9 of the AFC, which includes species designated by the California Department of Fish and Wildlife ("CDFW") as Species of Special Concern ("SCC") and species designated by U.S. Fish and Wildlife Services ("USFWS") as Birds of Conservation Concern ("BCC"). However, the AFC provides no 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 (BCC) (USFWS 2021)*
- *Costa's hummingbird (BCC) (CDFW 2023)*
- *Northern harrier (SCC) (CDFW 2023)*
- *Sandhill crane (greater subspecies is state Threatened, lesser subspecies is a SSC) (CDFW 2023)*
- *Snowy plover [interior population] (SCC) (CDFW 2023)*

Data Requests:

152. 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.

Response: Descriptions of the incidental observation locations of American avocet, Costa's hummingbird, Northern harrier, sandhill crane, and snowy plover are provided below.

Both American avocet and snowy plover were observed in a flooded agricultural field in the eastern portion of the BSA buffer. Sandhill cranes were observed flying over the same area. Neither snowy plover nor sandhill crane could be identified to the special-status subspecies level as these observations were made from a distance (please see response to DR 153). Costa's hummingbird was observed in the vicinity of the proposed switching station in the central portion of the BSA buffer. Northern harrier was observed flying over an agricultural field in the central portion of the BSA buffer. None of these species were located within potential disturbance areas (i.e., BSA).

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

Response: Sandhill crane was incidentally observed flying over a flooded agricultural field located in the eastern portion of the BSA buffer, not the BSA. Identification to special-status subspecies level (greater or lesser) was not possible due to the distance overhead. The observation was documented as *Grus canadensis.*

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. A discussion of the biological direct, indirect, and cumulative impacts is discussed in AFC Section 5.2 and the MBGP DA Supplement Set 2 (TN# 250679)

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

Response: California is not within the breeding range of American avocet (All about Birds 2023a; Audubon 2023a). However, the area is known to support overwintering populations (USFWS 2023). Overwintering habitat for American avocet is present within potential disturbance areas. Marginally suitable, intermittent foraging habitat in the form of flooded agricultural fields is also present. Awareness training, pre-construction surveys, and construction monitoring will be implemented to minimize significant impacts to American avocets (AFC Sections 5.2.3.1.4, 5.2.3.1.8, 5.2.3.1.9). Other avoidance measures proposed by the Applicant will likely include temporary fence installation to discourage work area access by American avocet or other shorebird species; minimal use of rodenticides and herbicides; speed limits; and confining construction activities to the extent feasible to limit habitat disturbance (AFC Section 5.2.3.1.7). Trash disposal and prohibiting feeding of wildlife will limit attraction of potential predators to the work area. Bird protection measures, such as active nest buffers and nest monitoring, will also be implemented to further minimize impacts to American avocets and other bird species protected by the Migratory Bird Treaty Act (MBTA), and their nests (AFC Section 5.2.3.1.8 and AFC Section 5.2.3.1.9).

Yuma Ridgway's rail (*Rallus obsoletus*) avoidance and minimization measures will be developed in consultation with the agencies (AFC Sections 5.2.3.1.17 [USFWS Biological Opinion] and 5.2.3.1.20 [Yuma Ridgway's Rail Survey, Management, and Monitoring Plan]), including impacts to sensitive wetland and riparian habitats. As American avocet also utilizes similar habitats, these measures will also minimize

impacts this species. Project activities will avoid disturbances in or near sensitive habitats during the bird breeding season, typically February through September. Standard U.S. Fish and Wildlife Service (USFWS) avoidance buffer will be established where necessary; any American avocets present within this buffer will also be protected. A biological monitor will be present during construction and will have the authority to stop work if rails or other species, including American avocet, may be impacted.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: High quality breeding habitat (relatively open desert shrub without much vegetation cover) for Costa's hummingbird (All About Birds 2024) is not present within potential disturbance areas. Costa's hummingbirds may utilize salt cedar (*Tamarix* ssp.) present within the Invasive Southwest Riparian Woodland and Shrubland vegetation community. Costa's hummingbird regularly breeds in the area but is reported as uncommon to rare in suitable habitat at the Sonny Bono Salton Sea NWR (USFWS 2018). Typical avoidance measures are discussed in DR 155.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: Both breeding habitat (dense fields or marshes) and suitable foraging habitat (agricultural fields) for Northern harrier is present within potential disturbance areas. Typical avoidance measures are discussed in DR 155.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: California is not within the breeding range of sandhill crane (All about Birds 2023b; Audubon 2023b). However, the area is known to support overwintering populations, which forage in agricultural fields (USFWS 2023). Typical avoidance measures are discussed in DR 155.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: No breeding habitat (beaches or mudflats) for snowy plover is present within potential disturbance areas. However, marginally suitable, intermittent foraging habitat in the form of flooded agricultural fields is present in disturbance areas. Typical avoidance measures are discussed in DR 155.

Background: Mountain Plover (DR 164-167)

The mountain plover is a SCC. (CDFW 2023) The Applicant's Data Adequacy Supplement Set 2 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 at 14)." (TN 250679) 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:

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

Response: Agricultural fields present in the BSA represent foraging and overwintering habitat for mountain plovers. Figure 5.2-4 of the AFC provides a map of land cover and vegetation types within the BSA and identifies locations of agriculture land cover (i.e., mountain plover foraging/overwintering habitat).

165. *Quantify the approximate acreage of mountain plover habitat that would be impacted by MBGP.*

Response: A total of 952.81 acres of agricultural fields, which provide suitable mountain plover foraging habitat, was mapped within the BSA. As discussed in AFC Section 5.2.2.2.3 and shown in Table DR 165-1, approximately 946.64 acres (99%) will be temporarily impacted during construction. The remaining 6.17 acres will be permanently impacted from installation of Project structures.

Table DR 165-1. Temporary and Permanent Impacts to Mountain Plover Habitat

Mountain Plover Habitat	Impacts (acres)	
	Temporary	Permanent
Agriculture	946.64	6.17

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

167. *Describe any mitigation measures that would be necessary to mitigate significant impacts to the mountain plover.*

Response: Typical avoidance measures are discussed in DR 155.

Background: White-Faced Ibis (DR 168-169)

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 5.2-3. 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 5.2-3)

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:

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

Response: Nesting and foraging habitat information for the white-faced ibis was sourced from the California Department of Fish and Wildlife (CDFW) California Wildlife Habitat Relationships (CWHR) System[9]. Life history accounts for species in the CWHR System were originally published in: Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California. Updates are noted in accounts that have been added or edited since original publication.

169. *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.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. A discussion of the biological direct, indirect, and cumulative impacts is discussed in AFC Section 5.2 and the BRGP DA Supplement Set 2 (TN# 250679).

Background: Land Cover Type Mapping (DR 170)

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 at page 5.2-20) precludes the ability to identify where the following land cover types are located in relation to the MBGP'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.

[9] https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range

Data Requests:

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

Response: Land cover and vegetation types overlaid with potential disturbance/impact areas (i.e., BSA) are shown in AFC Figure 5.2.-4. AFC Figure 5.2-3 shows the Imperial irrigation District (IID) irrigation canals and drains. Nine land cover and vegetation types were mapped within the BSA and will be impacted (AFC Sections 5.2.1.6.2, 5.2.2.2.3). Irrigation infrastructure, including canals and drains, will not be impacted. North American Warm Desert Volcanic Rockland and Open Water were mapped only within the BSA buffer.

Background: Impacts on the Red Hill Bay Restoration Project (DR 171-172)

A production well and associated pipelines proposed for the Project are located near 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 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:

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

Response: The Red Hill Bay Project was canceled on August 30, 2023. The Termination Agreement is provided as Attachment DR 171.

172. *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.*

Response: The construction of the well pads, pipelines, and other facilities within Red Hill Bay will not interfere with any abatement work being considered by IID. Any work will be required to implement BMPs to minimize fugitive dust emissions and areas disturbed during construction would be returned to pre-construction condition. Furthermore, construction of these project features will cover portions of Red Hill Bay with gravel to form the access road and well pads, reducing the potential of fugitive dust emissions from these areas.

Background: Impacts to the Sonny Bono Salton Sea National Wildlife Refuge (DR 173-179)

The AFC provides conflicting information on impacts to the Sonny Bono Salton Sea National Wildlife Refuge ("SBSSNWR") and Hazard Tract of the Imperial Wildlife Area (managed by the California Department of Fish and Wildlife). The AFC at 5.2-6 states:

- *"Portions of the gen-tie line are within the SBSSNWR."*
- *"The gen-tie line is within the Hazard Tract."*

This is consistent with AFC Figure 5.2-2, which depicts well pads and production wells in the SBSSNWR. However, Table 5.2-37 at page 5.2-37 of the AFC states: The MBGP is not anticipated to impact any portion of the National Wildlife Refuge System."

Data Requests:

173. *Provide all documentation supporting the Applicant's analysis of MBGP's direct and indirect impacts to the SBSSNWR.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. DA Response 7 and 12 (TN# 250679) provides a discussion of direct and indirect impacts to the Sonny Bono Salton Sea NWR.

174. *Describe any mitigation that would be necessary to minimize significant impacts to the SBSSNWR.*

Response: Please see response to DR 173.

175. *Provide all documentation supporting the MBGP's direct and indirect impacts to the Hazard Tract of the Imperial Wildlife Area.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023, as well as the response to DR 173.

176. *Describe any mitigation that would be necessary to minimize significant impacts to the Hazard Tract of the Imperial Wildlife Area.*

Response: Please see response to DR 173.

177. *Identify on a map the land areas within the SBSSNWR that would be affected by noise from the production wells.*

Response: AFC Figure 5.2-2 shows the location of production wells in relation to Sonny Bono Salton Sea NWR. It is expected that during normal steady-state operations the 80 A-weighted decibels (dBA) threshold will not be exceeded within Sonny Bono Salton Sea NWR wetland habitat (including at production wells) (AFC Section 5.2.2.3.3 and Section 5.7).

178. *Identify on a map the land areas within the Hazard Tract of the Imperial Wildlife Area that would be affected by noise from the production wells.*

Response: AFC Figure 5.2-2 shows the location of production wells in relation to Hazard Tract. Please see response to DR 177.

179. *Provide large-scale maps at a scale that enables the reader to clearly distinguish the impact footprint of the proposed gen-tie lines in relation to the SBSSNWR, Hazard Tract, and facilities owned or operated by the Imperial Irrigation District ("IID").*

Response: AFC Figure 5.2-2 shows the location of project features in relation to Hazard Tract and Sonny Bono Salton Sea NWR. AFC Figure 5.2-3 shows the IID irrigation canals and drains. The MBGP will have no impact on IID canals and drains other than crossing with above ground pipes and generation tie (gen-tie) line.

Background: Impacts to Canals, Drains, and Desert Pupfish Habitat (DR 180-185)

The AFC provides conflicting information on MBGP impacts to canals and drains. Table 5.2-7 at page 5.2-24 of the AFC indicates the Project would impact a total of 24.47 acres of canals and drains, of which 0.85 acres would be permanent. However, the AFC at 5.2-18 states: "Irrigation infrastructure, including canals and drains, will not be impacted by the proposed Project." Moreover, in Data Adequacy Response Set 2 (TN 250679), the Applicant explained at page 1 that "MBGP will have no impact on IID canals and drains other than crossing with above ground pipes and gen-tie line."

Figure 5.2-4 on page 5.2-20 of the AFC provides a map of the land cover types in the BSA and MBGP'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 presumed present in the MBGP area. (TN 250679) 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 MBGP 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:

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

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

Response: The Applicant is proposing to cross IID's supply and drain canals with all project infrastructure (pipelines and gen-tie lines) located above these features to avoid direct or indirect impact.

Construction Impacts - Potential construction impacts to canals and drains include dust, soil from installation of features falling into canals or drains, and vibration from feature installation. The Applicant will primarily use auger cast piles to eliminate the potential for hydroacoustic impacts. Impact or vibratory pile driving will only occur in the plant site. Construction of drain crossings will not occur within 5 feet of the edge of IID canals. Best Management Practices (BMPs), such as straw wattles, watering to reduce dust, and other Stormwater Pollution Prevention Plan (SWPPP) management will be in place to reduce any construction related material entering the aquatic feature. Concrete wash outs will be placed on the power plant site, away from any aquatic features.

Operations Impacts - Operations of the facility is not expected to have any impacts to IID canals or drains or any desert pupfish occupied aquatic features.

Project features were specifically located to avoid impacts to aquatic resources, such as irrigation supply and drain canals, the Alamo River, and the Salton Sea. The irrigation and drain canals represent a major part of the IID's operational infrastructure and impacts to these features could affect their ability to service their customers. To this end, the Applicant has included design measures to avoid potential impacts to these aquatic resources. These measures include the following:

- Prepare and implement a construction stormwater pollution prevention plan identifying BMPs to avoid stormwater and erosion control impacts;
- Prepare and implement a fugitive dust control plan (consistent with Imperial County Air Pollution Control District [ICAPCD] requirements and the CEC's construction air quality construction mitigation measures);
- Access the construction, laydown/parking, borrow pit, and construction camp sites using existing crossings over supply and irrigation canals;
- When constructing pipelines over irrigation/drain canals, construction equipment and work areas will be staged well away from the aquatic resources. The pipelines will be placed on support structures on either side of the canals with a crane to protect the canals.

Gen-tie towers will be located well away from IID canals or the Alamo River and conductors will be positioned to avoid aquatic resource impacts.

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

Response: AFC Figure 5.2-3 shows the IID irrigation canals and drains.

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

Response: Figure DR 183 identifies the Project site and the existing agricultural runoff for APN 020-110-008, which currently drains to the Vail 5 Drain.

184. Describe whether the Applicant analyzed how reduced agricultural return flows associated with the MBGP 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.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. An analysis for the reduced agricultural flow and how that may indirectly impact items (a) and (b) is underway with IID as part of the WSA and impact study analysis .

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

Background: Restoration of Temporary Impact Areas (DR 186-190)

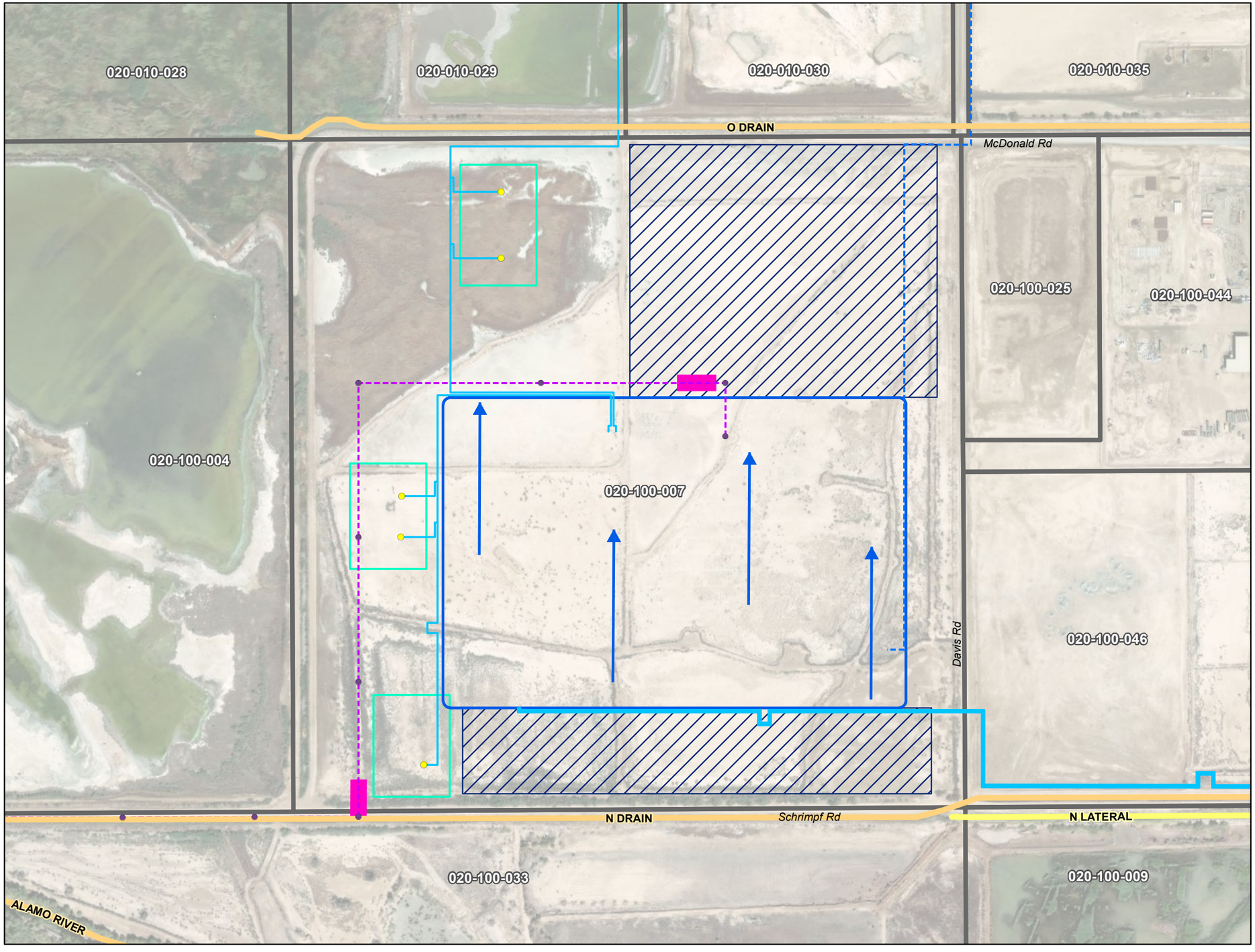
The AFC at 5.2-24 states: "Temporary effects to vegetation and wildlife habitat would occur during construction where vegetation is damaged by dust, crushed by vehicles, or removed for Project use." The AFC claims that soils at some of the temporary work areas (e.g., laydown yards and construction crew camps) will be compacted and covered with gravel (AFC at 5.11-20), and that all temporary work areas will be restored to preconstruction conditions. (Id. at 5.11-21)

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." Information regarding the criteria, performance standards, timing, and techniques that would be implemented to restore temporary work areas must be provided to determine the adequacy and feasibility of the proposed measures.

Data Requests:

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

Response: As discussed in AFC Section 5.2.3.1.5, the Project owner will be preparing a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), which will be provided to CDFW and U.S. Fish and Wildlife Service (USFWS) for review and comment. The BRMIMP will include a habitat compensation strategy detailing provisions for enhancement for temporary loss of sensitive biological resources, as well as performance standards and remedial measures (i.e., habitat restoration plan). The criteria, performance standards, timing, and techniques for restoration will be developed in consultation with the agencies (e.g., CDFW, USFWS) and presented in the forthcoming BRMIMP.



Legend

- Plant
- Well Pad
- Production Well
- Pipeline
- Water Supply Pipeline
- Gen-Tie Line Pole
- Gen-Tie Line
- Pull Site
- Switching Station
- Construction Laydown and Parking Areas
- Parcel Boundary
- IID Canal
- IID Drain
- Direction of Agricultural Return Flows

N

0 200 400 800
Feet

Figure DR 183
Agricultural Return Flows
Morton Bay Geothermal Project
Imperial County, California

Jacobs

\\dc1vs01\gisproj\B\BHE_Renewables\Imperial_Valley\MapFiles\Ag\Figure_DR_183_240102.mxd

187. *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.*

Response: The BRMIMP will include a habitat restoration plan developed in consultation with the agencies (see AFC Section 5.2.3.1.5 and DR 186). Restoration methods, such as soil decompaction and other site preparation activities, will be presented in the forthcoming BRMIMP.

188. *Clarify whether vegetation would be planted at the temporary work areas as part of the restoration efforts.*

Response: The BRMIMP will include a habitat restoration plan developed in consultation with the agencies (see AFC Section 5.2.3.1.5 and DR 186). Restoration methods, such as container planting and seeding, will be presented in the forthcoming BRMIMP.

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

Response: The BRMIMP will include a habitat restoration plan developed in consultation with the agencies (see AFC Section 5.2.3.1.5 and DR 186). Restoration methods, such as timing of activities, will be presented in the forthcoming BRMIMP.

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

Response: The BRMIMP will include a habitat restoration plan developed in consultation with the agencies (see AFC Section 5.2.3.1.5 and DR 186). Performance standards for evaluating success of the restoration efforts will be presented in the forthcoming BRMIMP.

Background: Agricultural Land as Regionally Important Habitat (DR 191)

The AFC states at 5.2-22 that "Losses 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:

191. *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.*

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Agricultural fields, or farmland, provide foraging habitat for various wildlife species. Burrowing owl and long-billed curlew have been documented foraging in agricultural fields in Imperial County (CDFW 2022, 2023; AFC Section 5.2.1.5.3). Approximately 538,326 acres (19%) of Imperial County consists of irrigated agricultural fields (AFC Section 5.11.1.4.1). The Project is anticipated to impact a total of 952.81 acres of agricultural fields, less than 1% of which will be permanent impacts. Upon completion of construction, the 946.64 acres of temporarily impacted agricultural fields will revert to previous use. Therefore, the 6.17 acres of permanent impacts, which represent complete loss of foraging habitat, would only occur to approximately 0.001% percent of the available agricultural lands in Imperial County. This amount of

foraging habitat will have little to no impact on bird populations that utilize agricultural lands in Imperial County.

Background: Burrowing Owl Mitigation (DR 192-196)

The AFC at 5.2-35 states: "Foraging habitat that is permanently destroyed will be replaced at a ratio suitable for the protection of Burrowing Owls and managed for the protection of Burrowing Owls. Based on these ratios, the Project Owner must protect and manage land for Burrowing Owls. The mitigation can be reduced if mitigation land for the same Burrowing Owls is also being provided under Condition for Certification BIO-19." The AFC fails to quantity the number of acres of burrowing owl foraging habitat the MBGP would permanently impact.

In the Data Adequacy Supplement Set 2 for ENGP (TN 250678), the Applicant states: "The 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 associated with the ENGP, unless a compensation ratio less than 1:1 is applied, let alone enough credits to mitigate for any permanent impacts to burrowing owl habitat associated with the MBGP.

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:

192. *Quantify the number of acres of burrowing owl foraging habitat that MBGP will temporarily and permanently impact.*

Response: Burrowing owls inhabit open areas such as grasslands, pastures, coastal dunes, desert scrub, and the edges of agricultural fields. Within the Project site, suitable foraging habitat is present in the agricultural fields. As discussed in AFC Section 5.2.2.2.3 and shown below in Table DR 192-1, approximately 946.64 acres (99 percent) of agricultural fields will be temporarily impacted during construction. The remaining 6.17 acres will be permanently impacted from installation of Project structures.

Table DR 192-1. Temporary and Permanent Impacts to Burrowing Owl Foraging Habitat

Burrowing Owl Foraging Habitat	Impacts (acres)	
	Temporary	Permanent
Agriculture	946.64	6.17

193. *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).*

Response: Three vegetation communities are present in the BSA and the rest are disturbed land cover types. As discussed in AFC Section 5.2.2.2.3 and shown below in Table DR 193-1, a total of 42.17 acres of vegetation will be permanently impacted by the Project (North Invasive Southwest Riparian Woodland and Shrubland [6.18 acres], North American Arid West Emergent Marsh [21.74 acres], and North American Warm Desert Playa [14.25 acres]). The Invasive Southwest Riparian Woodland and Shrubland community is dominated by salt cedar and giant reed (*Arundo donax*), both of which reach heights well in excess of 6 feet. Burrowing owls forage in open habitats with low-growing vegetation and thus would not be expected within Invasive Southwest Riparian Woodland and Shrubland. Burrowing owls do not utilize wet areas and would thus not forage in North American Arid West Emergent Marsh. North American Warm Desert Playa contains intermittently flooded alkaline or saline soils and minimal vegetation; burrowing owls are not expected to forage in this vegetation community. The Disturbed with Vegetation land cover type is characterized by sparse ruderal vegetation and compacted soils. As such, prey would be limited and thus burrowing owls would not be expected to forage in this land cover type. No foraging habitat is found within the other non-agriculture land cover types. As such, no compensatory mitigation is required for permanent impacts to vegetation communities or land cover types other than agriculture.

Table DR 193-1. Temporary and Permanent Impacts to Vegetation Communities and Other Land Cover Types within the MBGP Biological Study Area

Vegetation Communities and Other Land Cover Types within the BSA	Impacts (acres)	
	Temporary	Permanent
Agriculture	946.64	6.17
Barren Lands	5.12	1.52
Canals and Drains[a]	24.47	0.85
Developed	14.62	6.08
Disturbed with Vegetation	213.37	96.93
Disturbed with No Vegetation	83.44	14.62
Invasive Southwest Riparian Woodland and Shrubland	4.53	6.18
North American Arid West Emergent Marsh	15.79	21.74
North American Warm Desert Playa	10.70	14.25
Total	**1,318.67**	**168.34**

[a] The proposed Project will not impact any irrigation infrastructure, including any canals and drains.

194. *Provide documentation to confirm that the MBGP site is within the burrowing owl service area of Umbrella Bank Site 8.*

Response: It is unclear if the map provided on the Mojave Desert Tortoise Conservation Bank website is complete[10]. Although the map is titled "Tortoise, MGS, Burrowing Owl Service Areas", it appears to only provide service area boundaries for desert tortoise and Mohave Ground Squirrel (MGS). However, the map for Umbrella Bank Site 8 on the RIBITS website also shows a layer for the burrowing owl service area, which does overlap the Project site[11]. As the bank website does not identify the burrowing owl service area, a comparison cannot be made. Assuming the map on the RIBITS website is incorrect, the Project site is still within 5 miles of the Umbrella Bank Site 8 service area.

195. *State the compensation ratio that would be applied to the MBGP's impacts on burrowing owls and their habitat.*

Response: As discussed in DA Response 10(a), the 2022 wildlife reconnaissance level surveys (AFC Section 5.2.1.6.2) satisfied the first two steps of the CDFG 2012 guidelines: habitat assessment and determining occupancy. Breeding season burrowing owl surveys, the third step, were conducted in 2023. A preliminary report was docketed on October 27, 2023 (TN# 252791). Any impacts to burrowing owls and their habitat or compensation ratio, if deemed necessary, will be applied consistent with the final Conditions of Certification in consultation with other state agencies.

196. *Discuss how impacts to burrowing owls and their habitat would be mitigated if either: (a) the MBGP 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.*

Response: Please see response to DR 195.

Background: Construction Mitigation Management to Avoid Harassment or Harm (DR 197-200)

Section 5.2.3.1.7 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." (AFC at 5.2-33) It is unclear if these 10 measures would in fact be implemented to avoid and minimize impacts to biological resources.

Data Requests:

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

Response: As discussed in AFC Section 5.2.3.1.5, the Project owner will be preparing a BRMIMP, which will be provided to CDFW and USFWS for review and comment. The BRMIMP will identify all required mitigation measures to be implemented, including:

- Biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project owner;
- All biological resources COCs identified in the Commission's Final Decision;

[10] https://deserttortoisebank.com/

[11] https://ribits.ops.usace.army.mil/ords/f?p=107:10:::::P10_BANK_ID:5679

- All biological resources mitigation, monitoring, and compliance measures required in other state agency terms and conditions;
- All biological resources mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements; and
- All required mitigation measures for each special-status biological resource.

The measures proposed by the Project owner will be developed in consultation with the agencies. These will be compiled with the measures issued from the above sources as they are received and presented in the forthcoming BRMIMP.

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

Response: The list of specific types of rodenticides and herbicides that would or may be used will be developed in consultation with the agencies and CEC and/or provided in the issued mitigation measures (please see response to DR 197). This information will be presented in the forthcoming BRMIMP.

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

Response: The methods for minimizing the use of rodenticides and herbicides will also be developed in consultation with the agencies and CEC as part of the owner-proposed measures and will be presented in the forthcoming BRMIMP.

200. 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.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

Background: Construction Monitoring to Avoid Harassment or Harm (DR 201-206)

Section 5.2.3.1.9 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:

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

Response: A component of the BRMIMP will be identification of performance standards and remedial measures to be used to help decide if and when proposed mitigation is or is not successful (AFC Section 5.2.3.1.5). The significance thresholds (i.e., levels of significance) for determining impacts caused by harassment or harm of wildlife are a performance standard that measure the success, or lack of, of construction mitigation. Meeting or exceeding the threshold would indicate that measures are not successful in minimizing impacts during construction will be developed in consultation with the agencies and the CEC and presented in the forthcoming BRMIMP (AFC Section 5.2.3.1.9).

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

Response: As discussed in AFC Section 5.2.3.1.9, the Project owner will provide a monitoring proposal that includes indices and other local population values for comparison to pre-construction baseline survey work; these comparisons will be used evaluate the significance of construction-related impacts. The monitoring proposal will be developed in consultation with the agencies and CEC for presentation within the forthcoming BRMIMP.

203. 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.

Response: The monitoring proposal, presented within the forthcoming BRMIMP, will also include the specific protocols, timing, and survey areas for the focused surveys to be conducted. These parameters will be developed in consultation with CDFW and USFWS, as well as other appropriate agencies (e.g., SBSSNWR).

204. State the timeline for comparing the construction monitoring data to the preconstruction survey data and discuss and statistical analysis that would be used to make this comparison.

Response: The methods to be used for comparing and analyzing construction monitoring data and preconstruction survey data will also be developed in consultation with agencies and CEC as part of the monitoring proposal and presented in the forthcoming BRMIMP.

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

Response: The remedial measures (actions) to be taken if significance thresholds are exceeded will also be developed in consultation with agencies and CEC as part of the monitoring proposal and presented in the forthcoming BRMIMP.

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

Response: The monitoring data collected during construction will be used to determine if significance thresholds are exceeded and whether remedial measures are needed to avoid or minimize construction-related impacts. The data collected in the year following construction will instead be used to determine any changes in baseline conditions that resulted from construction of the Project. Analysis methods will be developed in consultation with agencies and CEC as part of the monitoring proposal and presented in the forthcoming BRMIMP.

Background: Impacts from Lighting (DR 207-209)

The AFC at 5.2-26 states: "With 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, stating: "The applicant shall coordinate with the California Energy Commission 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." Coordination with the CEC and/or Imperial County is insufficient to mitigate lighting impacts on wildlife to less than significant levels. Moreover, 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:

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

Response: As discussed in the AFC, Section 5.13.5, as required by the CEC and/or Imperial County, lighting will be designed so that during both construction and operation, highly directional, exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and to limit backscatter to the nighttime sky.

If circumstances require nighttime construction activity, any necessary temporary lighting would be focused and directed on work areas and away from surrounding properties.

Operational lighting on the Project site would be limited to areas required for safety, would be directed on site to avoid backscatter, and would be shielded from public view to the extent practical given safety and operational needs. Lighting that is not required to be on during nighttime hours would be controlled with sensors or switches operated such that the lighting would be on only when needed. These measures will both limit visual disruptions to the public and reduce lighting impacts on wildlife.

208. *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.*

Response: The section of this code can be found at: Division 17 - GEOTHERMAL PROJECTS | Code of Ordinances | Imperial County, CA | Municode Library

209. *Provide documentation demonstrating the feasibility of complying with sections of the Imperial County Municipal Code pertaining to lighting.*

Response: Please see the response to DR 207.

Background: Cumulative Impacts (DR 210-212)

The AFC at 5.2-29 states that "With 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:

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

Response: Projects located within a 6-mile radius were included in the AFC analysis of cumulative impacts to biological resources.

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

Response: A map showing the boundaries of the projects considered in the cumulative impacts analysis is provided in AFC Appendix 5.6 (TN# 249736).

212. 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.

Response: As shown on both the bank website and the RIBITS website, the Umbrella Bank Site 8 service area includes the eastern portion of Imperial County. The bank either overlaps the Project site or is located within 5 miles of the site and directly adjacent to the Imperial Valley (please see response to DR Response 194). No other bank is located near the Project site; the closest bank that provides burrowing owl habitat is 78 miles to the west in San Diego County[12].

Background: Avian Collisions (DR 213-218)

The AFC at 5.2-34 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:

213. 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.

Response: A Bird Collision Deterrent Proposal and Monitoring Plan will be developed in consultation with a working group of interested agency personnel (please see response to DR 218). This plan will

[12] https://ribits.ops.usace.army.mil/ords/f?p=107:2:16835314754684::NO

incorporate the Avian Power Line Interaction Committee (APLIC) guidelines and provide specific details on design, placement, and maintenance of line markers, as well as the associated analysis requested.

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

Response: The CEC, in consultation with CDFW and USFWS, will approve the line markers to be used on the proposed gen-tie line. Line markers considered will be those recommended in the APLIC guidelines, which were developed in conjunction with the USFWS.

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

Response: A Bird Collision Deterrent Proposal and Monitoring Plan will be developed in consultation with a working group of interested agency personnel (please see response to DR 218). This plan will detail the monitoring methods and duration, impact thresholds (i.e., number of collision deaths), and remedial actions to be implemented during operations.

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

Response: A Bird Collision Deterrent Proposal and Monitoring Plan will be developed in consultation with a working group of interested agency personnel (please see response to DR 218). This plan will detail the monitoring methods and duration, impact thresholds (i.e., number of collision deaths), and remedial actions to be implemented during operations. The statistical methods to be used to compare collisions deaths at the proposed gen-tie line and sections of unmarked but comparable gen-tie line in the BSA will also be described in the plan.

217. *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).*

Response: The Bird Collision Deterrent Proposal and Monitoring Plan will describe the methods for estimating carcass persistence and searcher efficiency, both of which are parameters used in quantifying bird collisions. This component of the plan will also be developed in consultation with the working group (please see response to DR 218).

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

Response: Several agency officials were identified as contacts regarding biological resources for the Project (DA Response 15 and Table DR 218-1 below). These agencies will be consulted as necessary during the development of the Bird Collision Deterrent Proposal and Monitoring Plan.

Table DR 218-1. Agency Contacts for Biological Resources

Issue	Agency	Contact Information
State-listed species	CDFW, Inland Deserts Region	Magdalena Rodriguez 3602 Inland Empire Blvd, Suite C-220 Ontario, CA 91764 (909) 484-0167
State-listed species	CDFW Salton Sea Program	Charles (Charley) Land 78078 Country Club Drive Suite 109 Bermuda Dunes, CA 92203 (760) 218-0063
Federally-listed species	USFWS	Vincent James/District Supervisor 777 E. Tahquitz Canyon Way, Suite 208 Palm Springs, CA 92262 (760) 322-2070

Background: Mitigation for Burrowing Owl Relocation (DR 219-224)

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 5.2-34 states that "The 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 5.2-34 to 5.2-35 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 again fails to provide sufficient information to adequately evaluate this measure. For example, 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 must be disclosed in the analysis. 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:

219. 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.

Response: Breeding season burrowing owl surveys were conducted in 2023 and will be used to evaluate impacts to live burrowing owls in occupied burrows (please see response to DR 195). Potential impact to

each burrowing owl occurrence will be evaluated using impact criteria reviewed by the CDFW and USFWS. Each impacted pair of owls or impacted unpaired resident bird, as determined by the impact criteria, will be protected by enhancing or installing burrows at a ratio that will ensure successful relocation (AFC Section 5.2.3.1.11). Impact criteria, burrow ratios, exclusion methods, and other details will be provided in a Burrowing Owl Artificial Burrow and Exclusion Plan. This plan will be developed in consultation with the agencies and follow guidelines in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

220. *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.*

Response: Other lands that could serve as receptor sites for evicted burrowing owls will be identified in consultation with the agencies and presented in the forthcoming Burrowing Owl Artificial Burrow and Exclusion Plan.

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

Response: Management practices for other lands will be identified in consultation with the agencies and presented in the forthcoming Burrowing Owl Artificial Burrow and Exclusion Plan.

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

Response: Burrow replacement ratios will be developed in consultation with the agencies and presented in the forthcoming Burrowing Owl Artificial Burrow and Exclusion Plan.

223. *Explain whether the Project Owner would conduct semi-annual to annual cleaning, maintenance, or replacement of the burrows.*

Response: Cleaning and maintenance methods for replacement burrows will be developed in consultation with the agencies and presented in the forthcoming Burrowing Owl Artificial Burrow and Exclusion Plan.

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

Response: Evaluation criteria for determining success of the burrowing owl relocation efforts will be developed in consultation with the agencies and presented in the forthcoming Burrowing Owl Artificial Burrow and Exclusion Plan.

Background: Drilling Mud (DR 225-227)

Construction of the Project's production and injection wells will require drilling. (AFC at 2-45) 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:

225. State the expected chemical composition of drilling mud constituent concentrations.

Response: Water-based drilling mud with the lowest practical mud weight will be utilized. The drilling mud will be a non-dispersed solid mud with low solid content. As discussed in the response to DR 125, drilling mud composition will be classified based on analytical test results in accordance with federal and state hazardous waste criteria requirements.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. There will be no mud pits and the drilling mud will be stored in industry approved roll off containers for sample analysis and disposal according federal, state, and local requirements.

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

Response: Please see response to DR 226.

Background: Noise Impacts on Wildlife (DR 228-236)

The AFC at 5.2-26 provides the following analysis of noise impacts on birds:

> *Noise from construction could temporarily discourage wildlife from foraging and nesting immediately adjacent to the Project area. Many bird species rely on vocalization during the breeding season to attract a mate within their territory. Noise levels from certain construction activities could reduce the reproductive success of nesting birds. The Yuma Ridgeway's rail is expected to be the most noise sensitive species and is specifically addressed in the following periods. The construction period is relatively short, and wildlife usually becomes habituated to ongoing general construction noise. Given the restriction of some activities outside of the breeding season, the temporary nature of these activities, and the adherence to noise-reducing mitigation measures stated in the Yuma Ridgeway's rail plan, the noise levels at the Project fence line are not expected to have any significant impact on nearby wildlife resources.*

The AFC at 5.2-27 states:

> *Based 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 Yuma Ridgeway's rail noise threshold. Typical construction activities are predicted to generate average noise levels between 84 and 87 dBA at 50 feet from the edge of the construction activity; noise levels would attenuate to below 80 dBA at a distance between 100 and 200 feet from the source.*

The AFC's analysis is inconsistent with the numerous studies demonstrating that noise levels substantially below 80 dBA may negatively impact wildlife. (Shannon 2016) Additionally, the AFC's reliance on 80 dBA

threshold for Yuma's Ridgeway Rail 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 "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:

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

Response: Tables DR 228-1 and DR 228-2 provide range of octave band sound pressure levels from typical construction activities at 50 and 1000 feet.

Table DR 228-1. Average Octave Band Sound Pressure Levels from Various Construction Activities at 50 feet (Leq, dB)

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Driving steel posts	70	77	75	86	68	72	76	77	74
Deep Foundation Drilling / Drilling	70	74	76	86	89	79	76	70	62
Breaking asphalt / Digging in dirt / Moving concrete blocks	65	72	68	75	74	72	65	61	54
Bending rebar	62	63	68	63	65	60	57	54	52
Collecting dust / Recycling material / Removing paint	72	83	94	92	91	89	92	95	95
Exploding granite	94	92	87	79	74	70	78	77	65
Compressing / Compressing air	61	78	70	68	62	59	54	52	51
Producing concrete	81	88	88	92	78	77	77	77	74
Pouring concrete	68	71	77	79	80	74	73	69	65
Pouring concrete	71	85	77	77	86	74	69	64	58
Cutting concrete / Cutting pavement	65	71	72	73	72	79	79	79	80
Crane lifting	67	76	74	75	74	68	63	58	52
Drilling	56	72	75	68	64	61	58	58	52
Pushing Dirt / Pushing rocks	64	70	75	82	77	75	71	64	60
Mixing cement	62	65	68	63	65	57	58	54	49
Driving on site / Dumping rocks / Dumping sand into pile	79	76	77	79	83	74	71	67	61
Breaking concrete (sidewalks- piles) / Digging in dirt	68	70	75	79	75	69	65	61	53
Scooping & dumping dirt/rocks / Scooping gravel piles	65	69	66	72	70	65	63	64	63
Generating power / Generator	59	65	68	71	66	59	55	51	45
Breaking asphalt / Breaking rocky ground	71	79	77	77	79	83	88	82	80
Drilling dirt	67	75	74	78	80	86	76	71	66

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Driving steel piles	88	91	96	100	94	93	93	87	79
Generating / Generating light	64	66	62	64	58	54	52	47	42
Lifting / Lifting workers	59	81	69	76	71	66	60	54	48
Pouring concrete / Warning work site	68	73	68	69	77	72	74	59	47
Pumping Water	70	66	71	72	64	71	65	61	56
Clearing debris	75	77	74	64	71	75	90	82	87
Cutting wood	57	60	70	71	77	75	70	70	65
Breaking concrete (sidewalks)	67	75	70	72	91	87	91	75	75
Cutting Metal / Cutting wood	57	58	66	60	64	66	67	66	65
Grinding metal / Grinding on concrete	53	54	52	55	59	57	60	62	62
Drilling	58	58	60	59	61	69	66	64	54
Turning nuts and bolts	43	48	50	49	53	66	60	60	54
Breaking / Breaking asphalt	71	79	78	78	77	84	87	80	79
Cutting steel	68	68	65	66	73	83	90	76	72
Driving nails / Driving nails into wood	56	60	54	52	66	59	63	63	61
Cutting metal / Cutting wood	45	50	47	51	60	54	59	55	51
Busting rivets	57	62	70	76	83	97	96	85	75
Sanding wood	45	49	47	49	58	53	61	59	54
Paving (Concrete)	69	77	99	83	83	76	71	67	63
Sealing Concrete	60	80	80	73	70	66	65	60	54
Paving (Concrete)	65	74	73	78	78	80	80	75	71
Generating / Generating power	68	84	84	81	78	76	73	70	63

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Idling / Pumping / Pumping Water / Pumping water	72	72	70	73	67	68	65	62	57
Drilling / Drilling in rock	70	80	75	82	87	85	84	84	82
Spraying concrete	82	75	74	71	78	69	67	68	70
Pumping Water / Vacuuming / Vacuuming up dirt	95	92	89	90	82	80	74	72	69
Blowing air	50	50	52	53	59	60	48	41	34
Consolidating concrete	69	71	69	70	73	74	72	70	64
Driving sheets	84	98	99	91	91	90	93	92	84
Warning worksite	54	53	49	46	92	79	90	79	72
Generating power / Welding	60	71	68	69	69	67	63	58	51

Table DR 228-2. Average Octave Band Sound Pressure Levels from Various Construction Activities at 1000 feet (Leq, dB)

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Driving steel posts	44	51	49	59	41	44	48	44	29
Deep Foundation Drilling / Drilling	44	48	50	60	62	51	47	37	17
Breaking asphalt / Digging in dirt / Moving concrete blocks	39	46	41	49	47	45	36	28	10
Bending rebar	36	37	42	36	38	32	28	21	8
Collecting dust / Recycling material / Removing paint	46	57	68	65	64	62	63	63	50
Exploding granite	68	66	61	53	47	42	49	44	21
Compressing / Compressing air	35	52	44	42	35	32	26	19	7
Producing concrete	55	62	62	66	51	50	49	44	30
Pouring concrete	42	45	51	52	54	46	44	37	21
Pouring concrete	45	59	51	51	59	46	41	31	14
Cutting concrete / Cutting pavement	39	45	46	47	45	51	50	46	36
Crane lifting	41	50	47	49	47	41	34	26	7
Drilling	30	46	49	41	37	34	29	25	8
Pushing Dirt / Pushing rocks	38	44	49	56	50	47	42	31	15
Mixing cement	36	39	42	37	38	30	30	21	4
Driving on site / Dumping rocks / Dumping sand into pile	53	50	51	53	56	47	42	34	16
Breaking concrete (sidewalks- piles) / Digging in dirt	42	44	49	52	48	41	36	28	9
Scooping & dumping dirt/rocks / Scooping gravel piles	39	43	40	46	43	37	34	32	19
Generating power / Generator	33	39	42	44	39	32	26	18	1
Breaking asphalt / Breaking rocky ground	45	53	51	50	52	56	60	50	36
Drilling dirt	41	49	48	52	53	59	47	38	22

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Driving steel piles	62	65	70	73	67	65	65	55	34
Generating / Generating light	38	40	36	37	31	27	23	15	-2
Lifting / Lifting workers	33	55	42	50	44	38	31	21	4
Pouring concrete / Warning work site	42	46	42	43	50	45	46	26	3
Pumping Water	44	40	45	45	37	43	36	28	12
Clearing debris	49	51	48	38	44	47	61	49	42
Cutting wood	31	34	44	45	50	48	41	37	21
Breaking concrete (sidewalks)	41	49	44	46	64	60	63	43	31
Cutting Metal / Cutting wood	31	32	39	34	37	38	38	33	21
Grinding metal / Grinding on concrete	27	28	26	29	32	29	32	29	18
Drilling	32	32	34	33	34	41	37	31	10
Turning nuts and bolts	17	22	24	23	26	38	32	28	10
Breaking / Breaking asphalt	45	53	52	51	50	57	59	48	34
Cutting steel	42	42	39	40	46	55	61	43	28
Driving nails / Driving nails into wood	30	33	28	26	39	31	34	30	17
Cutting metal / Cutting wood	19	24	21	24	33	27	30	22	6
Busting rivets	31	36	44	49	56	69	67	52	31
Sanding wood	19	23	21	23	31	26	32	26	9
Paving (Concrete)	43	51	73	57	56	48	43	34	18
Sealing Concrete	34	54	54	47	43	38	36	28	9
Paving (Concrete)	39	47	47	52	51	53	51	43	27
Generating / Generating power	42	58	58	55	51	48	45	37	19

Activity	Octave Band Center Frequency (Hz)								
	31.5	63	125	250	500	1000	2000	4000	8000
Idling / Pumping / Pumping Water / Pumping water	45	46	44	47	40	41	36	30	13
Drilling / Drilling in rock	44	53	49	56	61	57	55	51	38
Spraying concrete	56	49	48	45	52	42	39	36	25
Pumping Water / Vacuuming / Vacuuming up dirt	69	66	63	63	55	52	45	39	25
Blowing air	24	24	26	27	32	33	20	8	-11
Consolidating concrete	43	45	43	43	47	46	43	38	20
Driving sheets	58	72	72	65	64	62	64	60	40
Warning worksite	28	27	23	20	65	52	62	46	27
Generating power / Welding	34	45	42	43	42	39	34	25	7

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

Response: Table DR 229-1 presents octave band sound pressure levels at approximately 730 feet.

Table DR 229-1. Average Octave Band Sound Pressure Levels from Operating Facility at 730 feet (Leq, dB)

Octave Band Center Frequency (Hz)									
Activity	31.5	63	125	250	500	1000	2000	4000	8000
Geothermal Operations	72	70	68	64	64	60	52	45	46

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

Response: Table DR 230-1 presents octave band sound pressure level at approximately 60 feet.

Table DR 230-1. Average Octave Band Sound Pressure Levels from Operating Well at 60 feet (Leq, dB)

Octave Band Center Frequency (Hz)									
Activity	31.5	63	125	250	500	1000	2000	4000	8000
Operational Well	54	57	52	44	44	36	38	37	40

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

Response: Please see response to DR 229.

232. Provide all supporting documentation for the 80 dBA noise threshold other than the Dr. Dooling's testimony in the Huntington Beach Energy Project.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. The 60 dBA threshold applied for wildlife is typically an anthropogenic take on hearing safety. Dent, et al, 2000 suggests that audiograms tests show birds are 15 dB to 20 dB less sensitive than humans at low frequencies below 1 kHz. That implies that, a 10 dB difference in humans is taken as a doubling or halving in loudness, a 20 dB difference would be 4 times or ¼ as loud and similar phenomena occurs in birds, such that an 80 dB threshold is better suited for birds.

233. Explain whether the Applicant analyzed the MBGP'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. If so, provide all supporting documentation.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. No specific audiogram of burrowing owl is available. As the use of audiograms in analyzing noise impacts is not standard, the composite average for burrowing owls was not obtained.

234. Explain whether the Applicant analyzed the MBGP's masking impacts on Yuma Ridgway's rail and other special-status wildlife. If so, provide all supporting documentation.

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023. Yuma Ridgway's rail avoidance and minimization measures will be developed in consultation with the agencies (AFC Sections 5.2.3.1.17 [USFWS Biological Opinion] and 5.2.3.1.20 [Yuma Ridgway's Rail Survey,

Management, and Monitoring Plan]. Noise impacts to rails and other wildlife were discussed in AFC Section 5.2.2 with proposed mitigation measure Noise Assessment and Abatement Plan (AFC Section 5.2.3.1.19)

Please see the response to DR 155, which includes standard USFWS mitigation measures, including disturbance restrictions during breeding season, including avoidance buffers to minimize noise impacts to rail.

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

Response: In general, 80 dB is an acceptable threshold for wildlife noise impacts (AFC Sections 5.2.2.2.6 for wildlife noise discussion and 5.7 for noise). Not all mammals have the same hearing sensitivity. Sensitive mammal species have a similar hearing sensitivity to birds (Dooling 1978). Mammals present in the Project vicinity are habituated to noise from existing agriculture and power facilities.

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

Response: A temporary silencer will be employed to limit the maximum noise levels of steam blows. Unsilenced high pressure steam blows have been reported to have sound pressure levels as high as 129 dBA at a distance of 50 feet. Silenced high pressure steam blows are likely on the order of 90 dBA at 100 feet. Steam blows will only occur during the final stages of commissioning and are significantly limited in duration and will be minimized only to the duration to meet turbine steam quality targets.

Background: Preconstruction Surveys to Avoid Harassment or Harm (DR 237-244)

The AFC at 5.2-34 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. Further, because many of the species that may occur at the Project site are year-round residents, it may not be possible to avoid or minimize impacts to those species unless a relocation program is implemented.

Data Requests:

237. Identify all burrowing mammal species that will be included in the preconstruction surveys described in Section 5.2.3.18. (AFC at 5.2-34)

Response: A pre-construction survey proposal will be presented in the forthcoming BRMIMP (please see response to DR 197). This proposal, which will include the methods, timing, and survey areas for the pre-construction surveys, will be developed in consultation with CDFW and USFWS, as well as other appropriate agencies (e.g., Sonny Bono Salton Sea NWR) (AFC Section 5.2.3.1.8). Pre-construction surveys will be conducted for burrowing owls. Preconstruction surveys will also be conducted for sensitive

burrowing mammal species with potential to occur on the Project, specifically American badger, desert kit fox, and Yuma hispid cotton rat (AFC Section 5.2.1.5.3, Table 5.2-2).

238. Describe the preconstruction survey techniques, including, but not limited to, timing, survey methods, and level of effort, that will be implemented for the burrowing owl.

Response: Preconstruction surveys will follow the take avoidance (pre-construction) survey guidelines in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012; DA Response 10[a]). Specific survey techniques for burrowing owl pre-construction surveys will be developed in consultation with the agencies as part of the pre-construction monitoring proposal. This proposal will be presented in the forthcoming BRMIMP.

239. Describe the preconstruction survey techniques, including, but not limited to, timing, survey methods, and level of effort, that will be implemented for the American badger.

Response: CDFW has not defined survey protocols for American badger, desert kit fox, or Yuma hispid cotton rat. Specific survey techniques for pre-construction surveys for American badger will be developed in consultation with the agencies as part of the pre-construction monitoring proposal. This proposal will be presented in the forthcoming BRMIMP.

240. Describe the preconstruction survey techniques, including, but not limited to, timing, survey methods, and level of effort, that will be implemented for the desert kit fox.

Response: CDFW has not defined survey protocols for American badger, desert kit fox, or Yuma hispid cotton rat. Specific survey techniques for pre-construction surveys for desert kit fox will be developed in consultation with the agencies as part of the pre-construction monitoring proposal. This proposal will be presented in the forthcoming BRMIMP.

241. Describe the preconstruction survey techniques, including, but not limited to, timing, survey methods, and level of effort, that will be implemented for the Yuma hispid cotton rat.

Response: CDFW has not defined survey protocols for American badger, desert kit fox, or Yuma hispid cotton rat. Specific survey techniques for pre-construction surveys for Yuma hispid cotton rat will be developed in consultation with the agencies as part of the pre-construction monitoring proposal. This proposal will be presented in the forthcoming BRMIMP.

242. Describe the preconstruction survey techniques, including, but not limited to, timing, survey methods, and level of effort, that will be implemented for nesting birds.

Response: CDFW has not defined survey protocols for American badger, desert kit fox, or Yuma hispid cotton rat. Specific survey techniques for pre-construction surveys for Yuma hispid cotton rat will be developed in consultation with the agencies as part of the pre-construction monitoring proposal. This proposal will be presented in the forthcoming BRMIMP.

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

Response: Please see the Notice of Objection filed by the Applicant on December 18, 2023.

244. 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.

Response: As discussed in AFC Section 5.2.3.1.5, the Project owner will be preparing a BRMIMP, which will be provided to CDFW and USFWS for review and comment (please see response to DR 197). The BRMIMP will identify all required mitigation measures to be implemented. Project mitigation measures typically include a requirement for relocating animals out of disturbance areas. Details of relocation, including biologist qualifications, permit requirements, relocation triggers (when to relocate), techniques, and criteria for evaluating success will be developed in consultation with the agencies and presented in the forthcoming BRMIMP.

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Attachment DR 171
Red Hill Bay Termination Agreement

Recorded In Official Records,
IMPERIAL COUNTY
Doc#: 2023013482
08/30/2023 08:24 AM

RECORDING REQUESTED BY, AND AFTER RECORDING RETURN TO:

Wildlife Conservation Board
P.O. Box 944209
Sacramento, CA 94244
Attn: Colin Mills

RECORDED
AUG 30 2023
CHUCK STOREY
Imperial County Clerk-Recorder

Space above this line for Recorder's use

APNs: 020-100-032; 020-100-042; 020-100-023; 020-090-003; 020-090-004; 020-090-007; 020-110-002

MEMORANDUM OF TERMINATION OF THAT CERTAIN CALIFORNIA WILDLIFE CONSERVATION BOARD GRANT AGREEMENT BETWEEN THE STATE OF CALIFORNIA, ACTING BY AND THROUGH THE WILDLIFE CONSERVATION BOARD AND IMPERIAL IRRIGATION DISTRICT FOR RED HILL BAY SHALLOW WATER HABITAT IMPERIAL VALLEY, CALIFORNIA, WC-1590DC EFFECTIVE JULY 27, 2016, AS AMENDED BY THAT CERTAIN AMENDMENT NO. 1 TO GRANT AGREEMENT WC-1950DC DATED DECEMBER 11, 2017 AND THAT CERTAIN AMENDMENT NO. 2 TO GRANT AGREEMENT WC-1590DC DATED FEBRUARY 22, 2018, AS ASSIGNED FROM IMPERIAL IRRIGATION DISTRICT TO THE UNITED STATES OF AMERICA, ACTING BY AND THROUGH THE UNITED STATES FISH AND WILDLIFE SERVICE PURSUANT TO THAT CERTAIN ASSIGNMENT, ASSUMPTION, AND AMENDMENT OF GRANT AGREEMENT FOR RED HILL BAY SHALLOW WATER HABITAT RECORDED ON JUNE 2, 2020 AS DOCUMENT NUMBER 2020-009559 OF THE OFFICIAL PUBLIC RECORDS OF IMPERIAL COUNTY, CALIFORNIA

State of California Natural Resources Agency

Memorandum

To: Charlton H. Bonham, Director
Department of Fish and Wildlife

Date:

From: Wildlife Conservation Board, P.O. Box 944209, Sacramento, CA 94244-2090
(916) 445-8448 Fax (916) 323-0280

Subject:

The above restoration project was approved for funding by the Wildlife Conservation Board and has been completed. The pertinent information regarding this project is as follows:

Project ID: 2015025 and 2017035 (augmentation)
Agreement No.: WEC-1590 DC
Type of Agreement: Grant Agreement
WCB Approval Date: June 2, 2016 and May 25, 2017 (augmentation)
Agreement Expiration Dates:
Construction: December 31, 2021
Management: June 2, 2041
Final Inspection Date: N/A, project never broke ground
Funds Allocated: $3,343,000
Funds Spent: $126,915.63
Funding Source: Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002, Section 79568 (Proposition 50)
Grantee: United States Fish and Wildlife Service
Landowner(s): Imperial Irrigation District
Management entity: United States Fish and Wildlife Service
General Location: Red Hill Bay along the southeastern shore of the Salton Sea
Amount of habitat involved: 530 acres

Project Purpose & Remarks: This project was terminated due to the inability of the Grantee and Landowner to come to an agreement regarding long-term access to the project site. Some expenditures were made to finalize project designs, but the project never broke ground and no new habitat was created.

Rebecca Fris
Acting Executive Director

Attachments

cc: Heidi Calvert, Regional Manager
CDFW Inland Deserts Region (6)

Hardeep Kaur, Budget Analyst
Wildlife Conservation Board

LEGAL DESCRIPTION OF LAND UNDER GRANT AGREEMENT

APN	Legal
020-100-032	SECTION 22, T. 11 S., R. 13 E., S.B.M.
020-100-042	PART OF SECTION 27, T. 11 S., R. 13 E., S.B.M., BEING DESIGNATED AS PARCEL 1 OF COC LLA #125 (1998/535)
020-100-023	SE 1/4 OF NE 1/4 OF SECTION 27, T. 11 S., R. 13 E., S.B.M.
020-090-003	SECTION 21, T. 11 S., R. 13 E., S.B.M.
020-090-004	PART OF SECTION 28, T. 11 S., R. 13 E., S.B.M., BEING ALL EXCEPT THE WEST 300 FEET OF THE EAST 380 FEET OF THE NORTH 500 FEET OF THE SOUTH 580 FEET; ALSO EXCEPTING THEREFROM THE SW 1/4 THEREOF
020-090-002	SECTION 20 T. 11 S., R. 13 E., S.B.M.
020-090-007	SECTION 29 T. 11 S., R. 13 E., S.B.M.
020-110-002	NORTH 1/2 OF NORTHEAST ¼, AND NORTHWEST 1/4 OF SECTION 32, T. 11 S., R. 13 E., S.B.M.

CLEAR

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)

County of Sacramento)

On August 3, 2023 before me, Mary Ahern, Notary Public

Date *Here Insert Name and Title of the Officer*

Personally appeared Rebecca Fris

Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

Signature of Notary Public

MARY AHERN
Notary Public - California
Sacramento County
Commission # 2432363
My Comm. Expires Dec 25, 2026

Place Notary Seal Above

---------- ***OPTIONAL*** ----------

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document Closing Memo, Red Hill Bay Shallow Water Habitat Document Date _____

Number of Pages _____ Signer(s) Other Than Named Above _____

Capacity(ies) Claimed by Signer(s)

Signer's Name Rebecca Fris	Signer's Name _____
☐ Corporate Officer—Title(s) Act. Exec. Dir.	☐ Corporate Officer—Title(s) _____
☐ Partner ☐ Limited ☐ General	☐ Partner ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other _____	☐ Other _____
Signer Is Representing Wildlife Conservation B	Signer Is Representing _____