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November 27, 2023

Via Docket No. 23-AFC-01

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

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

Re: CURE Data Requests Set 2 for Morton Bay Geothermal Project (23-AFC-01)

Dear Ms. Neumyer and Mr. Salamy:

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

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

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

Sincerely,

Andrew J. Graf

AJG:acp

6707-025acp

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: MORTON BAY GEOTHERMAL PROJECT APPLICATION FOR CERTIFICATION	Docket No. 23-AFC-01

CALIFORNIA UNIONS FOR RELIABLE ENERGY DATA REQUESTS SET 2

November 27, 2023

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STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: MORTON BAY GEOTHERMAL PROJECT APPLICATION FOR CERTIFICATION	Docket No. 23-AFC-01

CALIFORNIA UNIONS FOR RELIABLE ENERGY DATA REQUESTS SET 2

The following data requests are submitted by California Unions for Reliable Energy ("CURE") to Morton Bay Geothermal LLC ("the Applicant"). Please provide responses as soon as possible, but no later than Wednesday, December 27, 2023, within 30 days of the date that the request is made, to:

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

MORTON BAY GEOTHERMAL PROJECT
CURE Data Requests Set 2 (Nos. 100-244)

SOILS AND AGRICULTURAL RESOURCES

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

The AFC at 5.11-1 provides the following overview of the regional setting for agricultural resources around the 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 Plant Site Alternatives* at AFC page 6-2. If so, please provide a copy of this study.

BACKGROUND: WELL PADS AND PIPELINES

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

As stated in the AFC at 5.11-10, 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.

102. Provide the Applicant's analysis of the environmental impacts from construction of eleven (11) initial well pads, potential future well pads, and associated distribution pipelines.

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

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

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

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

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

BACKGROUND: REUSE OF PRIME AND STATEWIDE IMPORTANT SOIL TYPES

According to the AFC at 5.6-3 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.

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

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

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

BACKGROUND: EROSION CONTROL BEST MANAGEMENT PRACTICES

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.

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

BACKGROUND: SOIL COMPACTION

The AFC at 5.11-19 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.

BACKGROUND: OVERHAUL OF GEOTHERMAL STEAM TURBINE AND FLUID EQUIPMENT ON A 3-YEAR CYCLE

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.

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.

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.

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

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

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

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

BACKGROUND: GEOTHERMAL SCALE WASTES

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.

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

BACKGROUND: FILTER CAKE

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.

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.

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

BACKGROUND: CONTAMINATION AT EXISTING GEOTHERMAL FACILITIES

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

- Central Services: 480 West Sinclair Road
- Elmore Facility: 786 West Sinclair Road
- Leathers Facility: 342 West Sinclair Road
- Region 1, Units 1 & 2: 6920 Lack Road

- Region 1, Units 3 and 4: 6922 Crummer Road
- Vulcan/Del Ranch (Hoch) Facilities: 7001 and 7029 Gentry Road. (CalEnergy 2023)

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

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

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

DATA REQUESTS:

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.

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 environment from any potential hazards.

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

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.

REFERENCES:

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

BACKGROUND: GROUNDWATER RESOURCES

The AFC at 5.15-1 to 5.15-9 describes the occurrence and quality of the surface water and groundwater resources of the Salton Trough and the 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.

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

BACKGROUND: PIPELINES FOR PRODUCTION AND INJECTION WELLS

Pipelines will connect the production wells to the geothermal facility. (AFC at 2-16) 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 two parallel emergency shut-down valves (ESV's). 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 BHE Renewables, operating as CalEnergy.

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.

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

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

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 on a map where such locations exist.

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

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…."

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

BACKGROUND: REINJECTION OF FLUIDS

According to the AFC at 5.14-4: "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.

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 reinjected.

143. Provide discussion of whether any imbalance between the fluid extracted from the geothermal resources and the fluid reinjected underground may

increase—gradually or otherwise—the TDS of the geothermal reservoir over time.

BACKGROUND: FRESHWATER NEEDS FOR WELL DRILLING AND REPLACEMENT WELLS

The AFC at 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 total volume of freshwater needed to drill the MBGP's production wells.

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

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

147. Quantity in acre feet the total volume of water needed to drill MBGP's monitoring wells for the brine pond.

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

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

BACKGROUND: AGRICULTURAL HABITAT

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 MBGP.

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

BACKGROUND: SPECIAL-STATUS BIRDS

Table 5.2A-4 in Appendix 5.2A of the AFC provides a list of wildlife species that were observed during the reconnaissance-level survey of the BSA. Several of the species on that list are considered "special status" based on the criteria established on page 5.2-9 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 SCC) (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.

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

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

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

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

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

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

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

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

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

162. Provide all documentation of direct, indirect, and cumulative impacts to the snowy plover and its habitat.

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

REFERENCES

CDFW 2023 – California Department of Fish and Wildlife, Special Animals List (July 2023). Available Online At: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

USFWS 2021 – U.S. Fish and Wildlife Services, Birds of conservation Concern 2021: Migratory Bird Program (2021). Available Online At: https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf.

BACKGROUND: MOUNTAIN PLOVER

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.

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

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

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

REFERENCES

CDFW 2023 – California Department of Fish and Wildlife, Special Animals List (July 2023). Available Online At: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

BACKGROUND: WHITE-FACED IBIS

The white-faced ibis is a special-status species that irregularly breeds at and around the Salton Sea. (CDFW 2023) This species was incidentally detected during the Applicant's reconnaissance-level survey of the BSA, as confirmed by AFC Table 5.2-3. 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 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.

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

REFERENCES:

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

Cornell 2023 – Cornell Laboratory of Ornithology. 2023. All About Birds [web site]. Accessed August 4, 2023. Available Online At:

https://www.allaboutbirds.org/guide/White-faced_Ibis/id. (Accessed 4 August 2023).

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

BACKGROUND: LAND COVER TYPE MAPPING

Jacobs identified and mapped nine land cover types within the BSA. However, the scale of the map provided in the AFC (Figure 5.2-4 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.

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.

BACKGROUND: IMPACTS ON THE RED HILL BAY RESTORATION PROJECT

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 on January 31, 2023 and a final report due January 31, 2027. (*Id.*)

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

DATA REQUESTS:

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

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.

REFERENCES:

DWR 2023 – California Department of Water Resources. 2023. Red Hill Bay. Accessed November 27, 2023. Available Online At: https://water.ca.gov/Programs/Integrated-Regional-Water-Management/Salton-Sea-Unit/Red-Hill-Bay

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

BACKGROUND: IMPACTS TO THE SONNY BONO SALTON SEA NATIONAL WILDLIFE REFUGE

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.

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

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

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

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

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.

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").

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

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.

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

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

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.

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, and provide all supporting documentation.

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

REFERENCES:

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

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

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

BACKGROUND: RESTORATION OF TEMPORARY IMPACT AREAS

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.

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.

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

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

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

BACKGROUND: AGRICULTURAL LAND AS REGIONALLY IMPORTANT HABITAT

The AFC at 5.2-22 states: "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 (citations, webpage links, scientific studies, reports) supporting the AFC's statement that agricultural land is not considered regionally important as habitat for wildlife in the Imperial Valley.

REFERENCES:

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

BACKGROUND: BURROWING OWL MITIGATION

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.

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).

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

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

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.

REFERENCES:

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

Exhibit B-2 – Bank Enabling Instrument for the Mojave Desert Tortoise Conservation Bank. Exhibit B-2. Available Online At:

https://ribits.ops.usace.army.mil/ords/f?p=107:0:9319792691257:APPLICATION_PROCESS=AP_DB_DOC:::AI_STRING,AI_ID:inline,87789.

ENGP 2023 – Elmore North Geothermal LLC, Data Adequacy Supplement Set 2: Elmore North Geothermal Project (June 20, 2023). Available Online At: https://efiling.energy.ca.gov/GetDocument.aspx?tn=250678&DocumentContentId=85470.

BACKGROUND: CONSTRUCTION MITIGATION MANAGEMENT TO AVOID HARASSMENT OR HARM

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.

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

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

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

BACKGROUND: CONSTRUCTION MONITORING TO AVOID HARASSMENT OR HARM

Section 5.2.3.1.9 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.

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

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

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

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

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

BACKGROUND: IMPACTS FROM LIGHTING

The AFC at 5.2-26 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.

208. Provide a copy of Imperial County Municipal Code Section 91702.02(L) referenced in the AFC. If this section of the code does not exist, identify the correct section of the code.

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

BACKGROUND: CUMULATIVE IMPACTS

The AFC at 5.2-29 states: "With mitigation, the Project itself will not have significant adverse cumulative 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.

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

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.

BACKGROUND: AVIAN COLLISIONS

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 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.

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

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

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

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).

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

BACKGROUND: MITIGATION FOR BURROWING OWL RELOCATION

The AFC describes the proposed measures that are intended to avoid and minimize potential adverse effects of the Project on biological resources. Specifically, regarding surveys and habitat compensation for burrowing owls, the AFC at 5.2-34 states: "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. Avoidance is preferred over mitigation of impacts.

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.

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.

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

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

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

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

REFERENCES

CDFG 2012 – California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game, Sacramento, CA. Available Online At: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843.

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

BACKGROUND: DRILLING MUD

Construction of the Project's production and injection wells will require drilling. (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.

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

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

REFERENCES

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

BACKGROUND: NOISE IMPACTS ON WILDLIFE

The AFC at 5.2-26 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.

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

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

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

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

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.

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.

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

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

REFERENCES

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

CalTrans 2016 – Dooling RJ, Popper AN. 2016. Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds. The California Department of Transportation, Sacramento, CA. Available Online At: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/noise-effects-on-birds-jun-2016-a11y.pdf.

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

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

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

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

BACKGROUND: PRECONSTRUCTION SURVEYS TO AVOID HARASSMENT OR HARM

The AFC at 5.2-34 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. Furthermore, 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)

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

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

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

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

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

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

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 the success of the relocation efforts.

Dated: November 27, 2023

Respectfully submitted,

Original Signed by:

/s/ Andrew J. Graf

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