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CALIFORNIA
ENERGY COMMISSION

December 23, 2022

Curt Hilderbrand
Hydrostor, Inc.
400 Capitol Mall, Suite 3000
Sacramento, CA 95814-4497

Data Requests Set 3 for Willow Rock Energy Storage Center (21-AFC-02)

Dear Curt:

Pursuant to Title 20, California Code of Regulations, section 1716, California Energy Commission (CEC) staff is asking for the information specified in the enclosed Data Requests Set 3, which is necessary for a complete staff analysis of the Willow Rock Energy Storage Center (WRESC) under the Warren-Alquist Act and California Environmental Quality Act (CEQA).

Responses to the data requests are due to staff within 30 days. If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send written notice to me and the Committee within 20 days of receipt of this letter. Such written notification must contain the reasons for not providing the information, the need for additional time, or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please email me at leonidas.payne@energy.ca.gov.

_____/S/_____

Leonidas Payne
Project Manager

Enclosure: Data Requests Set 3

GEM ENERGY STORAGE CENTER
DATA REQUESTS SET 3

BIOLOGICAL RESOURCES

BACKGROUND: Hydrostatic Compensation Surface Reservoir

In Data Request (DR) Response Set 1B, DR12 (TN 246210), the applicant provided information on the Hexa-cover, a floating cover for liquid surfaces that would be like the cover the applicant proposes for the project's hydrostatic compensation surface reservoir. The reservoir and cover are proposed to be approximately 18 acres. As CEC staff stated earlier in DR12, open water in the desert is problematic and draws in wildlife, some of which would not ordinarily be present in a desert environment (e.g., waterfowl and shorebirds). This is partly because the visual appearance and scent of water bodies in the desert may mimic the appearance of a lake, drawing in waterbirds, other avian species, and bats. The applicant's response to DR12 states that the floating cover is very effective at reducing waterfowl issues; however, no evidence is provided to support this. Staff and California Department of Fish and Wildlife (CDFW) are concerned that the reservoir would cause injury or mortality of wildlife that gain access to the water due to the floating cover. Certain bird species who access the water could get caught among the floating cover and find it hard to access the sides of the reservoir to escape or have difficulties flying away. Waterfowl require open water to run on in order to fly away. The floating cover would prevent this. Because of the possible risks to wildlife, staff would prefer that the reservoir be covered with netting or completely enclosed to prevent access to wildlife, especially birds. For solar projects with evaporation ponds, the CEC has required the ponds to be netted to prevent access to wildlife. While the water quality of the reservoir is not expected to be toxic to wildlife, the potential exists for waterfowl and wildlife to get trapped within the floating cover and unable to escape.

DATA REQUESTS

145. Please provide evidence to support the claim that the floating cover would reduce waterfowl issues.
146. Please discuss the feasibility of other means of preventing wildlife from accessing the water, including netting or complete enclosure.

BACKGROUND: Desert Kit Fox/American Badger

The applicant is assuming presence for American badger as stated in their responses (TN 245698, August 25, 2022) to staff's data request set 1, and has also concluded the presence of desert kit fox in the DKF Biological Memo Report (TN 247949, DR36-2) and in a meeting on November 18, 2022, following up on the October 11, 2022, workshop held to discuss applicant's objections to some of staff's data requests. To assess the effectiveness of measures to avoid and minimize impacts to these species to the greatest extent possible, the applicant will need to submit a monitoring and management plan for staff and CDFW's review.

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DATA REQUEST

147. Please provide a Draft Desert Kit Fox and American Badger Monitoring and Management Plan for CEC staff and CDFW's review. This plan should include at a minimum:
    - background
    - protection measures
    - pre-construction survey and den/burrow mapping methods
    - avoidance measures
    - monitoring methods
    - den/burrow excavation techniques
    - relocation techniques
    - artificial burrow/den design
    - installation methods and timing
    - and identification of a wildlife rehabilitation center or veterinary facility capable of and willing to treat injured animals, and reporting and notifications

BACKGROUND: Crotch Bumble Bee

The California Fish and Game Commission determined listing the Crotch bumble bee (CBB) as endangered under the California Endangered Species Act "may be warranted" and the species became a candidate for listing on June 12, 2019. The listing was legally challenged, and candidacy was stayed during litigation. The Fish and Game Commission's decision was ultimately upheld, and candidacy was reinstated on September 30, 2022. As such, the Crotch bumble bee now has the same legal protection afforded to a State endangered or threatened species (California Fish and Game Code sections 2074.2 and 2085).

CEC staff, CDFW, and the applicant had a meeting on December 2, 2022, in follow up to the October 11, 2022, workshop held to discuss applicant's objections to some of staff's data requests. The applicant docketed additional responses on November 16, 2022, as agreed to during the workshop, including a CBB habitat assessment (TN 247494). Staff and CDFW reviewed the habitat assessment and found it lacking sufficient information to support a conclusion that the species is not present or that surveys would not be needed.

The habitat assessment concluded 1) there are not enough nectar sources, 2) nectar sources are scattered throughout the area, 3) no known recorded occurrences of CBB are near the project site, and 4) no suitable nectar sources are within the project site. During the December 2 meeting, staff and CDFW presented information to applicant explaining why the applicant's habitat assessment conclusions are incorrect. The

following paragraphs contain the explanation as to why staff and CDFW require CBB surveys of portions of the project area, specifically those areas containing the low and moderate suitable habitat for the species.

The CBB use a variety of habitats including open grasslands, shrublands, chaparral, desert margins including Joshua tree and creosote scrub, and semi-urban settings. The CBB are also generalists and use a wide array of plant species as nectar sources. The project site contains plant species that are known to be used as nectar sources by CBB. This species can forage up to 6.2 miles from their nest sites to use nectar food sources. It may be possible that the CBB may not nest on the project site, but it is clear that foraging habitat is present. The site does not have to sustain a nest colony of CBB or contain all the forage species (nectar sources) that would maintain a nest colony on site to be considered suitable habitat and be used by the species for foraging.

Surveys conducted and provided in the application for certification (AFC) filing by the applicant did not focus on the CBB nor did any of the surveyors have the appropriate qualifications to survey the CBB. The information provided in the habitat assessment does not include surveys and therefore the information provided is not an indicator of the current year's occupancy of the CBB. The CBB Queens move nesting locations every year and the species has been increasing its range in recent years.

There are documented sightings nearby in the city of Lancaster from 2020 as well as several in Phacelia Preserve, in addition to the recorded occurrence the applicant provided in the habitat assessment for Antelope Valley Poppy Preserve State Natural Reserve. These two other iNaturalist occurrences have been verified by Dr. John Ascher and Dr. Leif Richardson, both preeminent bumble bee experts.

The habitat assessment did not inventory or survey for any suitable nesting site substrates to determine if a colony is present. Documentation of all small mammal burrows, perennial bunch grasses, thatched annual grasses, brush piles, old bird nests, dead trees, and hollow logs which could be used as nest sites, is needed to determine possible nest locations. Conducting surveys for other species cannot be used to replace protocol surveys for the CBB.

As shown in California Natural Diversity Database (CNDDB) and iNaturalist, the species occurs in or near the city of Tehachapi (north), communities of Mojave (northeasterly), Gorman (west), Three Points (south), and Edwards Air Force Base (east) that surround the project site. Therefore, there is potential this species could utilize the plants in the project area for forage even if the site is not suitable for a nest.

Without conducting surveys, it is hard to definitively say the site is unoccupied. The habitat assessment states there is some low to moderate suitable habitat, which means there is suitable habitat in the project area.

Even though there are no recorded occurrences in the project area, this lack of data does not mean the species does not occur there. It could be the site was never surveyed for the CBB. The occurrence sightings only provide positive data of where the species was found. Data is not kept regarding where surveys were conducted with negative findings. Staff reiterates that the CNDDB and iNaturalist are positive occurrence databases only and may not be used to document absence of occurrence.

If CDFW has not released the official CBB survey protocol prior to the necessary timeframe to conduct surveys, CDFW will provide a survey methodology specific to the project area with enough lead time for review and preparation by the applicant. Included is some information of the criteria for CBB surveys that will be included in the survey protocol.

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148. Please conduct at least 3 days of surveys for Crotch bumble bee. In general, the protocol will require the following criteria for the surveys:
    - survey during peak nectar plant blooming period (~March 1 through June 30)
    - survey between 8 am and 4 pm
    - survey when temperatures are between 65-90 degrees Fahrenheit
    - survey on sunny days with wind less than 8 mph
    - minimum 1 person hour of active search time per 3 acres of suitable habitat (this time can be split between multiple surveyors, but the "clock" must be stopped when not actively surveying)
    - interval between survey days should be at least 3 weeks

149. Prepare a written report for staff and agency review and comment. At a minimum, please include:
    - surveyor(s) qualifications/resumes
    - dates and times of surveys
    - weather conditions
    - photo log of suitable habitat and nectar plants
    - photos of bumble bees for identification

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DATA REQUESTS SET 3

PROJECT OVERVIEW

BACKGROUND: Construction Laydown and Parking, Reservoir Berms, Seismic Design, and Options for Use of Waste Rock

The applicant's data responses Set 1B (TN #246210) provide partial responses to data requests concerning the following:

- Construction Laydown and Parking (Data Response 10)
- Material for Construction of Reservoir Berms (Data Response 14)
- Seismic Design (Data Response 72)
- Processing and Potential Use of Waste Rock (Data Responses 85, 86, and 91)

In those responses, the applicant repeatedly states that answers will be provided following "project optimization." It is unclear what "project optimization" means.

DATA REQUEST

150. Please fully explain the meaning(s) of "project optimization," including whether it is a process or a work product or a combination thereof. Also provide a projected schedule for completion of "project optimization."

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SOCIOECONOMICS

BACKGROUND: Project Construction Workforce

Page 5.10-11 of the application states "based on skilled labor requirements and existing workforces in Kern County, local labor pool will be adequate to fulfill non-specialized GESC's construction labor requirements". The cavern workers are described as a specialized workforce, and Table 5.10-8 and 5.10-9 categorizes the construction workforce by surface and cavern workers. Page 5.10-17 of the application states "15 percent of skilled labor for surface construction activities will be drawn locally from Kern County". Staff needs clarification on what comprises the non-specialized labor and percentage of local and nonlocal workforce.

DATA REQUESTS

151. Is the non-specialized labor for the project the surface workforce and is it comprised of the "Surface Works" trades presented in Table 5.10-8 and 5.10-9? If not, what trades and workers make up the "non-specialized GESC's construction labor requirements"?
152. Confirm the percentage of all the surface workers that will be drawn locally from Kern County. Confirm the percentage of all cavern workers that will be drawn locally from Kern County.

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WATER RESOURCES

BACKGROUND: Dam/Reservoir Design

Section 2.0 Project Description of the AFC indicates that the project will include an approximately 565-acre-foot surface water reservoir with floating cover. Section 5.15 Water Resources of the AFC (subsection 5.15.2.4) indicates that the surface compensation reservoir will have "a maximum berm height of ~40 feet from ground elevation and will be designed to be seismically stable, including preventing the formation of seiches. The compensation reservoir exceeds the jurisdictional height greater than six feet and therefore, it meets the definition of a (California Division of Safety of Dams - DSOD) jurisdictional dam." However, Dr. Erik Malvick, Design Engineering Branch Manager at Department of Water Resources, Division of Safety of Dams, informed CEC staff that Gannett Fleming, Inc., consultant for the project applicant, recently submitted preliminary information to DSOD for the Willow Rock project site listing a planned reservoir with a berm height of 6 feet and an excavated depth to 36 feet below ground surface.

DATA REQUESTS

153. Please confirm if Gannett Fleming, Inc. provided the above-mentioned material to DSOD on Hydrostor's behalf.
154. If so, please provide the current design of the surface compensation reservoir along with the information Gannett Fleming, Inc. recently submitted to DSOD.

BACKGROUND: Trace Elements/Groundwater Quality

Trace and minor elements are naturally present in the minerals in rocks and soils. The traces and other elements enter the water they come into contact with through dissolution. Groundwater wells installed to access aquifers in the Sierra Nevada are often sited in fractured granitic bedrock, which is the most abundant rock type in the Sierra Nevada. Preliminary geotechnical subsurface information at the project site shows that granodiorite (a granitic rock) has been encountered at the site at depths of approximately 1,539 feet and below. According to the State of California Groundwater Ambient Monitoring and Assessment (GAMA) Program, in the Southern Sierra Nevada study unit, trace and minor elements were present at high concentrations in about 28 percent of the primary aquifers, and at moderate concentrations in about 16 percent. Arsenic, fluoride, and boron were the trace and minor elements that most frequently occurred at high and moderate concentrations. Aluminum and antimony also were detected at high concentrations, but in less than one percent of the primary aquifers (CAWSC 2012). The Antelope Valley Ground Water Basin lies stratigraphically above the granitic bedrock in the area. In the Antelope GAMA study area, the main water-bearing units are gravel, sand, silt, and clay derived from surrounding mountains. Trace

elements were present at high concentrations in 32 percent of the primary aquifers and at moderate concentrations in 17 percent. Of the 17 trace elements with human-health benchmarks analyzed in this study, 5 were detected at high concentrations: aluminum, arsenic, vanadium, boron, and fluoride. Chromium, lead, and molybdenum were present at moderate concentrations (CAWSC 2009).

DATA REQUESTS

155. Please provide a discussion of the potential for increased concentrations of trace elements as a result of the cycling of the water between the caverns and the compensation reservoir.
156. Please provide a discussion of the potential interaction of the stored water with groundwater bodies through seepage and the potential impact on the quality of the groundwater.

REFERENCES

California Water Science Center (CAWSC). Groundwater Ambient Monitoring & Assessment Program Priority Basin Project (GAMA-PBP). Available at: https://webapps.usgs.gov/gama/

California Water Science Center (CAWSC). 2009. Groundwater Ambient Monitoring & Assessment Program Priority Basin Project (GAMA-PBP). Groundwater-Quality Data in the Antelope Valley Study Unit, 2008: Results from the California GAMA Program. Schmitt, S.J., Milby Dawson, B.J., and Belitz, Kenneth. U.S. Geological Survey Data Series 479, 79 p. Available at: https://pubs.usgs.gov/fs/2012/3033/pdf/fs20123033.pdf

California Water Science Center (CAWSC). 2012. Groundwater Quality in the Southern Sierra Nevada, California. Fram, M.S., and Belitz, K. U.S. Geological Survey Fact Sheet 2012-3011, 4 p. Available at: https://pubs.usgs.gov/fs/2012/3011/pdf/fs20123011.pdf