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Application for Certification
Data Adequacy Supplement

For the

Mission Rock Energy Center

15-AFC-02

April 2016

Submitted to
California Energy Commission

Submitted by



With Technical Assistance by



Mission Rock Energy Center, LLC

April 29, 2016

Mike Monasmith
Senior Project Manager
Siting, Transmission and Environmental Protection (STEP) Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Subject: Mission Rock Energy Center (15-AFC-02) Data Adequacy Supplement

Dear Mr. Monasmith,

Please find attached the Mission Rock Energy Center Application for Certification 15-AFC-02 Data Adequacy Supplement. This supplement was prepared in response to the Staff's Data Adequacy Recommendation dated January 29, 2016; all items identified by Staff have been addressed.

Attached are 2 hard copies and 2 electronic copies on CD-ROM.

If you have any questions about this matter, please contact me at (925)-570-0849.

Sincerely,



Barbara McBride
Director, Environmental Services
Calpine Corporation

AFC SUPPLEMENT

Application for Certification

Data Adequacy Supplement

For the

Mission Rock Energy Center

15-AFC-02

Prepared for

Calpine Corporation



April 2016



CH2M Hill Engineers, Inc.
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

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DA3.0-1	One-line Diagram of Power Plant and Switchyard
DA3.0-2	CAISO Interconnection Application and Payment Documentation
DA5.1-1	Ventura County Air Pollution Control District Completeness Letter
DA5.2-1	Report of March, 2016 Supplemental Biological Surveys
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DA5.3-3	DPR 523A Forms (filed separately under a request for confidentiality)
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DA5.15-1	Will-serve Letter for Wastewater Disposal from Patriot Environmental Services

Acronyms and Abbreviations

AFC	Application for Certification
CAISO	California Independent System Operator
CEC	California Energy Commission
CDFW	California Department of Fish and Wildlife
CHRIS	California Historical Resources Information System
CNDDDB	California Natural Diversity Database
DA	Data Adequacy
DPR	Department of Parks and Recreation
FEMA	Federal Emergency Management Agency
FIRM	Floodplain Insurance Rate Map
GIS	Geographic Information System
GO	General Order
IX	ion exchange
KOP	Key Observation Point
LOMR-F	Letter of Map Revision – based on fill
LORS	laws, ordinances, regulations, and standards
MREC	Mission Rock Energy Center
NOI	Notice of Intent
RO	reverse osmosis
SCWW	Southern California Waste Water
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
ZLD	zero liquid discharge

Data Adequacy Supplement Introduction

This supplement to Mission Rock Energy Center, LLC's Application for Certification (AFC) for the Mission Rock Energy Center (MREC) (15-AFC-2), provides additional information in response to California Energy Commission (CEC) Staff's data adequacy review of the AFC. With this additional information, Staff should recommend that the AFC contains adequate data to begin a power plant site certification proceeding under Title 20, California Code of Regulations and the Warren-Alquist Energy Resources Conservation and Development Act.

The format for this supplement follows the order of the AFC. Only AFC sections for which CEC Staff posed requests or questions related to data adequacy are addressed in this supplement. If the response calls for additional material, it is included as an attachment at the end of the applicable subsection. Attached material is identified by the prefix "DA" indicating an item submitted in response to a Staff Data Adequacy comment, a number referring to the applicable AFC chapter, and a sequential identifying number. For example, the first sequential attachment in response to a Transmission System Engineering comment would be Attachment DA3.0-1, because the AFC section describing electrical transmission is Section 3.0. Attached material is paginated separately from the document text.

Each subsection references the data adequacy information request followed by a response to the information request.

1.0 Introduction (1-2)

1. Site Photograph - Appendix B (a) (1) (D)

A full-page color photographic reproduction depicting the visual appearance of the site prior to Construction.

Information required to make AFC conform with regulations:

A full-page color photographic reproduction depicting the visual appearance of the site prior to construction is needed as well as one depicting the appearance after construction.

Response: Attachment DA1.0-1 is a color photographic reproduction depicting the visual appearance of the site before construction. The existing appearance of the site is also shown in the AFC Visual Resources section (5.13) in Figure 5-13A.

2. List of Property Owners' Names and Addresses - Appendix B (a) (1) (E)

In an appendix to the application, a list of current assessor's parcel numbers and owners' names and addresses for all parcels within 500 feet of the proposed transmission line and other linear facilities, and within 1000 feet of the proposed power plant and related facilities.

Information required to make AFC conform with regulations:

A current county assessor's numbered parcel list of property owners within 1,000 ft. of the proposed project site and within 500 ft. of the three proposed linear facilities was not submitted with the AFC. The Assessor's Parcel Map (Appendix 5.14-A, Plate 3) is difficult to read, and but lacks detail.

Response: The list of property owners was provided to the CEC Project Manager on January 5, 2016.

Attachment DA1.0-1
Photographic Reproduction of the Site Before
Construction



Aerial Image © Google Earth 5/1/2015 Annotation © CH2M 2015

Figure DA1.0-1.
MREC site, Existing View
Mission Rock Energy Center

2.0 Project Description (3)

3. Power Plant-Synchronous Condenser-Battery Technology Availability - Appendix B (h) (3) (B) (v)

For technologies not previously installed and operated in California, the expected power plant maturation period.

Information required to make AFC conform with regulations:

In addition to the natural gas-fired, simple-cycle power block, the project proposes a battery energy storage system for onsite storage of electricity that can deliver additional electricity to the electricity grid. The project also proposes a clutch system to provide voltage support by operating as a synchronous condenser.

The integration of these energy storage and clutch/condenser systems into thermal power plants is new in California. Please explain how the integration of these systems into the project's design would ensure the project's expected availability factor of 92-98 is achievable and maintained during the life of the project.

Response: The availability factor of the natural gas-fired combustion turbines is based on decades of gas-turbine operating experience and is independent of the operating characteristics of either the battery system or the clutch systems that allow the generators to perform as synchronous condensers. The battery array is not connected to the MREC power block but is only connected to the electrical switchgear in the plant. So while the battery system can store electricity generated by the gas turbines it is not required to do so. As such, the battery system can charge and discharge independent of the operating status of the gas turbine generation systems. Operation of the plant as a synchronous condenser using a clutch system should be viewed as having the same historic availability as gas turbines in general and, in this case, the GE LM6000. The clutch simply disengages the gas turbine from the generator so that the generator can continue to spin and remain synchronized to the grid allowing the gas turbine to shut down. Adjustments to the electrical characteristics of the generator allow the unit to provide voltage conditioning support to the grid. GE Energy advertises 98 percent availability and more than 100 million total operating hours.

The battery systems that would be installed at MREC would be modular, leased or purchased from manufacturers or suppliers, and subject to commercial guarantees for both output and availability provided by the vendor as is customary.

3.0 Transmission System Engineering (4-6)

4. Transmission Facility Design - Appendix B (b) (2) (C)

A detailed description of the design, construction, and operation of any electric transmission facilities, such as power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the proposed power plant to the load centers to be served by the facility. Such description shall include the width of rights of way and the physical and electrical characteristics of electrical transmission facilities such as towers, conductors, and insulators. This description shall include power load flow diagrams which demonstrate conformance or nonconformance with utility reliability and planning criteria at the time the facility is expected to be placed in operation and five years thereafter

Information required to make AFC conform with regulations:

Please provide the following one-line diagrams. Show all equipment ratings including generators, transformers, isolated phase bus duct, circuit breakers, disconnect switches, and etc. required for the project.

- 1. One-line diagrams for the power plant.*
- 2. One-line diagrams for the power plant switchyard.*
- 3. One-line diagram for the Santa Clara Substation before the interconnection of the Mission Rock Energy Center.*
- 4. Provide one-line diagram for the Santa Clara Substation after the interconnection of the Mission Rock Project.*

Response: A one-line diagram for the power plant and power plant switchyard is included as Attachment DA3.0-1. Information pertaining to the Santa Clara Substation configuration and MREC interconnection will be provided in the Cluster Phase I Interconnection Study to be conducted this year by the California Independent System Operator (CAISO).

5. Interconnection Study - Appendix B (b) (2) (E)

A completed System Impact Study or signed System Impact Study Agreement with the California Independent System Operator and proof of payment. When not connecting to the California Independent System Operator controlled grid, provide the executed System Impact Study agreement and proof of payment to the interconnecting utility.

Information required to make AFC conform with regulations:

Provide A completed Phase I and/or Phase II Interconnection Study or signed Study Agreement with the California Independent System Operator and proof of payment for the Mission Rock Energy Center project.

Response: Attachment DA3.0-2 is a copy of the CAISO's acknowledgement that the project owner has submitted an interconnection request and includes proof that the owner has paid the interconnection request deposit fee for the Mission Rock Energy Center. Calpine applied for interconnection on April 25, 2016. We expect the Study Agreement to be available for signature at some time after the interconnection request window closes on April 30, 2016, and will provide the signed Study Agreement at that time.

6. Laws, Ordinances, Regulations, and Standards (LORS)

Applicability - Appendix B (i) (1) (A)

Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each.

Information required to make AFC conform with regulations:

Missing GO-129.

Response: General Order (GO) 129 is no longer listed among the California Public Utilities Commission's approved General Orders.

Attachment DA3.0-1
One-Line Diagram of the Power Plant and Power
Plant Switchyard

- NOTES
 1. EO: ELECTRICALLY OPERATED
 2. MO: MANUALLY OPERATED
 3. NO: NORMALLY OPEN
 4. NC: NORMALLY CLOSED

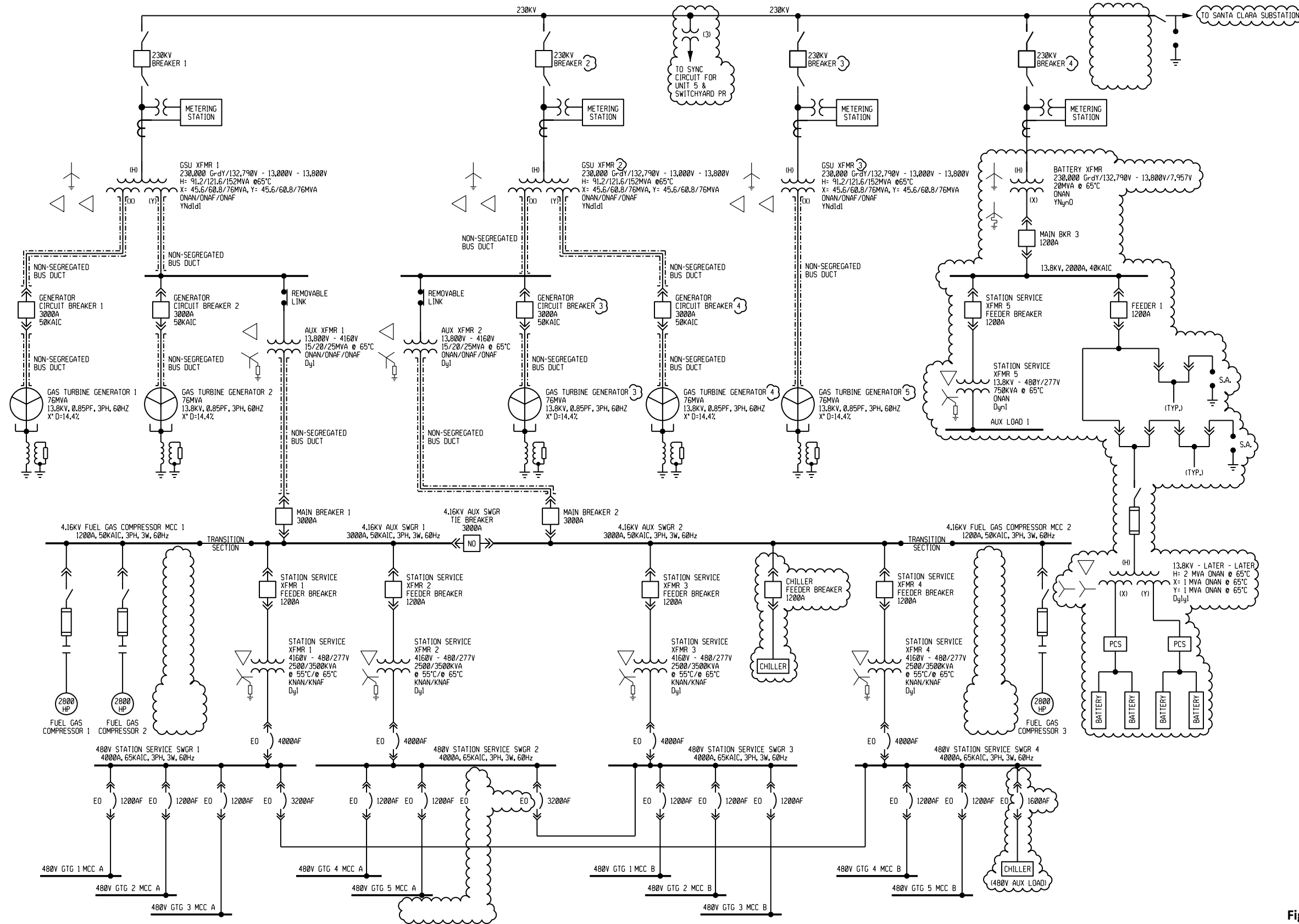


Figure DA3.0-1.
 One-line Diagram
 Mission Rock Energy Center

Attachment DA3.0-2
CAISO Interconnection Application and Payment
Documentation

Urry, Doug/SAC

From: Davy, Doug/SAC
Sent: Monday, April 25, 2016 3:26 PM
To: Urry, Doug/SAC
Subject: FW: Mission Rock CAISO Interconnect Request

From: Mitch Weinberg [mailto:Mitchell.Weinberg@calpine.com]
Sent: Monday, April 25, 2016 3:25 PM
To: Jill Van Dalen <Jill.VanDalen@calpine.com>; Barbara McBride <Barbara.McBride@calpine.com>; Davy, Doug/SAC <Doug.Davy@CH2M.com>
Cc: Peter So <PSo@calpine.com>
Subject: FW: Mission Rock CAISO Interconnect Request

FYI

From: Tavares, Phelim [mailto:ptavares@caiso.com]
Sent: Monday, April 25, 2016 3:24 PM
To: Peter So
Cc: Mitch Weinberg; Balch, Julie
Subject: RE: Mission Rock CAISO Interconnect Request

Peter,
We have received the Mission Rock IR and funds. The IR is currently being reviewed for deficiencies.

Thanks,

Phelim Tavares
Interconnection Specialist
CAISO, Interconnection Resources
916-608-5906

From: Peter So [mailto:PSo@calpine.com]
Sent: Monday, April 25, 2016 1:27 PM
To: Tavares, Phelim <ptavares@caiso.com>
Cc: Mitch Weinberg <Mitchell.Weinberg@calpine.com>
Subject: Mission Rock CAISO Interconnect Request

< EXTERNAL email. Evaluate before clicking. >

Phelim,

As the RIM system doesn't send a confirmation email when we submitted the IR, can you by email confirm that the application has been received by CAISO and is under review.

Also, if you can confirm that the funds that we wired over is also in place, that would be great.

Thanks.

PETER SO, P.E.

PROJECT DEVELOPMENT MANAGER

CALPINE CORPORATION

Direct: (925) 557-2285

VOIP: 72285

Email: psocalpine.com



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5.1 Air Quality (7)

7. Air Pollution Control District Application - Appendix B (g) (8) (A)

The information necessary for the air pollution control district where the project is located to complete a Determination of Compliance.

Information required to make AFC conform with regulations:

The Ventura County Air Pollution Control District needs the permit application and an indemnification agreement in order to make a data adequacy determination. Once the district has made its determination, please provide the permit application completeness letter issued by the district.

Response: The Ventura County Air Pollution Control District Board of Directors approved the indemnification agreement on April 13, 2016 and has found the air permit application complete as of April 14, 2016. The determination of completeness letter is included as Attachment DA5.1-1.

Attachment DA5.1-1
VCAPCD Determination of Completeness



Ventura County
Air Pollution
Control District

669 County Square Drive
Ventura, California 93003

tel 805/645-1400
fax 805/645-1444
www.vcapcd.org

Michael Villegas
Air Pollution Control Officer

April 14, 2016

Mr. Alexandre B. Makler
Mission Rock Energy Center, LLC
717 Texas Avenue, Suite 1000
Houston, TX 77002

Subject: Ventura County APCD Rule 26.9 – Determination of Compliance Review
Mission Rock Energy Center at 1025 Mission Rock Road in Santa Paula, California
Complete Application Notice Application for Authority to Construct No. 08308-100

Dear Mr. Makler:

The Ventura County Air Pollution Control District (VCAPCD) received your application for Authority to Construct No. 08308-100 on February 22, 2016. This permit application is for the proposed Mission Rock Energy Center (MREC) that will include a 275 MW natural gas-fired simple-cycle gas turbine power plant. The purpose of this letter is to advise you, pursuant to Rule 13, that your application was deemed complete on April 14, 2016.

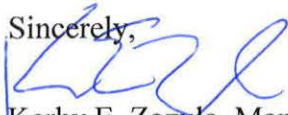
This completeness determination is conditioned with the requirement that prior to the issuance of the Authority to Construct for this project, emission offsets shall be provided as required by Section B of Rule 26.2, "New Source Review – Requirements".

Pursuant to Section E of Rule 26.9, "New Source Review - Power Plants", the VCAPCD may request additional information necessary for the completion of the Authority to Construct and Determination of Compliance review.

Rule 42, "Permit Fees", Section B.2.a, requires that the District provide an estimate of the permit processing fee when the application is deemed complete, if the processing fee is expected to exceed \$2,000.00. As you know, this is a very complex permit application that will require a significant amount of staff time. At this time, the permit processing fee is estimated to be approximately \$100,000 to \$150,000.

If you have any questions regarding your Authority to Construct application, please call me at 805/645-1421.

Sincerely,


Kerby E. Zozula, Manager
Engineering Division

c: SJVAPCD (via email)

M:\Mission Rock Energy Center\Complete-08308-100.doc

5.2 Biological Resources (8-13)

8. Field Studies - Appendix B (g) (13) (D)

A description and results of all field studies and seasonal surveys used to provide biological baseline information about the project site and associated facilities. Include copies of the California Natural Diversity Database records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys.

Information required to make AFC conform with regulations:

Please provide field survey forms completed by the applicant's biologists, identifying the date(s) the surveys were completed and methods used to complete the surveys.

Response: The reconnaissance surveys were conducted on September 22-23, 2015. Field survey methods are discussed in AFC Section 5.2.1.5. The AFC does not include California Natural Diversity Database (CNDDDB) records and field survey forms because no special-status species were identified within the survey area. In addition, no potentially jurisdictional wetlands were identified within the project site boundary; therefore, no *Wetland Determination Data Form – Arid West Region* were completed. Surveys for rare plants were not conducted during the reconnaissance surveys because work on the AFC began after the appropriate floristic period for special-status plant species that have the potential to occur within the project vicinity. The Applicant will conduct the rare plant surveys during the proper floristic period (April through June) starting April 20, 2016 and will file a survey report with the Commission after the surveys are complete, including field forms for any special-status species encountered.

Additional surveys were conducted March 1, 2016 to delineate features that are not jurisdictional wetlands, and to conduct supplemental avian surveys. Survey results are included here as Attachment DA5.2-1.

9. Special-Status Species Surveys - Appendix B (g) (13) (D) (i)

Current biological resources surveys conducted using appropriate field survey protocols during the appropriate season(s). State and federal agencies with jurisdiction shall be consulted for field survey protocol guidance prior to surveys if a protocol exists;

Information required to make AFC conform with regulations:

AFC page 5.2-1 states "the methods and results of biological surveys for the proposed project are included in Section 5.2.2.4." However, this section does not exist.

While AFC states that rare and special-status plant surveys were conducted in June 2014, within the flowering period, it does not describe the types of protocol surveys conducted.

Please describe the field survey protocols used during the 2014 rare plant surveys.

If special-status plant surveys were not conducted using appropriate survey protocols during the appropriate season(s), please conduct these surveys in areas to be disturbed by the project where suitable habitat exists for the special-status plants listed in Appendix 5.2A.

The AFC states "During field surveys, the regional special-status wildlife species list was evaluated against observed conditions to determine which species could occur or have the potential to occur"

(page 5.2-9, Section 5.2.1.10). However, there is no mention of any protocol surveys, dates of surveys, or survey methods for the special-status species listed in Appendix 5.2A.

If special-status wildlife surveys were not conducted using appropriate survey protocols during the appropriate season(s), please conduct these surveys in areas to be disturbed by the project where suitable habitat exists for the special-status wildlife listed in Appendix 5.2A.

Depending on the results of the surveys, update the list of Plant and Wildlife Species Observed during Field Surveys (Appendix 5.2B) if need be.

Methods—Field survey methods are discussed in AFC Section 5.2.1.5.

Rare Plant Surveys—Surveys of a previous generator tie-line alignment by a different party in 2014 were not formally published or submitted to any agency. As these surveys are generally considered valid for only one year and covered a previous tie-line alignment, the Applicant did not submit them with the AFC. The Applicant did not conduct rare plant surveys in 2015 because work on the AFC began outside of the appropriate floristic period for the target species (April-June). The Applicant plans to conduct rare plant surveys in 2016 (starting April 20) and submit the results to the Commission.

Rare Plant Survey Protocols—As stated above, the 2014 rare plant surveys covered a previous alignment of the generator tie-line, are considered dated, and no longer applicable.

Rare Plant —The Applicant will conduct the surveys during the appropriate floristic period of April-June (starting April 20) and submit the results to the Commission.

Wildlife Surveys—The project site is completely developed, paved with asphalt-concrete and located within an industrial park. Land uses within the majority of the proposed project consist primarily of agricultural, commercial, and industrial uses. There is a small portion of the proposed project (part of the generator tie-line) that is located within open space. The generator-tie line will be adjacent to existing utility rights-of-way and their access roads, however. Therefore, the project is not expected to impact special-status wildlife species habitat and protocol-level surveys to determine presence-absence are not necessary in this area. Pre-construction surveys will be conducted during the nesting season to establish procedures for avoidance of impacts to nesting birds. Protocol surveys for the least Bell's vireo at one generator tie-line tower location (#3) will be conducted starting in April 2016, at the request of the U.S. Fish and Wildlife Service.

Wildlife Survey Protocols—Per discussions with Commission Staff, project biologists have collected additional data to document absence of habitat for special-status wildlife species. The report of additional fieldwork is included here as Attachment DA5.2-1.

List of Species Observed—Attachment DA5.2-1 is updated to include species observed in March 2016 that were not observed in summer of 2015.

10. Wetlands - Appendix B (g) (13) (D) (iii)

If the project or any related facilities could impact a jurisdictional or non-jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act requirements, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing wetland acreage amounts to be impacted.

Information required to make AFC conform with regulations:

The project has the potential to impact the wetlands southeast and adjacent to the project site (Fig 5.2-2, page 1 of 20), the natural gas pipeline route (Fig 5.2-2, page 10 of 20), and along the proposed Gen-Tie line (Fig 5.2-2; pages 11 of 20 and 12 of 20).

The AFC says the project “will not cause loss or fill of any wetlands” (page 5.2-17). It also states the project will not “affect waters of the United States” or State waters (page 5.2-29). However there is no data to support this claim. The National Wetland Inventory data is not accurate enough and does not provide current conditions of the area to make a determination for direct and indirect impacts.

Provide completed wetland delineation forms using the 1987 Army Corps of Engineers Wetlands Delineation Manual (United States Army Corps of Engineers, 1987), including delineation of waters jurisdictional to the State of California within 250 feet of the project area (including all linear facilities).

Response: The project site is completely developed and paved with asphalt-concrete, and is located in a developed industrial park. Based on field surveys of the project site and linears, the project will not affect jurisdictional wetlands. The feature to the southwest of the project site is documented in Attachment DA5.2-2 as non-jurisdictional. We have also collected additional information to document avoidance of other possible wetland and water features. Please note that the natural gas pipeline will use horizontal directional drilling to cross Todd and Ellsworth barrancas and that generator tie-line tower #32 will avoid the non-jurisdictional stock pond and that Tower #13 will be placed outside of the canal or riparian zone and will not require tree removal.

11. Correspondence with Agencies - Appendix B (g) (13) (H)

Submit copies of any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits from other agencies such as the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, the California Department of Fish and Game, and the Regional Water Quality Control Board will be required for the proposed project.

Information required to make AFC conform with regulations:

The AFC recommends consultation with CDFW and USFWS, particularly for the generator tie-line. There’s a statement that reads “Further discussions will determine whether CDFW and USFWS will require formal consultation for this portion of the project,” suggesting that some preliminary correspondence between the applicant and CDFW and/or USFWS has occurred.

Please provide any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits will be required for the proposed project.

Response: CEC Staff Biologist Andrea Martine has contacted Mr. Chris Dellith of the U.S. Fish and Wildlife Service to discuss his comments on the project. Mr. Dellith has requested that the project owner conduct a protocol survey for the least Bell’s vireo near the location of generator tie-line tower #3, where the line is adjacent to Todd Barranca. There may be a potential for corvids and raptors to nest on the tower and predate on nesting vireos. The survey protocol for least Bell’s vireo requires that eight separate survey events take place between April 10 and July 30. The project owner began protocol surveys for LBV at this location on April 20.

No correspondence with CDFW has occurred to date.

12. Agency Contact Names - Appendix B (i) (2)

The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.

Information required to make AFC conform with regulations:

Provide the name, title, and email address of each agency personnel that will serve as the contact person for Commission staff.

Response: Contact names are as follows:

California Department of Fish and Wildlife – Dan Blankenship, Staff Environmental Scientist, dblankenship@wildlife.ca.gov

United States Fish and Wildlife Service – Chris Dellith, Senior Biologists, chris_dellith@fws.gov

13. Permits - Appendix B (i) (3)

A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.

Information required to make AFC conform with regulations:

The AFC provides no evidence that protocol surveys for special-status plants and wildlife species have been done to determine if impacts to federally listed species may occur. In addition, without completed jurisdictional wetland delineation forms, it is not possible to determine if Waters of the US may be impacted. Please consult with USFWS and USACE to determine if federal permits (e.g., Section 404) would be required.

Response: As stated previously, protocol surveys for rare plants have not yet been conducted because work on the AFC started after the floristic period of the target species (May-June). The surveys will be conducted during April of 2016 and the results provided to Commission staff. Protocol surveys for least Bell's vireo will begin in the vicinity of generator tie-line tower #3 in April 2016.

Project field biologists have determined that the project would not impact jurisdictional wetlands. However, by agreement with Commission Staff, we have conducted formal delineations of non-jurisdictional features for confirmation that they are not jurisdictional (see Attachment DA5.2-2).

Attachment DA5.2-1
Report of March, 2016 Supplemental Biological
Survey

Supplemental Biological Resources Survey for Mission Rock Energy Center

PREPARED FOR: Calpine Corporation
PREPARED BY: Melissa Fowler, Project Biologist, CH2M
DATE: March 21, 2016

Introduction

Russell Huddleston (Technologist Professional/Professional Wetland Scientist [PWS], CH2M) and Melissa Fowler (Biologist/Certified Ecologist, CH2M) conducted a supplemental survey for biological resources, including wetland delineations, for the Calpine Corporation (Calpine) Mission Rock Energy Project (MREC) on March 1, 2016.

Location and Background

Calpine plans to develop new electrical power generation in southern California and has identified a site for the proposed MREC in an unincorporated area of Ventura County, California. The project site is approximately 181-186 feet above mean sea level (msl). The project site, laydown area, natural gas pipeline, and process water supply are depicted on the U.S. Geological Survey (USGS) Saticoy and Santa Paula, California 7.5-minute series topographic quadrangles within Township 14 North, Range 21 West (San Bernardino Meridian). The generator tie-line is within Township 14 North, Range 21 West and Township 14 North, Range 22 West (San Bernardino Meridian). The project site will be located 0.8 mile east of State Route (SR) 126 and intersects the south end of Mission Rock Road. The site for the MREC is located in a designated industrial park. Land use in the surrounding area includes industrial, commercial, agricultural, and open space.

Calpine proposes to develop a 275 megawatt (MW) peaking power plant consisting of five General Electric (GE) Energy LM-6000 combustion turbine generators and ancillary equipment including chillers, gas compressors, and electrical transformers. Calpine also proposes to site an array of batteries for energy storage on the project site for coordinated operation with the combustion turbine generators.

Linear appurtenances include the following:

- Generator tie-line to Southern California Edison's (SCE's) Santa Clara Substation via a new 6.6-mile, 230-kV transmission line that runs west and southwest from MREC site.
- Natural gas pipeline connection via 2.4 miles of new 16-inch-diameter pipe that will run southwest from the project site along Shell Road and the Southern Pacific Railroad right-of-way (ROW) to interconnect with Southern California Gas Company's (SCGC's) existing high-pressure natural gas transmission pipeline (Line 404/406).
- A new 1.7-mile-long pipeline to bring recycled water from the Limoneira Corporation's wastewater discharge line to the project site. The pipeline extends along the generator tie-line to the southwest.
- Potable water and industrial wastewater connections are to pipes adjacent to the site.

Survey Methods

The MREC site was reviewed for sensitive biological resources including United States Fish and Wildlife Service (USFWS) designated critical habitat (USFWS, 2015a), special-status plant and wildlife species, and sensitive vegetation communities (CDFW 2003, CDFW 2009a). Lists of potential special-status species were queried from USFWS (USFWS, 2015b; USFWS, 2015c; USFWS, 2015d), California Natural Diversity Database (CNDDDB; CDFW, 2015), and the California Native Plant Society (CNPS, 2015). A 10-mile query was used for CNDDDB (CDFW, 2015).

Conventional survey protocols, including guidelines provided by the USFWS, California Department of Fish and Wildlife (CDFW), and CNPS, were reviewed and implemented where appropriate (USFWS, 1996; CDFW, 2009b; CNPS, 2001). Three drainage features within and/or adjacent to the vicinity of the MREC site and suitable habitat for special-status wildlife and nesting birds within a 50-foot buffer were surveyed where access was permitted (Survey Area). In addition, three observation points for supplemental avian surveys were established. Transects were not used because of access and land ownership issues. Inaccessible areas were surveyed from the perimeter using binoculars, as applicable. Representative photos of the Survey Area resources are included in Attachment 1.

Special-status Plants

Special-status plant surveys were not conducted for MREC because the supplemental biological resources survey was not conducted during the proper floristic period. Surveys for special-status plant surveys will be conducted during the proper floristic period of April through June and results will be submitted to the California Energy Commission (CEC).

Special-status Wildlife

The potential for special-status wildlife to occur in the Survey Area was assessed based on historical data and habitat features. Three 15-minute observation points were established along a segment of the generator-tie line adjacent to Ellsworth Barranca. Coordinates are provided in Table 1. The Survey Area was surveyed for suitable habitat for special-status wildlife species, including coastal California gnatcatcher (*Polioptila californica californica*; Federal Threatened [FT], CDFW Species of Special Concern [SSC]), least Bell's vireo (*Vireo bellii pusillus*; Federal Endangered [FE], State Endangered [SE]), and southwestern willow flycatcher (*Empidonax traillii extimus*; FE, SE).

Nesting Birds. The potential for special-status bird species and raptors was assessed based on historical data and presence or lack of suitable habitat. Three 15-minute observation points were established. Coordinates are provided in Table 1. The supplemental biological resources survey was conducted during the nesting bird season (generally February 1 through August 31) and the survey for nesting birds was limited to the Survey Area plus habitat features (e.g., trees, shrubs, and man-made structures) in the immediate vicinity.

TABLE 1
Coordinates for the Avian Observation Points
MREC Supplemental Biological Resources Survey

Name	Location	Latitude (North)	Longitude (West)
Observation Point #1	Foothill Road	34° 18' 59.90452"	-119° 08' 39.20386"
Observation Point #2	Telegraph Road	34° 18' 25.75574"	-119° 08' 27.37987"
Observation Point #3	Darling Road	34° 17' 53.03060"	-119° 08' 03.83873"

WGS 1984

Jurisdictional Waters

Three aquatic features were further assessed during the supplemental survey: (1) the pond feature near the southeast boundary of the MREC site, (2) Tower #16 on the stream terrace east of Ellsworth Barranca, and (3) the stock pond adjacent to Tower #34. Tower #18 was not included because there was no access to the proposed location; however, the footings would be located on a terrace and not within the drainage channel of Ellsworth Barranca. The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data was included in the MREC Application for Certification (AFC) (USFWS, 2015e) and also used in the field effort.

Survey Results

Survey conditions are presented in Table 2, followed by survey results. Photographs are provided in Attachment 1. Figures are provided in Attachment 2. An observed species list is provided in Attachment 3. A wetland determination data sheet from the pond feature near the southeast boundary of the MREC site is included in a separate technical memorandum.

TABLE 2
Weather Conditions
MREC Supplemental Biological Resources Survey

Date	Time (24-hour)	Project Location	Temperature (°F)	Wind (mph)	Cloud Cover (%)	Precipitation	Comments
5/28/2015	0930-1440	Ventura County, CA	64	4	10	None	Good visibility (10.0 miles)

Special-status Plants

Surveys for special-status plants were not conducted because the supplemental biological resources survey was not conducted during the appropriate floristic period. As previously noted, surveys will be conducted during the proper floristic period (April-June) and results will be submitted to the CEC.

Special-status Wildlife

No special-status wildlife species or sign of special-status wildlife were observed within the Survey Area. However, the supplemental biological resources survey was not conducted during the appropriate survey window for least Bell’s vireo and southwestern willow flycatcher because these species are summer residents. The riparian habitat within the Survey Area along Ellsworth Barranca primarily consisted of gum trees (*Eucalyptus* spp.) and willows (*Salix* sp.). Table 3 includes a list of habitat types/vegetation communities associated with proposed tower locations (Tower #26-39).

TABLE 3
Tower Locations and Associated Habitat Type
MREC Supplemental Biological Resources Survey

Tower ¹	Existing Access Road ²	Approximate Distance from Existing Access Road ²	Habitat Type ³
26	Yes	180	Non-native annual grassland Coastal sage scrub
27	Yes	60	Non-native annual grassland Coastal sage scrub
28	Yes	50	Non-native annual grassland

TABLE 3
Tower Locations and Associated Habitat Type
MREC Supplemental Biological Resources Survey

Tower ¹	Existing Access Road ²	Approximate Distance from Existing Access Road ²	Habitat Type ³
29	Yes	30	Agriculture
30	Yes	70	Non-native annual grassland Coastal sage scrub
31	Yes	100	Coastal sage scrub
32	Yes	40	Coastal sage scrub Agriculture
34	Yes	40	Non-native grassland
35	Yes	120	Coastal sage scrub
36	Yes	10	Coastal sage scrub
37	Yes	70	Coastal sage scrub
38	Yes	50-70 ⁴	Coastal sage scrub
39	Yes	20	Non-native annual grassland Coastal sage scrub

Notes:

¹There is no Tower #25 or Tower #33 in the proposed alignment.

²This includes proposed tower locations that are next to an existing access road or within 200 feet of an existing access road, rounded to the nearest 10th.

³The more dominant vegetation communities and/or land cover type is listed first.

⁴Proposed tower location in adjacent to two access roads.

Coastal California Gnatcatcher. The proposed project location and current range for the coastal California gnatcatcher is provided in Attachment 2, Figure 1. According to Figure 1, MREC is located outside of the known range for this species. In addition, critical habitat within the regional area is provided in Attachment 2, Figure 2. According to CDFW (2015), one historic occurrence record for coastal California gnatcatcher was documented within 10 miles of MREC, dated 1925. There have not been any recent occurrence records for this species. According to Figure 1, this species has not been documented breeding within Ventura or Los Angeles Counties.

Table 3 includes a list of habitat types/vegetation communities associated with proposed tower locations (Tower #26-39), with a particular focus on towers that occur within coastal sage scrub. Although coastal sage scrub is present within the proposed generator-tie line alignment, impacts to this species are not anticipated because MREC occurs outside of the known range for this species and minimal amounts of coastal sage scrub are being disturbed. Therefore, protocol surveys are not necessary.

Least Bell’s Vireo and Southwestern Willow Flycatcher. Least Bells’ vireo nest in dense riparian understory, primarily in mulefat (*Baccharis salicifolia*) and willows (Pike et al., 2004). According to Pike et al. (2004), of the 304 least Bell’s vireo nests that were examined in 2004, 5 percent occurred in gum trees and 52 percent were in willows, which demonstrates a preference among this species. Southwestern willow flycatchers also inhabit riparian areas along watercourses that have a dense growth of willows, mulefat, arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.) and other wetland plants and this species builds nests in dense thickets (Pike et al., 2004). The understory within the Survey Area was not dense and is not expected to be preferred habitat for the southwestern willow flycatcher or least Bell’s vireo (see Attachment 1 for representative photographs). Although occurrence records for several species have been documented within 10 miles of MREC (CDFW, 2015), the highly disturbed habitat and surroundings do not provide high

quality habitat for special-status wildlife species. Habitat has been heavily disturbed by the utility ROW and private land ownership activities.

Nesting Birds

No bird nests were observed in the Survey Area during the supplemental biological resources survey. Courtship behavior of one male Anna's hummingbird (*Calypte anna*) was observed at Observation Point #2; however, no nests were observed.

Pre-construction for nesting birds is recommended for areas near the project site and non-agricultural areas along the generator tie-line and natural gas pipeline routes.

Jurisdictional Waters

There are no jurisdictional wetlands within the Survey Area. The pond feature near the southeast boundary of the MREC site was dry at the time of the survey and appears to have been dry for several years. This feature is not considered to be jurisdictional because it does not have wetland hydrology or hydric soils. A jurisdictional delineation data/form for this feature is included in Attachment 4.

Tower #16 will be located on a terrace adjacent to Ellsworth Barranca. Although Ellsworth Barranca is considered to be a water of United States/water of the State, Tower #16 will be located above the ordinary high water mark (OHWM) and the top-of-bank of the stream channel.

Tower #34 would be located adjacent to a former (now dry) constructed stock pond. This constructed stock pond is contained within earthen berms and has no evidence of wetland hydrology, or hydrophytic vegetation at this location.

Attachment 4 contains photographs of these features and the wetland scientist's observations of site conditions and the jurisdictional data form for the pond feature adjacent to the MREC site.

Summary and Conclusion

No special-status species were observed during the supplemental biological resources survey, and no nests or nesting birds were detected. No impacts to nesting birds or special-status species are anticipated as a result of implementing MREC. An additional pre-construction clearance survey is recommended.

No impacts to jurisdictional wetlands and waters of the United States/State are anticipated.

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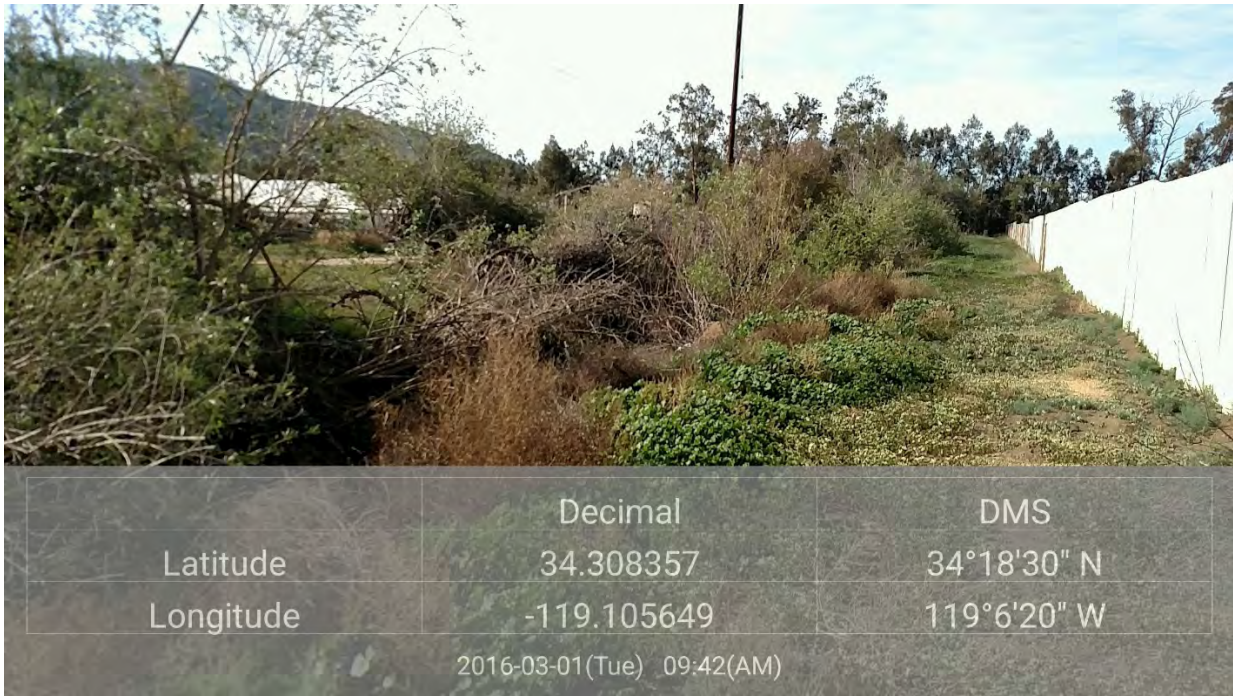
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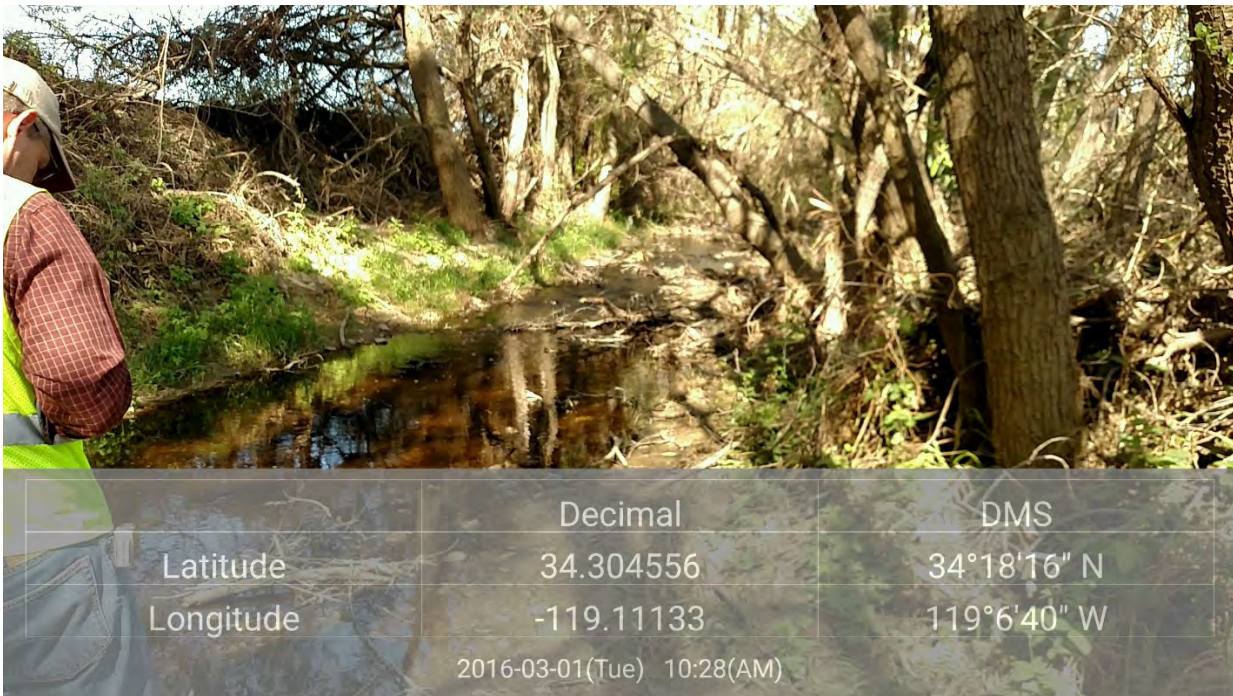
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Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

Attachment 1 Photographs



Photograph 1. Representative photograph of the NWI-designated pond south of the MREC site, 03/21/16.



Photograph 2. Representative photograph of the understory located in Todd Barranca, 03/01/16.



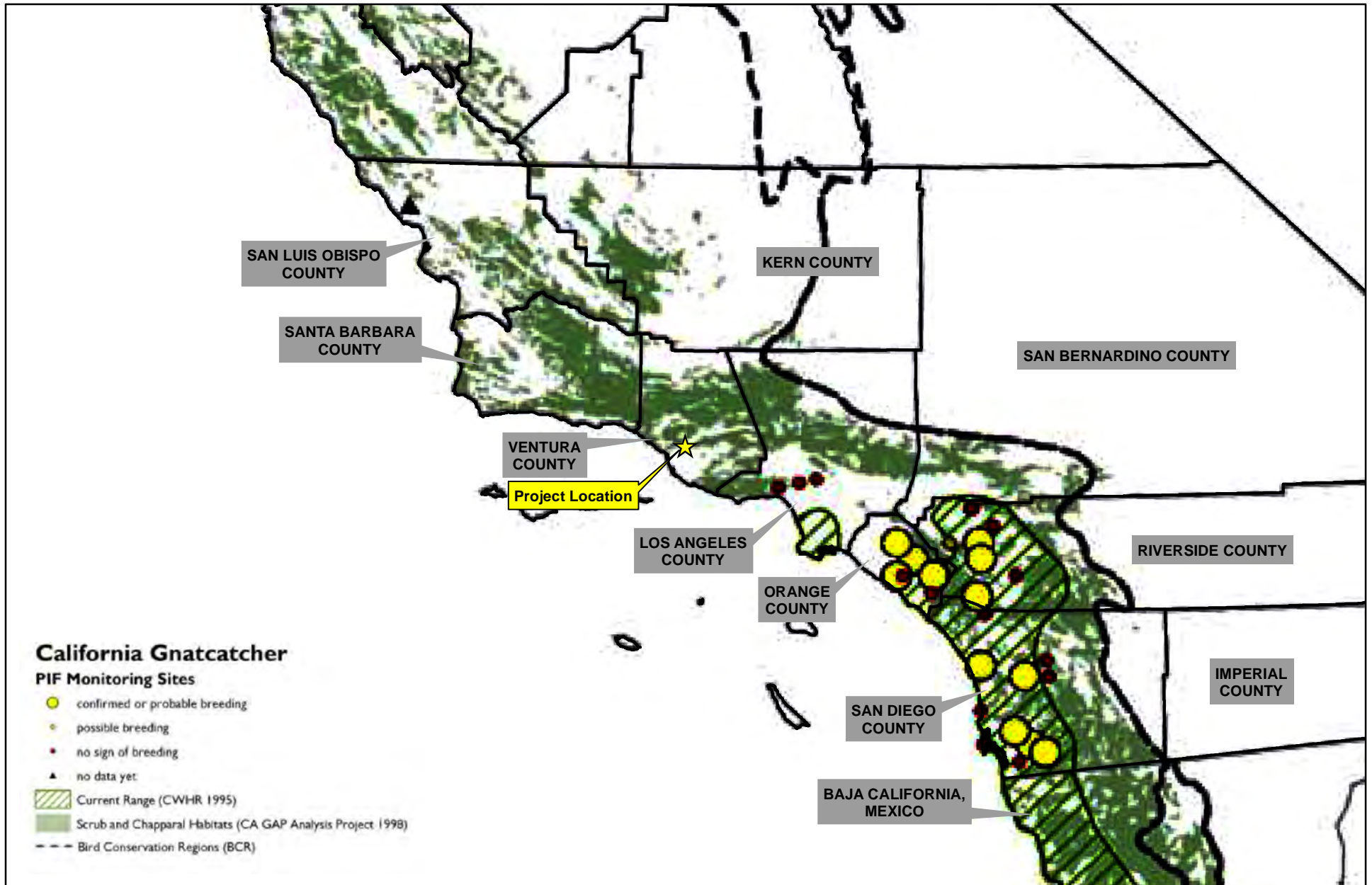
Photograph 3. *Representative photograph of Ellsworth Barranca, near Tower #16, 03/01/16.*



Photograph 4. *Representative photograph of the habitat adjacent to the stock pond, near Tower #34, 03/01/16.*

Attachment 2

Figures



California Gnatcatcher

PIF Monitoring Sites

- confirmed or probable breeding
- possible breeding
- no sign of breeding
- ▲ no data yet
- Current Range (CWHR 1995)
- Scrub and Chaparral Habitats (CA GAP Analysis Project 1998)
- Bird Conservation Regions (BCR)

LEGEND

★ Project Location

Basemap Source: Mock, P. 2004. California Gnatcatcher (*Poliotila californica*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight. <http://www.prbo.org/calpif/htmldocs/scrub.html>

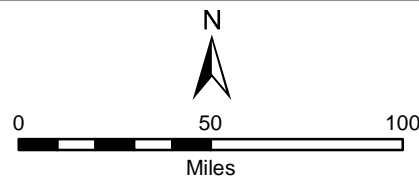


Figure 1
California Gnatcatcher Range



LEGEND

- Proposed Transmission Structure
- ▨ Coastal California Gnatcatcher Critical Habitat¹

1. Source: USFWS ECOS, accessed 3/10/2016
<http://crithab.fws.gov/ecp/report/table/critical-habitat.html>

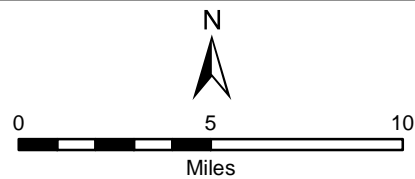


Figure 2
 Coastal California Gnatcatcher Critical Habitat

Attachment 3 Observed Wildlife Species

Observed Wildlife Species List March 2016 Mission Rock Energy Center		
Common Name	Scientific Name	Status Federal/State
Birds		
American crow	<i>Corvus brachyrhynchos</i>	--/--
Anna's hummingbird	<i>Calypte anna</i>	--/--
Black phoebe	<i>Sayornis nigricans</i>	--/--
Bushtit	<i>Psaltriparus minimus</i>	--/--
California towhee	<i>Melospiza crissalis</i>	--/--
Common raven	<i>Corvus corax</i>	--/--
Cooper's hawk	<i>Accipiter cooperii</i>	--/WL
Dark-eyed junco	<i>Junco hyemalis</i>	--/--
House finch	<i>Haemorhous mexicanus</i>	--/--
House sparrow	<i>Passer domesticus</i>	--/--
Lesser goldfinch	<i>Spinus psaltria</i>	--/--
Mourning dove	<i>Zenaidura macroura</i>	--/--
Northern mockingbird	<i>Mimus polyglottos</i>	--/--
Red-tailed hawk	<i>Buteo jamaicensis</i>	--/--
Turkey vulture	<i>Cathartes aura</i>	--/--
Yellow-rumped warbler	<i>Setophaga coronata</i>	--/--
Reptiles		
Sagebrush lizard	<i>Sceloporus graciosus</i>	--/--
Western fence lizard	<i>Sceloporus occidentalis</i>	--/--
<p>Status Codes: If status codes are not provided, it indicates that the observed species is not a special-status species. Federal: FE = Federally listed Endangered: species in danger of extinction throughout a significant portion of its range FT = Federally listed Threatened: species likely to become endangered within the foreseeable future BCC = Birds of Conservation Concern State: SE = State listed as Endangered ST = State listed as Threatened FP = Fully Protected CSC = California Species of Special Concern Species of concern to California Department of Fish and Wildlife (CDFW) because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. S = Sensitive WL = Watch List</p>		

Attachment DA5.2-2
Report of March, 2016 Supplemental Wetland
Survey

Mission Rock Energy Center Wetland Reconnaissance

PREPARED FOR: Calpine Corporation
PREPARED BY: Russell Huddleston, Wetland Scientist
DATE: March 21, 2016

Introduction

Russell Huddleston (Technologist Professional/Professional Wetland Scientist [PWS]) conducted a wetland reconnaissance, on behalf of Calpine Corporation (Calpine) for the Mission Rock Energy Project (MREC) on March 1, 2016. The purpose of the reconnaissance survey was to gather additional information regarding three features that project development may affect and to document their status or lack of status as jurisdictional wetland features or waters of the United States. Wetland delineation forms were prepared for one of the features. These features are:

- Pond feature southwest of MREC site
- Generator Tie-line Tower #16
- Generator Tie-line Tower #34

These are discussed in turn below:

Location and Background

Calpine plans to develop new electrical power generation in southern California and has identified a site for the proposed MREC in an unincorporated area of Ventura County, California. The project site is approximately 181-186 feet above mean sea level (msl). The project site, laydown area, natural gas pipeline, and process water supply are depicted on the U.S. Geological Survey (USGS) Saticoy and Santa Paula, California 7.5-minute series topographic quadrangles within Township 14 North, Range 21 West (San Bernardino Meridian). The generator tie-line is within Township 14 North, Range 21 West and Township 14 North, Range 22 West (San Bernardino Meridian). The project site will be located 0.8 mile east of State Route (SR) 126 and intersects the south end of Mission Rock Road. The site for the MREC is located in a designated industrial park. Land use in the surrounding area includes industrial, commercial, agricultural, and open space.

Pond Feature Southwest of MREC Site

The National Wetland Inventory (NWI) shows a pond and associated wetland along the southwest side of the current RV storage facility. The pond has been mapped by NWI as a Palustrine, Unconsolidated Bottom, Permanently Flooded, diked/impounded wetland (PUBHh) surrounded by Palustrine Scrub Shrub Temporarily Flooded (PSSC) Wetland.

A review of historic United States Geological Survey Maps indicates that the pond was created sometime prior to 1967 (Figure 1). There is no indication from the topographic map that this pond is an impoundment of a natural stream channel.

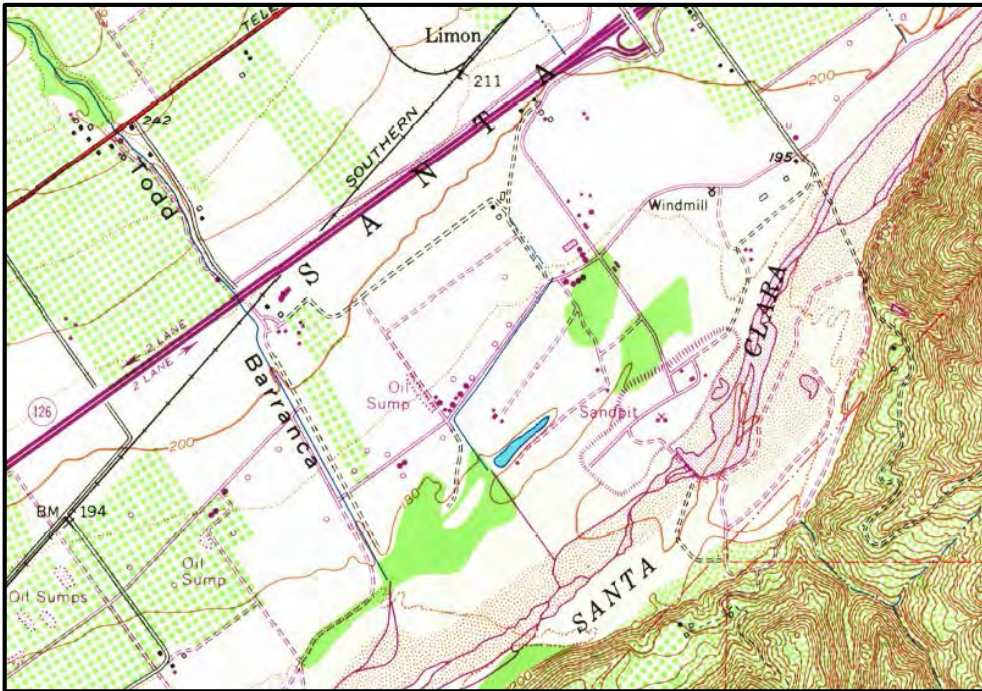


Figure 1. USGS Santa Paula 7.5-Minute Topographic Quadrangle 1951 base, photo-revised in 1967 showing the pond area southwest of the RV storage facility.

A review of aerial photographs from Google Earth™ shows that conditions in and around the pond have changed in the past ten years. The photo from August 2006 shows the pond inundated with water and vegetation surrounding the pond (Figure 2). Aerial photos from May, 2015 show no evidence of standing water and extensive clearing around the perimeter of the pond (Figure 3).



Figure 2. Google Earth™ aerial image showing the pond area southwest of the MREC site on August 7, 2006.

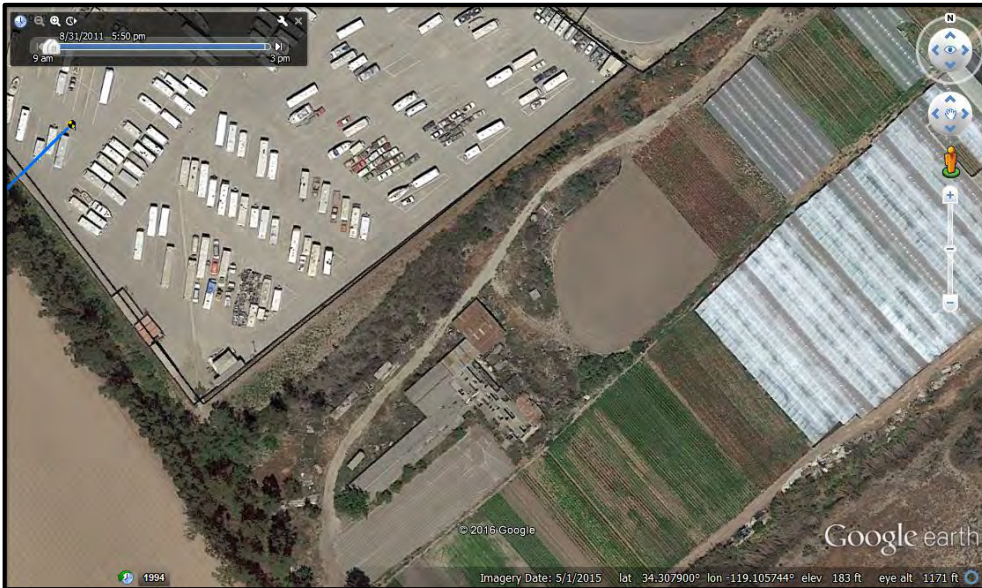


Figure 3. Google Earth™ aerial image showing the pond area southwest of the MREC site on May 1, 2015.

During the March 1, 2016 site visit to this area, the pond was completely dry and nearly all of the willow trees in the south western part of the pond were dead. Vegetation throughout the basin consisted of mule fat (*Baccharis salicifolia*) with occasional scattered small salt cedar (*Tamarix chinensis*). Herbaceous plants are sparse and consist of stinging nettle (*Urtica dioica*) and basal rosettes of mustard (possibly *Brassica nigra*) with abundant dead plant material and small woody debris throughout the basin. Towards the northeast, the feature transitions from a pond into a ditch-like feature that appears to convey storm water runoff from the Granite asphalt facility on the northeast side of the MREC project site. Several live arroyo willow trees were observed in this ditch at the time of the survey. Soils consist of a deep (over 20 inches) dark grayish brown (10TR 4/2) and olive gray (5Y 4/2) silt loam with no redoximorphic features. A wetland determination data sheet is attached to this memorandum.

The areas adjacent to the pond consist of weedy naturalized grasses including wall barley (*Hordeum murinum*), red brome (*Bromus madritensis*) and rip-gut brome (*Bromus diandrus*) along with weedy forbs such as mallow (possibly *Malva parviflora*) and mustard. In some area grass sod had been dumped along the edge of pond. There was no indication that the area surrounding the dry pond was a scrub-shrub wetland area. Figures 4 through 7 are representative photographs of this area.



Figure 4. Area along the north side of the pond, south of the fence along the MREC project site, looking northeast; March 1, 2016.



Figure 5. Dry pond area looking east, grayish green vegetation within basin is mule fat, dead willow in the foreground and dried sod along the northern edge; March 1, 2016.



Figure 6. Arroyo willows in drainage ditch on the northeast side of the dry pond, looking southwest along fence on south edge of the MREC project site; March 1, 2016.



Figure 7. Northeast end of ditch at the in the southwest corner of the Granite facility; March 1, 2016.

Generator Tie-Line Tower 16

As part of the March 1, 2016 field surveys the proposed location of generator tie-line tower number 16, north of Telegraph Road was investigated. This tower is located on the east side of the Ellsworth Barranca in an area mapped as Palustrine Forested temporarily flooded wetland by the National wetland inventory. Barranca is Spanish word that refers to a deep ravine or river gorge. The tower would be located on a terrace above the active flow channel and outside of the limits of the stream banks. Vegetation in this area consists of a large coast live oak (*Quercus agrifolia*) tree and several *Eucalyptus* trees. There is also a large California sycamore (*Platanus racemosa*) to the northwest of the tower adjacent to the stream channel. Understory vegetation consists of scattered saltbush (*Atriplex sp.*) shrubs and grasses with some small tree plantings scattered about (Figure 7). No evidence of wetland conditions were evident at this location.

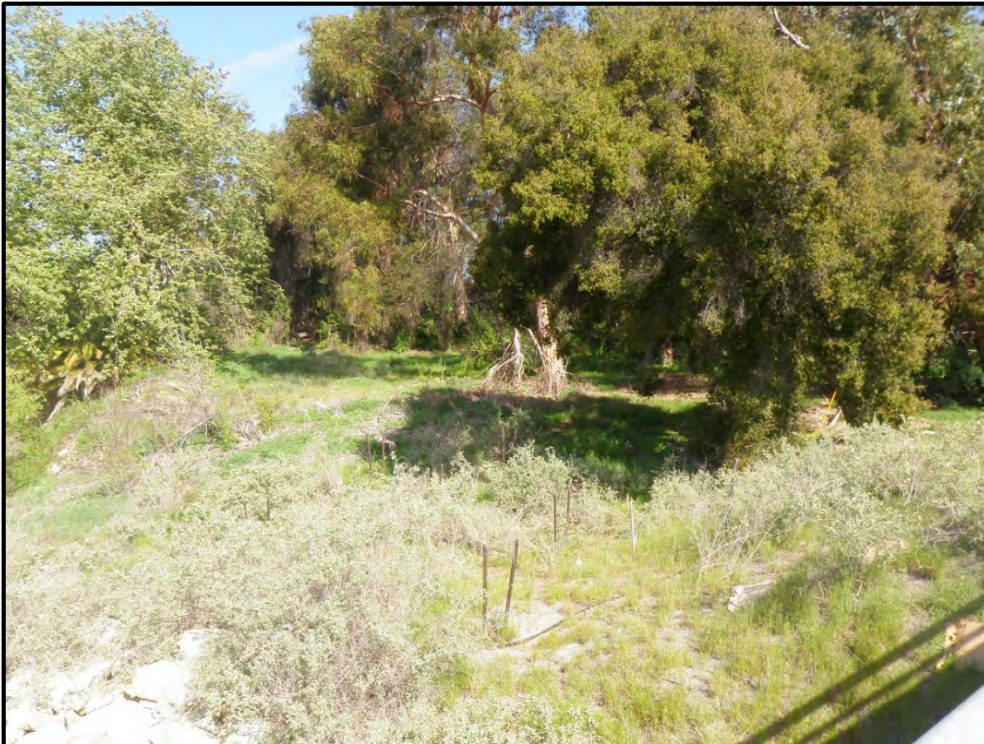


Figure 7. Terrace on the east side of Ellsworth Barranca at proposed transmission tower location. Looking north, March 2, 2016

Heavy rains in March 2011 resulted in flooding throughout much of the region and from a review of aerial photos vegetation was cleared from the channel and rip rap was installed along the banks both north and south of the Telegraph Road Bridge (Figure 8). Dense shrubby willows have since regrown in the channel immediately north of the bridge and other vegetation is reestablishing in the channel to the northwest of the proposed tower location (Figures 9 and 10).

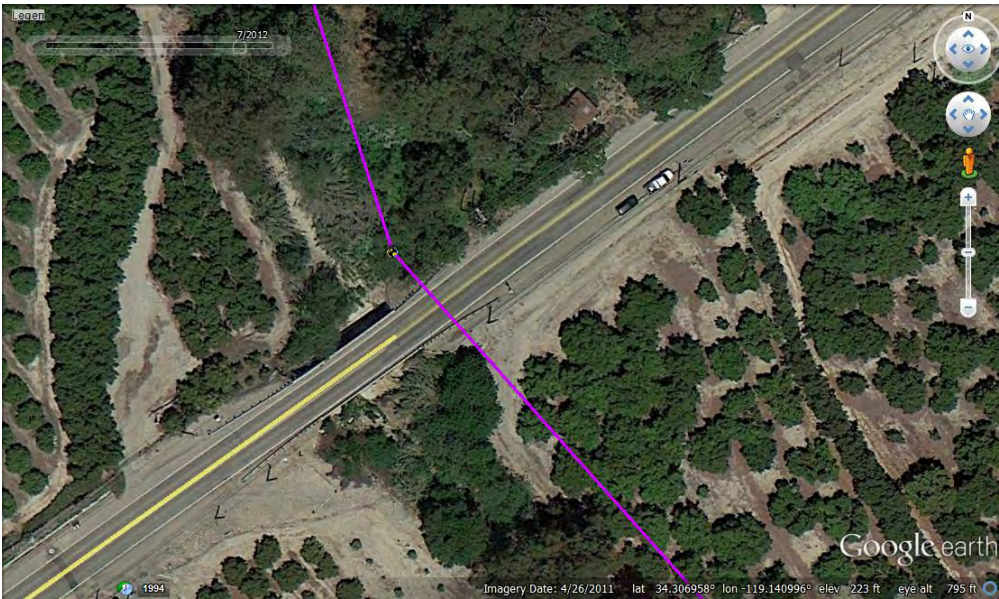


Figure 8. Aerial photo from April 2011, after March flood events in Ventura County prior to vegetation clearing and installation of rip-rap along banks.



Figure 9. Aerial from August 2012, post vegetation removal and installation of rip-rap along banks.



Figure 10. Looking north-northwest from near the proposed tower location at rip-rap and stream channel, active flow channel is approximately 55 feet from the tower location, above the rip-rap embankment.

Generator Tie-Line Tower #34

Proposed Generator Tie-Line tower #34 would be located adjacent to a former (now dry) constructed irrigation pond. The pond has been identified as a Palustrine, Unconsolidated Bottom, Artificially Flooded, diked/impounded (PUBKh) wetland. This constructed pond is contained within earthen berms and was completely dry at the time of the survey. There is a corrugated metal stand pipe located at the southeast end of the basin (Figures 10 through 13). Vegetation along the bottom and sides of the dry basin consisted of weedy upland grasses and forbs such as red brome (*Bromus madritensis*), wall barley (*Hordeum murinum*), black mustard (*Brassica nigra*) and mallow (*Malva* sp.). Scattered shrubs included (dead) salt cedar (*Tamarix chinensis*), California sagebrush (*Artemisia californica*) coyote bush (*Baccharis pilularis*) and tree tobacco (*Nicotiana glauca*).



Figure 11. Dry constructed pond near proposed electric transmission tower #34 with stand pipe at the southeast end of the basin; looking east-southeast on March 2, 2016



Figure 12. From bottom of pond looking to the northwest towards proposed tower location, March 2, 2016



Figure 13. Road along the west side of the dry pond, looking north-northeast, March 2, 2016

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mission Rock Energy Center City/County: Ventura, County Date: Mar. 1, 2016
 Applicant/Owner: CALPINE State: CA Sampling Point: SP-01
 Investigator(s): Russell Huddleston, Mellissa Fowler Section, Township, Range: 29 03N 21W (S)
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <2%
 Subregion (LRR): C Lat: 34.307754 Long: -119.106287 Datum: NAD83
 Soil Map Unit Name: Metz Sandy Loam NWI classification: PUBHh / PSSC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

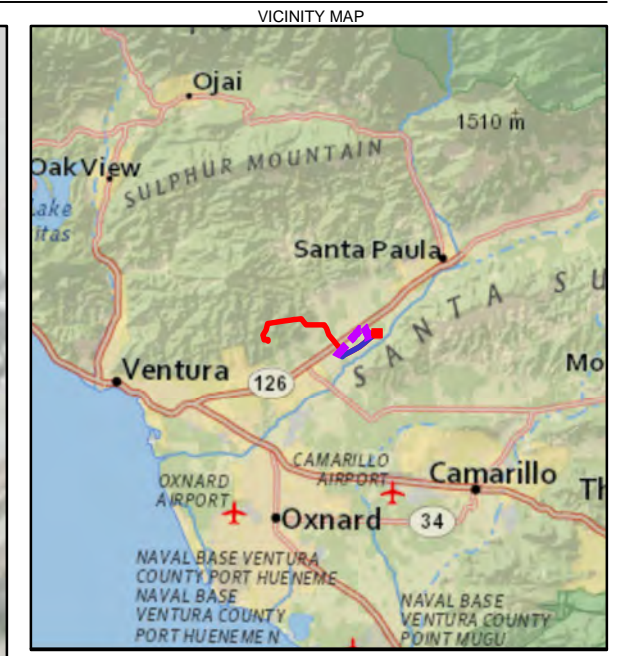
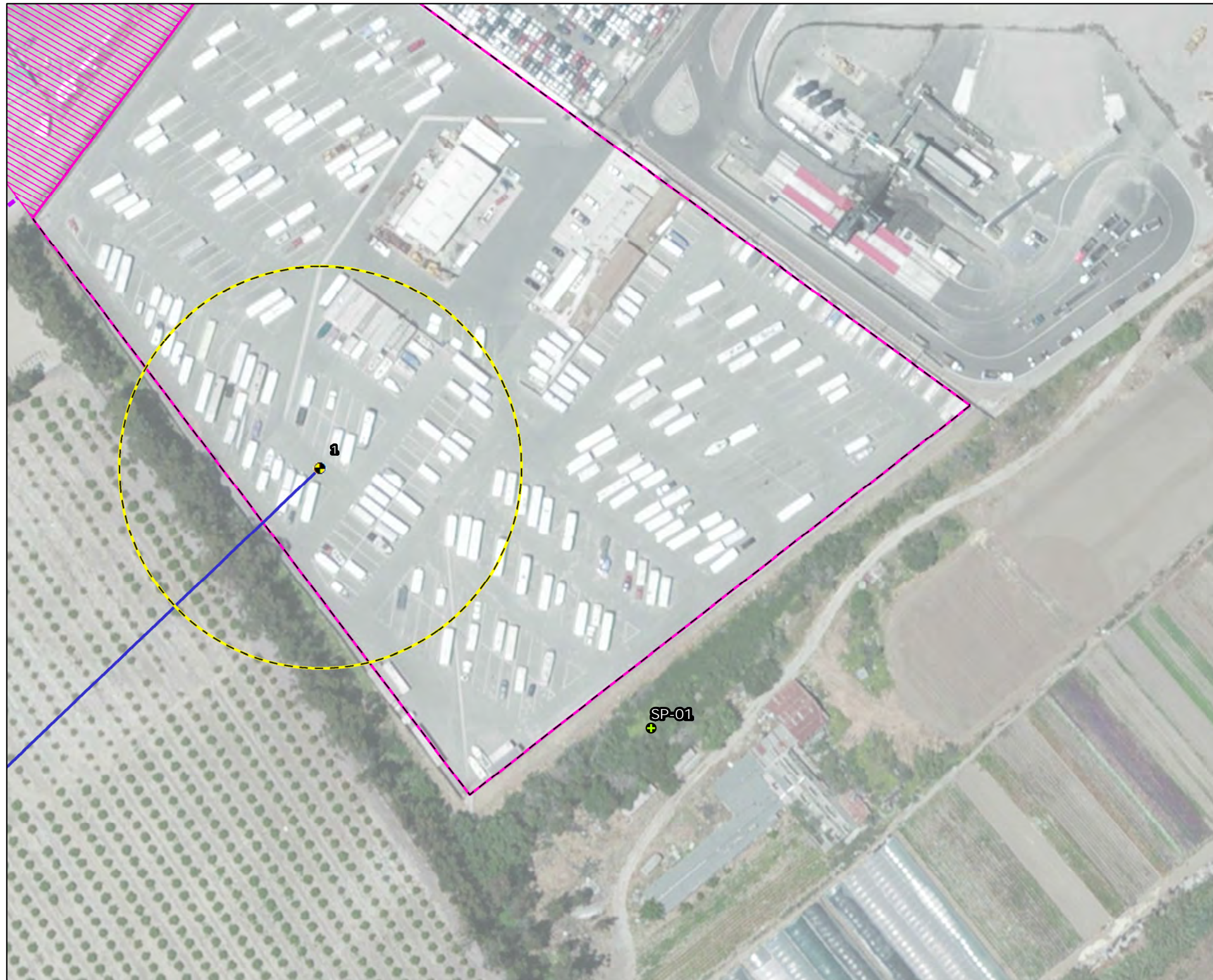
Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		

Remarks: Dry constructed pond; surveys conducted during drought conditions. Rainfall between November 1, 2015 and March 2, 2016 was 6.57 inches, which is 52% of the long term average for this period.

VEGETATION

Tree Stratum (Plot Size: _____.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>75%</u> (A/B)
1. <u>N/A</u>	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum (Plot Size: <u>1m²</u> .)				Prevalence Index Worksheet: Total % Cover Of: _____ Multiply By: _____ OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Baccharis salicifolia</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Tamarix chinensis</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>20</u>				
Herb Stratum (Plot Size: <u>1m²</u> .)				Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% _____ Prevalence Index is ≤3.0* _____ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation* (Explain)
1. <u>Urtica dioica</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Brassica (cf) nigra</u>	<u>5</u>	<u>Yes</u>	<u>NL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				
Woody Vine Stratum (Plot Size: _____.)				* Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. <u>N/A</u>	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		

Remarks: Several dead willow trees noted, bottom of the pond is covered in dead plant material.



- LEGEND**
- Towers
 - 200-feet from Towers
 - Generator Tie-Line
 - Natural Gas Pipeline Route
 - Process Water Supply Line
 - Laydown Area
 - Project Site
 - Sample Point

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
 Content may not reflect National Geographic's current map policy.
 Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

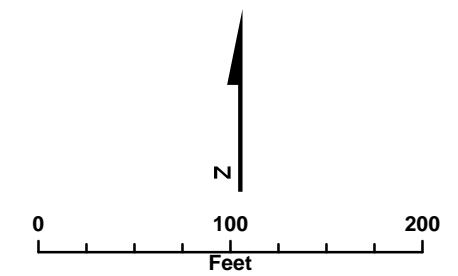


FIGURE 1
Wetland Sample Point
 Mission Rock Energy Center
 Ventura County, California

5.3 Cultural Resources (14-18)

14. Map and Technical Reports- Appendix B (g) (2) (B)

A copy of the USGS 7.5' quadrangle map of the literature search area delineating the areas of all past surveys and noting the California Historical Resources Information System (CHRIS) identifying number shall be provided.

Copies also shall be provided of all technical reports whose survey coverage is wholly or partly within .25 mile of the area surveyed for the project under Section (g)(2)(C), or which report on any archaeological excavations or architectural surveys within the literature search area.

Information required to make AFC conform with regulations:

Please submit a revised 7.5-minute topographic map of the complete literature search results, delineating the boundaries of all previously recorded districts and locations of resources such as buildings and associated acreage, as identified by the CHRIS literature search, but also including locations of all resources, district boundaries, including the study area of the 1996 architectural study completed by San Buenaventura Associates. The applicant has presented most of this information piecemeal, but it should all be placed on one map to facilitate comparative analysis.

Please provide copies of the following reports: VN127, VN494, VN1265, VN1776, VN1777, VN1801, VN2643, VN2774, VN2864, VN2872, VN2917.

Response:

Map—The relevant information has been consolidated onto USGS topographic maps, and submitted to the Commission as Attachment DA5.3-1 under a repeated request for confidential designation. These maps includes all previously recorded resources identified in the 1996 architectural study by San Buenaventura Associates that fall within the literature search area described in the AFC.

CHRIS primary number—All resources are identified by CHRIS Primary number, if available. If one is not available, we have used a temporary name designation.

Reports—The reports have been submitted to the Commission as Attachment DA5.3-2 under a repeated request for confidential designation.

15. DPR 523(A) Forms - Appendix B (g) (2) (C) (iii)

Copies of all new and updated DPR 523(A) forms. If a cultural resource may be impacted by the project, also include the appropriate DPR 523 detail form for each such resource;

Information required to make AFC conform with regulations:

Please provide DPR 523 (A) forms for the following newly recorded resources listed in Vol. II, App. 5.3B, Table 4-3: Todd Barranca Bridge, the Ellsworth Barranca Bridge, the Edwards Ranch Drainage Railroad Bridge, and SR 126.

Response: The Todd-Barranca Bridge, the Ellsworth-Barranca Bridge, and the Edwards Ranch Drainage Railroad Bridge are all recorded as features of the Southern Pacific Railroad segment recorded for the AFC. DPR 523 forms for this segment and SR 126 have been provided to the Commission as Attachment DA5.3-3 under a repeated request for confidential designation.

16. Locations Map - Appendix B (g) (2) (C) (iv)

A map at a scale of 1:24,000 U.S. Geological Survey quadrangle depicting the locations of all previously known and newly identified cultural resources compiled through the research required by Appendix B (g)(2)(B) and Appendix B (g)(2)(C) (ii);

Information required to make AFC conform with regulations:

Applicant requested to:

- a) provide all locations of previously known and newly recorded cultural resources plotted on a 1:24,000 U.S. Geological Survey quadrangle map,*
- b) clearly distinguish between previously known and newly identified resources using legible font and text labels,*
- c) include a map legend that clearly identifies all plotted resources, including previously known and newly identified cultural resources, buildings, structures, historical districts, and contributing elements to the historical districts (i.e., include at minimum, the Southern Pacific Railroad Line; the NRHP-eligible Limoneira Ranch Historic District and any associated cultural resources; the Edwards Ranch/Orchard Farm Historic District and any associated cultural resources; the Santa Clara Valley Rural Historic District (SCVRHD) and any associated cultural resources including but not limited to contributing elements to the district, such as the 57-acres of the Pardee Ranch; 41-acres of the Hubert Edwards Residence; 104-acres of the Milton Teague Ranch; the Fred Outland Ranch, 21- acres of the Tom Parker Ranch; 150-acres of the Sharp-Thille Ranch, Ventura County Landmark #114; and 45-acres of the Steele Ranch), and,*
- d) submit this information to the CEC under a request for confidentiality.*

Response: See the response to Item #14, above.

17. W. Geoff Spaulding Resume - Appendix B (g) (2) (C) (v)

The names and qualifications of the cultural resources specialists who contributed to and were responsible for literature searches, surveys, and preparation of the technical report.

Information required to make AFC conform with regulations:

Please provide a resume in Appendix 5.3D for Dr. W. Geoffrey Spaulding, a geoarchaeologist who is listed as a contributing specialist to the report (see AFC Vol I: p. 5.3-1).

Response: Dr. Spaulding's resume is provided in Attachment DR5.3-4.

18. Native American Heritage Commission Correspondence - Appendix B (g) (2) (D)

Provide a copy of your request to the Native American Heritage Commission (NAHC) for information on Native American sacred sites and lists of Native Americans interested in the project vicinity, and copies of any correspondence received from the NAHC. Notify the Native Americans on the NAHC list about the project, including a project description and map. Provide a copy of all correspondence sent to Native American individuals and groups listed by the NAHC and copies of all responses. Provide a written summary of any oral responses.

Information required to make AFC conform with regulations:

Please provide a copy of the letter sent to NAHC requesting information on Native American sacred (sic) sites and lists of Native Americans interested in the project vicinity. This is separate from staff's consultation obligations under AB 52.

Please provide copies of any correspondence received from the NAHC. If no correspondence has been received, the applicant should state as such. This is separate from staff's consultation obligations under AB 52.

Response: Attachment DR5.3-5 contains the letter to the NAHC and copies of resulting correspondence.

Attachment DA5.3-1
Topographic Maps (filed separately)

This information has been filed separately under a repeated request for confidential designation.

Attachment DA5.3-2
Previous Archaeological Reports (filed separately)

This information has been filed separately under a repeated request for confidential designation.

Attachment DA5.3-3
DPR 523 Forms (filed separately)

This information has been filed separately under a repeated request for confidential designation.

Attachment DA5.3-4
W. Geoffrey Spaulding Resume

W Geoffrey Spaulding, PhD

Geoarchaeologist

Education

Ph.D., Geology (Paleobiology & Quaternary Geology), University of Arizona, 1981
M. S., Geology (Palynology & Vertebrate Paleobiology), University of Arizona, 1974
B. A., Anthropology (Archaeology), University of Arizona, 1972

Distinguishing Qualifications

- Expert in the Quaternary Paleoenvironments of Western North America
- Specialist in Site Formation Processes, Quaternary Geology, Geoarchaeology, Paleohydrology

Experience Summary

Dr. Spaulding is a senior scientist and paleontologist with CH2M HILL with extensive experience in geomorphology, geoarchaeology, paleobiology and paleoecology. He holds a Ph.D. degree in Quaternary Geology and Paleobiology from the University of Arizona. He also is accomplished in the study of site formation processes, and in age determinations of archaeological and paleontological sites in the western United States. He has more than three decades of technical experience in the Earth and Life sciences focusing on the Quaternary of western North America including California. Prior to joining private industry, he was a Research Professor at the University of Washington, Seattle, with his office and laboratory housed in the Quaternary Research Center.

Relevant Experience

Nellis Air Force Range Three Lakes Valley Archaeological Survey & Subsistence Modeling. A multi-phase project involving site formation analysis and paleohydrologic modeling and, in cooperation with project archaeologists, the development of an integrated subsistence and settlement model to predict the occurrence and density of prehistoric sites in a large desert valley. Managed the subsequent survey of an approximately 3,000 acre area to test and refine the predictive model, and relate site occurrences to Holocene pluvial climatic events.

Kern River Pipeline Cultural & Paleontological Resources Compliance, California, Nevada, and Utah. Coordination and implementation of cultural resources mitigation and monitoring efforts along a 678-mile pipeline corridor involving up to 160 personnel operating in three states. Consult with state and federal agencies (FERC, Advisory Council on Historic Preservation Bureau of Land Management), and coordinate with client representatives. Direct and participate in state-wide field compliance programs. Participate in and direct technical studies of sites ranging in age from Paleoindian to Formative Periods. Manage the preparation of reports perform the task of senior report editor.

Nellis Air Force Range Complex, General Site & Rock Art Inventories. Manage and participate in the design and execution of a multi-phase archaeological recordation project over an area larger than the state of Vermont. The second phase included the relocation and recording of twelve Archaic to Late Prehistoric rock art sites in remote areas of the U.S. Air Force's Nellis Range. Included in this effort was the contracting and management of specialist subconsultants in rock art, development of illustration techniques, and preparation of draft and final reports in consultation with the Base Archaeologist.

Metropolitan Water District of Southern California, West Valley Lateral and Eastside Reservoir Projects, Cultural and Paleontological Resources Support Services. Design and conduct archaeobotanical, paleoecological, and paleoclimatic studies in support of paleontological and cultural resources testing and mitigation programs for a large reservoir development program. Manage and participate in paleobotanical and archaeobotanical research programs; direct subconsultants in palynological investigations. Develop pioneering reconstructions of inland southern California's climatic and ecological history over the last 40,000 years; consider these in the context of regional environmental changes and the archaeological record.

Nellis Air Force Base Golf Course Expansion, Phase 2 Archaeological Testing. Design, manage and participate in the archaeological and geomorphologic testing of three Archaic sites in the Las Vegas Valley. Develop a site specific formational model to account for the stratigraphic setting of the sites and cultural remains, and to justify the lack of further archaeological potential of the site area.

Los Angeles Department of Water and Power, Mead/McCullough - Victorville/Adelanto Transmission Line. Manage cultural and paleontological resources monitoring and mitigation in conjunction with the construction of a 500 kV power line extending through Nevada and California. Assess levels of significance of paleontological sites discovered during survey and monitoring, implement mitigation measures for affected sites, manage analyses, prepare reports.

City of Mesquite Cultural and Paleontological Resource Compliance. Design and manage resource surveys for linear-facilities rights of way and BLM land exchanges. Bureau of Land Management consultation on mitigation and avoidance measures, coordinate data recovery and analyses, and prepare final reports on discovered Pliocene paleontological sites.

Molycorp, Inc., Ivanpah Valley Geoarchaeological Studies. Plan for and contribute to cultural resources surveys and Phase 2 Testing and Evaluations for a large project involving over 30 Archaic to Late Prehistoric archaeological sites within and on the margins of a presently dry lake bed. Develop and implement special studies in geoarchaeology, paleohydrology, and paleoenvironmental reconstruction. Manage biological resources surveys and monitoring in support of a multiyear remediation effort; consult with land management agencies to assure compliance on behalf of the client.

Pacific Gas & Electric, Pit 3,4,5 Project, Cultural Resources Support Services. Archaeobotanical, paleoecological, and paleohydrologic studies in support of cultural resource mitigation efforts in the vicinity of Lake Britton, California. Develop a 7,000-year paleoecological record directly applicable to the study area. Contract and direct subconsultants in the development of a 1,000-year dendrohydrologic reconstruction of the flow of the Middle Pit River. Compare and contract paleoenvironmental and archaeological records to determine possible environmental drivers of cultural change.

U.S. Geological Survey Yucca Mountain Site Characterization Studies. . Multiple contracts for field and laboratory research, report preparation and review focusing on the timing and magnitude of past hydrologic and climatic changes in the Nevada Test Site, Yucca Mountain, and the Amargosa Desert. Assessment of millennial scale variability of groundwater levels and their potential effect on performance criteria for a high-level nuclear waste repository, as well of geomorphic process affecting paleoenvironmental data.

Yosemite National Park Cultural Resources Management Plan & Research Design. Assist in the preparation of the twenty-year update of the National Park Service's *Archaeological Research Design*. Review, evaluate, and provide a comprehensive summary of research in paleoecology, geoarchaeology, Quaternary geology, and tephrochronology. Prepare chapters on for the *Research Design* for NPS use.

National Academy of Sciences, National Research Council Panel On Coupled Hydrologic, Tectonic, and Hydrothermal Processes. Appointed by the National Academy of Sciences to a three-year tenure as an expert panel member to review research and evaluate evidence for changes in water-table elevation in the vicinity of the proposed Yucca Mountain Nuclear Waste Repository.

Yosemite National Park, Upper Tuolumne Meadows Archaeological Testing and Evaluation Program. Field and laboratory studies, and report preparation, focussed on geochronology, tephrochronology, and site formation processes in support of Yosemite National Park's visitor services expansion program. Identification and characterization of accelerated colluvial depositional processes following volcanic ash fall-out in prehistoric times, and possible effects on human occupation of the area.

Attachment DA5.3-5
NAHC Correspondence

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Mission Rock Energy Center

County: Ventura

USGS Quadrangle Name: Santa Paula, CA and Saticoy, CA

Township: 3N **Range:** 22W **Section(s):** 36

Township: 3N **Range:** 21W **Section(s):** 29, 30, 31

Company/Firm/Agency: CH2M HILL

Street Address: 6 Hutton Centre, Suite 700

City: Santa Ana **Zip:** 92707

Phone: 7146289666

Fax: 7144242246

Email: nlawson@ch2m.com

Project Description: Project is a proposed energy center and associated linears.

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471



October 8, 2015

N Lawson
CH2M Hill
6 Hutton Centre, Suite 700
Santa Ana, CA 92707

Via E-mail: nlawson@ch2m.com
Number of Pages: 3

RE: Mission Rock Energy Center Project, Ventura County

Dear Mr./Ms. Lawson,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

A handwritten signature in cursive script, appearing to read "Katy Sanchez".

Katy Sanchez
Associated Government Program Analyst

**Native American Contact List
Ventura County
October 8, 2015**

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks CA 91362
folkes9@msn.com
(805) 492-7255
(805) 558-1154 Cell

Chumash
Tataviam
Fernandeño

Randy Guzman - Folkes
4676 Walnut Avenue
Simi Valley , CA 93063
ndnRandy@yahoo.com
(805) 905-1675 Cell

(805) 520-5915 Fax

Chumash
Fernandeño
Tataviam
Shoshone Paiute
Yaqui

Barbareno/Ventureno Band of Mission Indians
Julie Lynn Tumamait-Stenslie, Chair
365 North Poli Ave
Ojai , CA 93023
jtumamait@hotmail.com
(805) 646-6214

Chumash

Charles S. Parra
P.O. Box 6612
Oxnard , CA 93031
(805) 340-3134 Cell

Chumash

Patrick Tumamait
992 El Camino Corto
Ojai , CA 93023
(805) 640-0481
(805) 216-1253 Cell

Chumash

Richard Angulo
P.O. Box 935
Salome , AZ 85348

Chumash

Stephen William Miller
189 Cartagena
Camarillo , CA 93010
(805) 484-2439

Chumash

Carol A. Pulido
165 Mountainview Street
Oak View , CA 93022

Chumash

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Mission Rock Energy Center, Ventura County.

**Native American Contact List
Ventura County
October 8, 2015**

Melissa M. Parra-Hernandez
119 North Balsam Street Chumash
Oxnard , CA 93030

Coastal Band of the Chumash Nation
Isabel Ayala
Chumash
cbc.n.nahc.ventura@gmail.com
(661) 340-6997

Frank Arredondo
P.O. Box 161 Chumash
Santa Barbara CA 93102
ksen_sku_mu@yahoo.com

PeuYoKo Perez
5501 Stanford Street Chumash
Ventura , CA 93003
grndowl4U@yahoo.com
(805) 231 -0229 Cell

Barbareno/Ventureno Band of Mission Indians
Kathleen Pappo
2762 Vista Mesa Drive Chumash
Rancho Pales Verdes CA 90275
(310) 831-5295

Barbareno/Ventureno Band of Mission Indians
Raudel Joe Banuelos, Jr.
331 Mira Flores Court Chumash
Camarillo , CA 93012
(805) 987-5314

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Mission Rock Energy Center, Ventura County.

5.11 Soils (19)

19. Borrow Site Location - Appendix B (g) (1), (g) (15) (A) (iii)

The location of any proposed fill disposal or fill procurement (borrow) sites; and

Information required to make AFC conform with regulations:

Provide information regarding proposed or intended fill procurement (borrow) site.

Response: The final borrow site will be determined prior to construction. A source of fill material is available at the Rancho San Cristobal clay mine. The mine is located at 3500 Grimes Canyon Road in Fillmore, California, approximately 18 road miles from the MREC site.

5.12 Traffic and Transportation (20)

20. Thermal Plumes - Appendix B (g) (5) (B)

If the proposed project including any linear facility is to be located within 20,000 feet of an airport runway that is at least 3,200 feet in actual length, or 5,000 feet of a heliport (or planned or proposed airport runway or an airport runway under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration), discuss the project's compliance with the applicable sections of the current Federal Aviation Regulation Part 77 – Objects Affecting Navigable Airspace, specifically any potential to obstruct or impede air navigation generated by the project at operation; such as, a thermal plume, a visible water vapor plume, glare, electrical interference, or surface structure height. The discussion should include a map at a scale of 1:24,000 that displays the airport or airstrip runway configuration, the proposed power plant site and related facilities.

Information required to make AFC conform with regulations:

Operation of five project turbine generators as part of the proposed would create thermal plumes. The thermal plumes have the potential to effect air traffic safety in the airspace above the exhaust stacks and/or effect air navigation in the project area (such as for pilots arriving to and departing from Santa Paula Airport). Please provide an analysis and discussion of the potential for the proposed project's thermal plumes to affect air traffic. In addition, please provide a 1:24,000 scale map that shows the closest airport runway configuration, the proposed project site, and related facilities (e.g., power lines).

Response: As described in Section 5.12.1.8 in the AFC, the single runway at the Santa Paula Airport (SPZ) is 2,713 feet in length, less than the minimum length of 3,200 feet referenced in the Data Adequacy Requirement [Appendix B (g) (5) (B)]. Therefore, this requirement is not applicable. Regardless, potential impacts to air traffic are addressed in Section 5.12.2.5. MREC is located approximately 18,000 feet from SPZ, well beyond 10,000-foot Federal Aviation Regulation Part 77 and Ventura County Comprehensive Airport Land Use Plan height restriction zones.

5.13 Visual Resources (21-22)

21. Hiker and Residential Views - Appendix B (g) (6) (C)

In consultation with Energy Commission staff, identify:

- a) *any designated scenic roadways or scenic corridors and any visually sensitive areas that would be affected by the proposed project, including recreational and residential areas; and*
- b) *the locations of the key observation points to represent the most critical viewing locations from which to conduct detailed analyses of the visual impacts of the proposed project. Indicate the approximate number of people using each of these sensitive areas and the estimated number of residences with views of the project. Also identify any major public roadways and trails of local importance that would be visually impacted by the project and indicate the types of travelers (e.g., local residents, recreationists, workers, commuters, etc.) and the approximate number of vehicles, bicyclists, and/or hikers per day.*

Information required to make AFC conform with regulations:

Page 5.13-1 states that the Nature Conservancy hosts occasional guided hikes through their Santa Clara River properties in the vicinity of the project site. There is no indication of the approximate number of hikers using this area.

Additionally, at KOPs 2 and 4, there is no estimate of the number of residences with views of the project (including the transmission line), only that a “few homes” are located in these areas.

Please provide the estimated number of residences with views of the proposed project and the approximate number of hikers annually using the Nature Conservancy’s Santa Clara River properties.

Response:

Nature Conservancy hikes—The Santa Clara River properties are conservation areas that are closed to the general public and posted for no trespassing. The Nature Conservancy sponsors guided hikes and other activities at the Santa Paula West property. Two guided hikes are planned for 2016 (one in March, one in July). The hikes typically attract 4-12 persons. An additional 1-2 hikes may be planned for later this year.

In addition to the guided hikes open to the public, the Nature Conservancy currently has plans to host a class of approximately 25 school children at the Santa Paula West property in June 2016. The Nature Conservancy also makes the site available to other groups (for example, the Audubon Society) that are interested in visiting; however, no groups currently have plans to visit the site in 2016 (personal communication between Kevin Grant, CH2M and Angelo Haynes, The Nature Conservancy on 3/3/16).

Views of the Project, KOPs 2 and 4—Views are usually discussed in terms of foreground, middle ground, and background views. Foreground views are those immediately presented to the viewer and include objects at close range that could dominate the view. The foreground generally includes the area extending out ¼ mile from the viewer. The middle ground and background distance zones are beyond ¼ mile from the viewer. The potential for visual impacts to residences is greatest within the foreground distance zone, so this analysis focuses on homes within ¼ mile of the project.

Geographic Information Systems (GIS) software was used to define the area within ¼ mile of the proposed facilities on the MREC site and the proposed transmission line. Two variables were considered to determine a “Degree of Project Visibility” for each residence within the ¼ mile buffer: 1) the orientation and layout of the residence in relation to nearby project features; 2) existing landscape elements that would provide visual screening, either on the property of the residence or between the

property and the project. Identification of the orientation and layout of a residence established whether visually sensitive parts of a property (for example, living quarters, back patio, etc.) would have views toward the project. For residences with potentially sensitive viewing areas oriented toward the project, Google Maps aerial imagery and “Street View” were reviewed to determine whether existing features on or near the residence property would screen all or portions of the project from view. Based upon these findings, a “Degree of Project Visibility” was assigned to each residence near KOPs 2 and 4 using the following scale:

1. Fully visible
2. Screened to a limited degree
3. Moderately screened
4. Heavily screened
5. Fully screened

KOP-2—There is one home in the vicinity of KOP 2; however, this home is located ½ mile from the transmission line and MREC site, outside of the ¼ mile area of potential visual dominance used for this analysis. Additionally, views from this residence toward the project would be heavily screened by dense vegetation along the border of the property. No change to visual character or quality would occur.

KOP-4—There are three residences in the vicinity of KOP 4 and within ¼ mile of the proposed transmission line. KOP 4 is representative of the views from Telegraph Road to the east of the project. The visual resources analysis prepared for the MREC AFC determined that project implementation would result in a moderate and less than significant impact to visual character and quality to views along Telegraph Road. Visual impacts to the three residences east of the project along Telegraph Road would be minimal when compared to the views from Telegraph Road because of dense vegetation and citrus orchards surrounding the properties that would provide moderate to heavy levels of visual screening.

22. Simulation Scale - Appendix B (g) (6) (F)

Provide:

i) full-page color photographic reproductions of the existing site, and

ii) full-page color simulations of the proposed project at life-size scale when the picture is held 10 inches from the viewer’s eyes, including any project-related electrical transmission lines, in the existing setting from each key observation point. If any landscaping is proposed to comply with zoning requirements or to mitigate visual impacts, include the landscaping in simulation(s) representing sensitive area views, depicting the landscaping five years after installation; and estimate the expected time until maturity is reached.

Information required to make AFC conform with regulations:

Figures 5.13-3 – 5.13-7 provide color photographic reproductions of the existing site and simulations of the proposed project. However, the existing site photos and simulations for each KOP are not full page, but share a single 8 ½ by 11 sheet of paper. In addition, there is no indication that the images are presented at life-size scale.

Please provide on separate sheets of paper full-page color photographic reproductions of the existing site, and full-page color simulations of the proposed project at life-size scale when the picture is held 10 inches from the viewer’s eyes.

Response: As printed and submitted in hard copy form to the Commission, the KOPs each show full-page, 8.5” x 11” views of the project site elements. The “before” and “simulated view with project” views share one 11” x 17” page for more convenient comparison. These images are full-page color simulations at life-size scale when the picture is held 10 inches from the viewer’s eyes, per the requirements of Appendix G.

5.14 Waste Management (23)

23. Waste Flow Rates - Appendix B (g) (12) (B)

A description of each waste stream estimated to be generated during project construction and operation, including origin, hazardous or nonhazardous classification pursuant to Title 22, California Code of Regulations, § 66261.20 et seq., chemical composition, estimated annual weight or volume generated, and estimated frequency of generation.

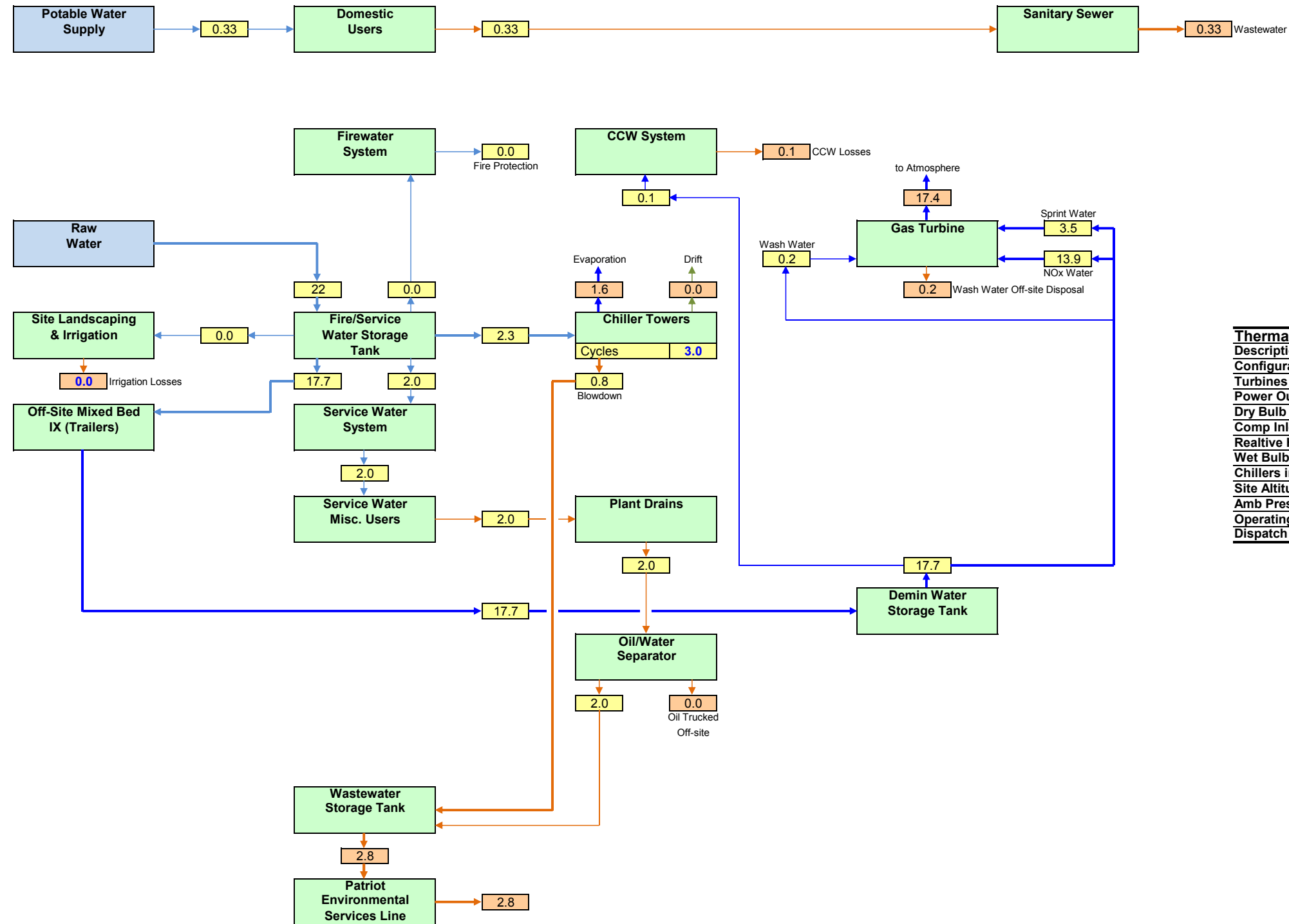
Information required to make AFC conform with regulations:

Figures 2.3-5a and 2.3-5b cited on pg. 5.14-4 under Nonhazardous Wastewater cannot be located. Figures 2.1-5a and 2.1-5b on pg. 2-17 also cannot be located. The AFC indicates these figures show the wastewater flow rates. Figures 2.1-4a and 2.1-4b show aggregate wastewater flow rates but do not show the flow rates for each of the waste water streams described in Section 5.14. Please revise the appropriate AFC sections and figures to show the separate and correct wastewater flow rates.

Response: The industrial wastewater flows are shown in Figures 2.1-4a and 2.1-4b and these are the correct figure citations for the water balance figures. These water balances show all of the applicable wastewater streams described in Section 5.14 except for the sanitary wastewater stream, flows for which are listed in Table 2.1-1. Sanitary wastewater will be disposed of by storage in a septic tank and then trucked off-site by Patriot Environmental Services (formerly Green Compass Environmental) or another qualified waste hauler. Please note that the waste streams described in Section 5.14 and listed in Table 5.14-2 are for the most part waste streams not amenable to description in terms of flow rates. They are instead described in the table using a variety of estimated quantity descriptions. For example, the rate of metal/resin use for water deionization is 173 trailers per year. Attachment DA5.14-1a contains the water balance figures, revised to include the sanitary wastewater stream.

Attachment DA5.14-1
Water Balances, Revised

Balance 0.0



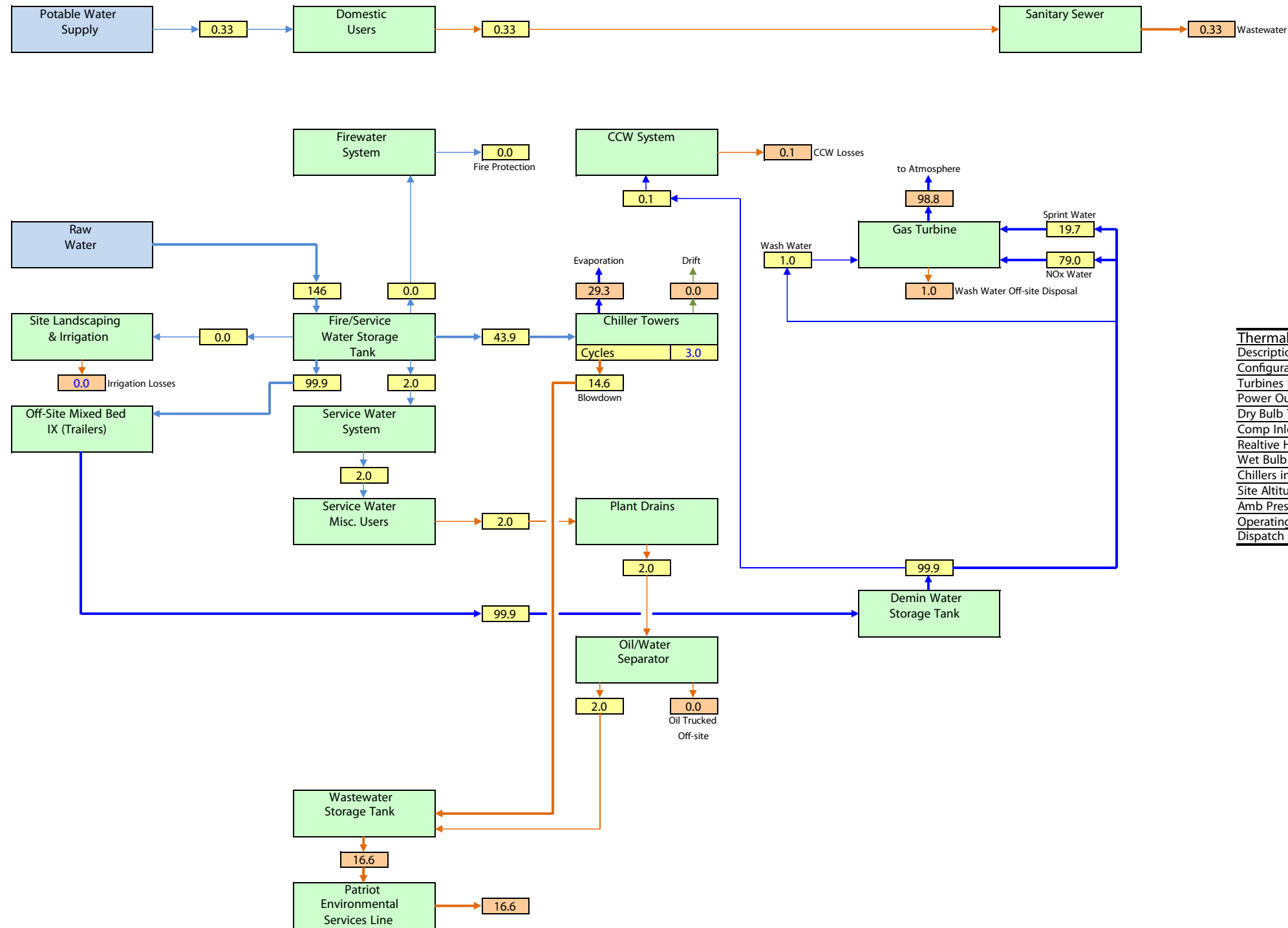
- Legend**
- Major Process Flow
 - Minor Process Flow
 - Raw/Potable Water
 - Cooling Water
 - Waste Stream
 - Recovered/Recycled Water
 - Steam
 - High Purity Water
- Indicates material that leaves the system
- Internal flow
- Water Source

All flows are in US GPM unless otherwise specified.

Thermal Design Case: 113	
Description	Annual Average 61
Configuration	5X0 SC
Turbines in Service	5
Power Out (Total MW)	286.61
Dry Bulb Temp, °F	61.00
Comp Inlet Temp, °F	50.00
Relative Humidity (%)	60.10%
Wet Bulb Temp, °F	53.20
Chillers in Service	Yes
Site Altitude (Feet)	185
Amb Pressure, psia	14.60
Operating Hours/Yr	438.00
Dispatch (% of Year)	5.00%

Figure DA5.14-1a.
Water Balance – Annual Average
Mission Rock Energy Center

Balance 0.0



Legend

- Major Process Flow
- Minor Process Flow
- Raw/Potable Water
- Cooling Water
- Waste Stream
- Recovered/Recycled Water
- Steam
- High Purity Water

Indicates material that leaves the system

Internal flow

Water Source

All flows are in US GPM unless otherwise specified.

Thermal Design Case: 118	
Description	Annual Maximum 79.2
Configuration	5X0 SC
Turbines in Service	5
Power Out (Total MW)	286.51
Dry Bulb Temp, °F	79.20
Comp Inlet Temp, °F	50.00
Relative Humidity (%)	43.33%
Wet Bulb Temp, °F	63.90
Chillers in Service	Yes
Site Altitude (Feet)	185
Amb Pressure, psia	14.60
Operating Hours/Yr	2500.00
Dispatch (% of Year)	28.54%

Figure DA5.14-1b.
Water Balance – Annual Maximum
 Mission Rock Energy Center

5.15 Water Resources (24-31)

24. Waste Discharge Requirements and Storm Water Pollution Prevention Plan - Appendix B (g) (1), (g) (14) (A) (1)

Waste Discharge Requirements; National Pollutant Discharge Elimination System Permit; and/or a Section 401 Certification or Waiver from the appropriate Regional Water Quality Control Board (RWQCB);

Information required to make AFC conform with regulations:

Provide the following information:

- *A Report of Waste Discharge for blowdown wastewater entering into the Santa Clara River.*
- *A Draft Storm Water Pollution Prevention Plan for construction activities.*

Response: No wastewater will be discharged to the Santa Clara River. As described in the AFC, industrial wastewater will be discharged into a private wastewater pipeline collection system operated by Patriot Environmental Services (formerly Green Compass Environmental/Southern California Waste Water). Sanitary wastewater will be discharged to a septic system storage tank and will be hauled to a municipal treatment works by a licensed hauler.

Before starting construction, the project owner will prepare a Storm Water Pollution Prevention Plan for submittal to the State Water Resources Control Board along with a Notice of Intent (NOI) to obtain coverage under the State's General Construction Storm Water permit, per the National Pollutant Discharge Elimination System. This is a federal permit program under the Clean Water Act and is outside of the CEC's jurisdiction. Standard Commission Conditions of Certification often require submitting proof of that the NOI has been submitted a number of days in advance of construction.

25. Backup Water Supply - Appendix B (g) (14) (C) (i)

Source(s) of the primary and back-up water supplies and the rationale for their selection;

Information required to make AFC conform with regulations:

Describe backup water supply or explain why none is needed.

Response: Backup water supply is not needed for the MREC because the facility has been designed to store significantly more recycled (service) water and demineralized water than is needed to satisfy instantaneous demand, to compensate for times of reduced availability. MREC's water supply consists of Limoneira's treated wash water from their packing house and sanitary wastewater from worker housing, and operations fluctuate seasonally. For this reason, it has been necessary to design MREC with sufficient water storage capacity to compensate for fluctuations in supply. For example, the demineralizer system will operate as needed to maintain the availability of demineralized water in the 892,000-gallon demineralized water storage tank, which provides sufficient supply for 32 hours of plant use without further demineralizing of water from the service water tank and with no new incoming recycled water. A peaking facility, however, is more likely to run for a few hours in the late afternoon/early evening on hot summer days when demand is high. Maximum water usage under hot conditions is approximately 30,000 per hour. Further, MREC will operate the water delivery system and demineralization system whenever water is available in order to maintain a full service water tank and a full demineralized water tank.

26. Wastewater Discharge - Appendix B (g) (14) (C) (iv)

A detailed description of all facilities to be used in water conveyance (from primary source to the power plant site), water treatment, and wastewater discharge. Include a water mass balance diagram;

Information required to make AFC conform with regulations:

Wastewater discharge information is unclear and conflicting.

- *Explain the disposal method of sanitary waste and what would happen to the existing on-site septic system. Include sanitary waste on water balance diagram.*
- *Clarify which waste streams are covered in the SCWW will-serve letter.*
- *Explain the disposal method of discharge from water demineralization.*
- *Clarify whether or not inlet air cooler system would use evaporative water cooling towers. If so, explain the disposal method of blowdown discharge.*

Response:

Sanitary Waste—As stated on AFC Page 2-17:

The secondary wastewater collection system will collect sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and route it to an onsite septic tank for discharge through removal by a licensed waste hauler such as Green Compass for offsite treatment.

Sanitary waste is quantified in Table 2.1-1. Attachment DA5.14-1 contains the water balances, revised to show the sanitary waste stream.

Southern California Waste Water (SCWW) will-serve letter—Attachment DA5.15-1 is a revised will-serve letter from Patriot Environmental Services, the successor to SCWW (aka Green Compass Environmental/Patriot Environmental Services) that clarifies which waste streams are covered by agreement.

Demineralization waste disposal—MREC will use a trailer-mounted mixed-bed ion exchange system for water demineralization. On-site reverse osmosis will not be used. References to RO inadvertently appear in the AFC. As the ion exchange resin capacity becomes exhausted, the ion-exchange trailer unit will be hauled off-site for disposal or regeneration by the trailer service provider, and a fresh trailer-mounted treatment system will replace it.

Evaporative Cooling Towers—The inlet air cooler system will use evaporative cooling towers (identified as “Chiller Towers” on the water balance diagrams of Figure 2.1-4a/b). The blowdown will be discharged to the existing Patriot Environmental Services effluent pipeline adjacent to the project site.

27. Water Supplies - Appendix B (g) (14) (C) (v)

For all water supplies intended for industrial uses to be provided from public or private water purveyors, a letter of intent or will-serve letter indicating that the purveyor is willing to serve the project, has adequate supplies available for the life of the project, and any conditions or restrictions under which water will be provided. In the event that a will-serve letter or letter of intent can not be provided, identify the most likely water purveyor and discuss the necessary assurances from the water purveyor to serve the project;

Information required to make AFC conform with regulations:

Provide information demonstrating Limoneira has adequate supplies for the life of the project. Include a discussion of whether there are any restrictions or seasonal variation in the availability of their supply.

Provide information on permitting that will be required for Limoneira to serve the project appropriately treated recycled water.

Response: In addition to our response to #25 above, consider that Limoneira is the largest citrus grower in North America and has made a substantial investment in its water treatment facility. It is reasonable to assume that they will continue operations for the foreseeable future. Limoneira's water supply will fluctuate seasonally and MREC will balance fluctuations in supply using water storage. In addition, Limoneira's supply will likely be larger during the summer season, when MREC's water demand will be highest. Limoneira is permitted to produce treated water for irrigation purposes. MREC has contracted with Limoneira to purchase this water for power plant uses. Additional permits are not necessary for Limoneira to sell the water in this way, beyond the Commission's approval for MREC's use in power generation.

28. Wastewater Streams - Appendix B (g) (14) (C) (vii)

Provide water mass balance and heat balance diagrams for both average and maximum flows that include all process and/or ancillary water supplies and wastewater streams. Highlight any water conservation measures on the diagram and the amount that they reduce water demand; and

Information required to make AFC conform with regulations:

Please resolve the following discrepancies regarding wastewater in the water balance diagrams and appropriate sections of the AFC:

- *"The MREC will discharge reverse osmosis reject water to Green Compass" (§ 5.15.1.5, p. 5.15-6)*
- *"Process wastewater, principally RO system reject and chiller system cooling tower blowdown, will be discharged through...Green Compass" (§ 2.1.10.1, p. 2-17)*
- *"The secondary wastewater collection system will collect sanitary wastewater... and route it to an onsite septic tank for discharge through removal by a licensed waste hauler" (§ 2.1.10.1, p. 2-17)*
- *"MREC will discharge industrial and sanitary wastewater to Green Compass" (Table 5.15-5, p. 5.15-15)*
- *"Wastewater from facility sinks, toilets, and showers will be disposed of to the sanitary sewer." (§5.14.4.2, p. 5.14-10)*
- *"Industrial wastewater consisting of reverse osmosis system reject and cooling tower blowdown from the chiller system will be discharged through Green Compass" (Executive Summary, ES-1)*
- *"No wastewater will be generated from the water treatment process or IX resin regeneration, since regeneration of the cationic and anionic resin will occur off-site via contracted vendor. The non-oily waste stream will pass through a walnut shell activated carbon vessel followed by a surge tank and 5 micron bag filters before being sent to the waste water tank and eventually recycled back to the raw water storage tank. Sanitary waste will be sent to an onsite septic system." (Appendix 2A, page 2A-20)*

Response:

Reverse Osmosis—On-site reverse osmosis will not be used. References to RO inadvertently appear in the AFC.

Process wastewater—Chiller system cooling tower blowdown will be discharged through Green Compass (now Patriot Environmental Services). There will be no RO system reject; MREC will use portable mixed-bed ion exchange system to produce demineralized water.

Onsite septic—As stated in the AFC, sanitary wastewater will be stored in a septic system tank and collected for removal by a licensed waste hauler such as Green Compass (now Patriot Environmental Services).

Industrial and Sanitary—To clarify, MREC will discharge industrial wastewater to Green Compass/Patriot Environmental and sanitary wastewater will be hauled offsite by Green Compass/Patriot or another licensed waste hauler. In the case of the industrial wastewater, the discharge is to an existing wastewater pipeline and in the case of sanitary sewer, discharge is initially to a septic system tank, and sanitary waste will then be hauled to a municipal treatment works.

Wastewater from sinks, toilets, showers—Disposal of sanitary waste will be to a septic storage tank and then to a licensed waste hauler, not a municipal sanitary sewer.

Industrial wastewater consisting of reverse osmosis— Chiller system cooling tower blowdown will be discharged through Green Compass (now Patriot Environmental Services). There will be no RO system reject. MREC will use portable mixed-bed ion exchange system for demineralized water.

Wastewater from the water treatment process or ion exchange (IX) resin regeneration—The mixed-bed ion exchange demineralized water treatment system will generate demineralized water that will be used for industrial process. Regeneration of the cationic and anionic resin will occur off-site via a contracted vendor and will be removed from the site as part of the trailer-mounted IX treatment system by the vendor. Disposal of sanitary waste will be to an onsite septic system storage tank (not a municipal sewer) and then to a licensed waste hauler for disposal at a municipal treatment works.

29. Wastewater Disposal - Appendix B (g) (14) (C) (viii)

For all projects which have a discharge, provide:

a copy of the will-serve letter, permit or contract with the public or private entity that will be accepting the wastewater and contact storm water from the project. The letter, permit or contract, if possible, shall identify the discharge volumes and the chemical or physical characteristics under which the wastewater and contact storm water will be accepted.

In the event that a will-serve letter, permit, or contract cannot be provided, identify the most likely wastewater/storm water entity and discuss why the applicant was unable to secure the necessary assurances to serve the project's wastewater/storm water needs. Also, discuss the term of the wastewater service to the project, whether the wastewater entity has adequate permit capacity for the volume of wastewater from the project and has adequate permit levels for the chemical/physical characteristics of the project's wastewater and storm water for the life of the project, and any issues or conditions/restrictions the wastewater entity may impose on the project.

Information required to make AFC conform with regulations:

Once the discrepancies are resolved regarding wastewater disposal methods, provide necessary information to address the proposed methods of disposal.

Response: See responses to the previous items under Water Quality.

30. Zero Liquid Discharge - Appendix B (g) (14) (iv)

If not using a zero liquid discharge project design for cooling and process waters, include the effects of the proposed wastewater disposal method on receiving waters, the feasibility of using pre-treatment techniques to reduce impacts, and beneficial uses the receiving waters. Include an explanation why the zero liquid discharge process is “environmentally undesirable,” or “economically unsound;”

Information required to make AFC conform with regulations:

Provide required information to explain why the zero liquid discharge process is “environmentally undesirable,” or economically unsound.”

Response: Zero Liquid Discharge (ZLD) systems are labor-intensive to operate and have a history of operating challenges, including foaming, that reduce the reliability of the entire power plant. ZLD systems also reduce plant efficiency due to parasitic load. Given the relatively small amount of water needed to operate a peaking power plant and the significant economic and reliability disadvantages of this type of system, a ZLD would be economically unsound for this application and would offer small, if any, environmental advantages, especially when the effects of frequently trucking salt cake to a landfill are considered.

31. Floodplain Development Permit - Appendix B (g) (14) (vi)

The effects of the project on the 100-year flood plain, flooding potential of adjacent lands or water bodies, or other water inundation zones; and

Information required to make AFC conform with regulations:

Discuss the project's conformance with requirements for a Floodplain Development Permit issued by Ventura County (the permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities).

Response: The site is depicted as being partially within the 100-year floodplain on FEMA Floodplain Insurance Rate Maps dated January 2010. Based on site-specific surveys conducted in 2013, however, all of the project parcel except for a small sliver of land located along the northeastern corner, is above the base flood elevation (100-year floodplain) due to the site having been filled previously. More recent data suggests, however, that FEMA will likely raise the base flood elevation on a future approved map. As discussed in Section 5.15.1.3 and Appendix 5.15A of the AFC, the site is expected to be located within the 100-year flood plain and, therefore, site elevation will be raised during construction to set the power plant equipment foundations above a possible future 100-year flood elevation. A Letter of Map Revision Based on Fill (LOMR-F) will be submitted to the Federal Emergency Management Agency (FEMA) to demonstrate the site after construction will be at an elevation outside of the 100-year flood plain. A Flood Plain Development Permit is required before start of construction within the 100-year flood plain in accordance with the Ventura County Flood Plain Management Ordinance No. 3954 and per the requirements of the FEMA National Flood Insurance Program. The Applicant will submit a Flood Plain Permit Development Application to Ventura County for review prior to submitting to FEMA and design will ensure that the project is in conformance with County LORS.

Attachment DA5.15-1
Will-Serve Letter for Wastewater Disposal



February 5, 2016

Mitchell D. Weinberg
Director, Strategic Origination & Development
Calpine Corporation
4160 Dublin Boulevard, Suite 100
Dublin, CA 94568

Re: Can Serve Letter
Proposed Calpine Mission Rock Energy Center

Mr. Weinberg:

Patriot Environmental Services received your request for processed waste water services availability for up to 135,000 gallons per day of cooling tower blowdown, reverse osmosis reject and/or other processed waste water discharged from the proposed Mission Rock Energy Center to be located at 1025 Mission Rock Road, Santa Paula.

It is understood that Mission Rock Energy Center is proposing to construct a natural gas fired power generation facility utilizing gas turbine technology at the subject property with a planned operation date in 2018 or later.

This letter is to inform you that Patriot Environmental Services has sufficient resources to accommodate your request for service.

Please call me at the office at (562) 436-2614 if you need further clarification.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "P. Kromwyk", is written over a horizontal line.

Paul Kromwyk
CFO
Patriot Environment Services