DOCKETED

Docket Number:	15-AFC-02
Project Title:	Mission Rock Energy Center
TN #:	211974
Document Title:	Mission Rock Data Requests, Set 1 (Nos. 1-107)
Description:	N/A
Filer:	Cenne Jackson
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	6/24/2016 3:13:56 PM
Docketed Date:	6/24/2016

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June 24, 2016

Mitch Weinberg
Calpine Company
4160 Dublin Boulevard, Suite 100
Dublin, CA. 94568

RE: MISSION ROCK ENERGY CENTER (15-AFC-02) DATA REQUESTS, SET 1 (Nos. 1-107)

Dear Mr. Weinberg;

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission staff requests the information specified in the enclosed data requests, #1-107. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This request is being made in the areas of Air Quality (Nos. 1-19), Greenhouse Gases (Nos. 20-21), Biological Resources (Nos. 22-28), Cultural Resources (Nos. 29 – 58), Geology and Paleontology (Nos. 59-62), Noise and Vibration (No. 63), Socioeconomics (Nos. 64-67), Soil and Water Resources (Nos. 68-86), Traffic and Transportation (Nos. 87-97), Transmission Systems Engineering (Nos. 98-105), and Waste Management (Nos. 106-107). Written responses to the enclosed data requests are due to the Energy Commission staff on or before July 25, 2016, or at such later date as may be mutually agreed upon.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to both Commissioner Karen Douglas, Presiding Committee Member for the Mission Rock Energy Center, and me, within 20 days of receipt of this letter. The notification should contain the reasons for not providing the information, the need for additional time, and the grounds for any objections. If you have any questions, please call me at (916) 654-4894, or E-mail me at: mike.monasmith@energy.ca.gov.

Sincerely,

Mike Monasmith
Siting Project Manager

Enclosure: Data Requests

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS SET 1 (Nos. 1 – 108)

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MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Air Quality**
Author: Joseph Hughes

Project Permits

BACKGROUND

The proposed project will require a Preliminary Determination of Compliance (PDOC) and a Final Determination of Compliance (FDOC) from the Ventura County Air Pollution Control District (VCAPCD or "District"). These documents will be integrated into the staff analysis. Therefore, staff will need copies of relevant correspondence between the applicant and the District in a timely manner in order to stay up to date on any permit issues that may arise during preparation of the Preliminary or Final Staff Assessments.

DATA REQUEST

1. Please provide copies of all substantive District correspondence regarding the Mission Rock Energy Center (Mission Rock) PDOC and FDOC preparation, including e-mails, within one week of submittal or receipt. This request is in effect until the final Commission Decision has been adopted.

Emission Estimates Spreadsheets

BACKGROUND

Appendix 5.1A (Emissions Support) and Appendix 5.1E (Construction Emissions Support) of the Application for Certification (AFC) are used to document emission calculations. Staff needs the original spreadsheet files of these estimates with live, embedded calculations to complete their review.

DATA REQUEST

2. Please provide the spreadsheet version of Appendix 5.1A and Appendix 5.1E work sheets with embedded calculations, live and intact.

Combustion Turbine PM10/PM2.5 Emissions

BACKGROUND

Appendix 5.1A, Attachment 5.1A-1 lists the particulate matter less than ten microns in diameter (PM10) emissions as 4 pounds per hour (lb/hr) for all operating cases. However, the air quality modeling for routine operations was conducted using a PM10 emission rate of 2 lb/hr. Additionally, the maximum hourly PM10 emissions presented in AFC Table 5.1-6, is listed as 2 lb/hr, and the facility's PM10 potential to emit (PTE) for the five turbines of 12.5 tons per year (tpy) (table 5.1-8) was based on the 2 lb/hr emission rate.

DATA REQUESTS

3. Please clarify the discrepancy between the 4 lb/hr PM10 emission rate listed in Appendix 5.1A, Attachment 5.1A-1 and the 2 lb/hr emission rate used in the air quality modeling analysis and listed in AFC Table 5.1-6.

4. Please revise the information in the AFC, Appendices, and impacts analysis as needed to reflect the appropriate PM10 emission rate(s).

Generating Capacity and Heat Rates

BACKGROUND

AFC Appendix 5.1A, Turbine Performance Data, provides the turbine output specifications for various ambient conditions, including equipment and facility net and gross generating outputs. For example, Appendix 5.1A states that the facility would have a gross output of 286,680 kilowatts (kW) with inlet cooling at an ambient temperature of 79.2 degrees Fahrenheit (F°) and approximately 10,004 kW of auxiliary loads, for a total net output of 276,676 kW. Table 5.1-2 of the AFC also summarizes the facility's gross and net output, and heat rates, for various ambient conditions, consistent with Appendix 5.1A.

The Supplemental AFC (TN 210540-2) states that the General Arrangement as originally submitted did not include certain heat rejection elements (the wet surface air condenser or "wet SAC") of the gas turbine inlet air chiller package. Therefore, the associated air quality characteristics of the wet SAC were inadvertently omitted from the air modeling. Mission Rock updated the emissions profile and air dispersion modeling analysis to account for the wet SAC; however, the gross and net power outputs, and the facility heat rates, in Table 5.1-2 of the Supplemental AFC and Appendix 5.1A appear to be unchanged. It's unclear if the auxiliary loads from the wet SAC were considered as part of the original AFC submittal.

DATA REQUESTS

5. Please confirm whether or not the wet SAC auxiliary load was already included in the original AFC filing.

6. If not, please provide updated turbine performance data, including net and gross capacities, and facility heat rates, as found in Appendix 5.1A and Table 5.1-2.

Operation of the Fire Pump Engine

BACKGROUND

Section 5.1.6.2 explains that testing of the fire pump engine would occur up to 30 minutes per day, 52 hours per year, but would not occur during a turbine start or shutdown hour. Additionally, the fire pump engine was not included in the air quality modeling analysis for one hour startup assessments or the commissioning impact assessment.

DATA REQUESTS

7. Please explain how onsite procedures would work to ensure no overlap of readiness testing of the fire pump engine and commissioning or startup/shutdowns of the combustion gas turbines would occur.

8. Please describe the basis for choosing to use a diesel-fueled fire pump engine and describe why other fuels, resulting in lower emissions, could not be used.

Commissioning of the Combustion Gas Turbines

BACKGROUND

Section 5.1.6.4 and Appendix 5.1A, Table 5.1A-7, explain that during the first half of the commissioning process (approximately 90 hours per turbine), nitrogen dioxide (NO_2) and carbon monoxide (CO) emissions could be considerably higher than later stages of the commissioning process. Only two turbines would be commissioned during this first part of the commissioning process, with the other turbines not operating. During the final part of commissioning (lasting up to 123 hours per turbine), NO_2 and CO emissions, while still greater than normal or startup emissions at times, would be considerably less than the first part of commissioning.

The air quality modeling analysis modeled two turbines at a time during the first stage of commissioning and all five turbines during the final stage of commissioning consistent with the stack parameters and emission rates presented in Table 5.1-23.

DATA REQUEST

9. Please explain how the applicant would limit the number of turbines that could be commissioned simultaneously, with corresponding emission rates consistent with the emissions presented in Table 5.1-23 and the air quality modeling analysis.

Commissioning Year Facility Emissions

BACKGROUND

Section 5.1.3.2 and Section 5.1.6.4 explain that the first year of operation, which includes an estimated 213 operating hours (per turbine) of commissioning activities, would have higher hourly and daily emissions than normal operations for subsequent years of operation. However, it is unclear if annual emissions during the first year of operation would be higher than routine operation for subsequent years.

The AFC did not present separate facility potential to emits (PTEs) for the first year of operation and routine operation for subsequent years, nor did the modeling analysis analyze annual impacts during the commissioning year.

DATA REQUESTS

10. Please explain if the applicant is proposing to limit permitted emissions during the first year of operation (commissioning year) to those of all subsequent, routine operating years.

11. If not, please provide the modelling and results of the expected commissioning year emissions impacts.

Modeling Inputs and Results for Mission Rock Construction Impacts

BACKGROUND

Table 5.1B-4 of Appendix 5.1B, Modeling Support Data, appears to be inconsistent with the emission factors and air quality modeling impact results presented in Appendix 5.1E, Construction Emissions Support. Table 5.1B-4 is titled, Modeling Inputs/Results for Palmdale Construction Impacts, so staff believes this table was inadvertently included in Appendix 5.1B in place of the Modeling Inputs/Results for Mission Rock Construction Impacts table. Staff notes that the Modeling Inputs/Results for Mission Rock Construction Impacts table was included with the air quality modeling files in the construction modeling folder as an Excel spreadsheet. The emission factors and impact results in the table included with the modeling files appear to be consistent with the values presented in Appendix 5.1E, Construction Emissions Support.

DATA REQUEST

12. Please confirm that Modeling Inputs/Results for Mission Rock Construction Impacts table, that was included with the air quality modeling files in the construction modeling folder as an Excel spreadsheet, is the correct table and should be reviewed in place of Table 5.1-4 of Appendix 5.1B.

Air Quality Modeling – Emission Sources Base Elevation

BACKGROUND

Sections 5.15.1.3 and 5.15.2.4 of the AFC explain that the Base Flood Elevation (BFE) for the 100-year floodplain is approximately 9 feet higher than the current projected BFE at the project site's southeastern corner. To elevate the Mission Rock site above the BFE, the project site would be raised with fill by up to 10 feet. Appendix F, Conceptual Grading Plans, of Appendix 5.15A, explains that all the equipment foundation footings would be constructed at an elevation of 192.3 feet, one foot, or higher, above the 100-yr floodplain elevation of 191.3 feet. The base elevation used for the emission sources in the AERMOD air quality modeling files is 192.3 feet, which appears to account for the proposed elevated site.

DATA REQUEST

13. Please confirm that the base elevation for the modeled sources in the air quality modeling specifically accounted for the 10 foot fill that would be required to elevate the site above the 100-yr floodplain elevation.

Cumulative Impacts

BACKGROUND

Appendix 5.1C explains that a cumulative impact analysis in accordance with VCAPCD and Energy Commission requirements would be completed at a later date after consultation with the appropriate agencies. Appendix 5.1G of the AFC, describes the methodology for the cumulative impacts analysis, including the criteria for determining which facilities would be considered for inclusion. The applicant's criteria included the following:

- Search area with a radius of 8 miles beyond the project's impact area to be used for the cumulative impacts analysis;
- Model for pollutants in which the facility's impacts exceed federal significant impact levels (SILs);
- Include new or modified facilities that would result in a 15 tpy emission increase.

However, staff typically considers all pollutants, regardless of the facility's individual impact. While individually less than significant, the cumulative impacts may combine for a significant cumulative impact. Finally, staff generally analyzes all new or modified sources that would cause a net increase of 5 tons or more per modeled criteria pollutant.

DATA REQUESTS

14. Please provide a copy of the applicant's correspondence to and from the District regarding existing and planned cumulative sources located within eight miles of the project site that would have a net increase in emissions of 5 tons or more per modeled criteria pollutant.

15. Please provide a list of all sources to be considered in the cumulative air quality impact analysis for staff review and approval.

16. Upon approval of the list of sources to be included in the cumulative air quality impact analysis, please provide the cumulative modeling and impact analysis for all criteria pollutants.

Emission Offsets – VCAPCD Rule 26.2

BACKGROUND

AFC, Section 5.1.3.4 and Appendix 5.1H explains that under VCAPCD Rule 26.2 the Mission Rock NOx emissions of 28.17 tpy would need to be offset at ratio of 1.3 to 1, using offsets acquired from the District bank. Staff calculates that per Rule 26.2 the Mission Rock would be required to surrender 36.62 tpy of NOx offsets. However, AFC Table 5.1-12 and Appendix 5.1H, Table 5.1H-1, list the total required offsets as 30.12 tpy.

DATA REQUESTS

17. Please provide calculations showing the total amount of offsets required per VCAPCD Rule 26.2, the basis of the offset ratio used and explain how the applicant's approach meets the requirements of this rule.

18. Please provide a tabulated list of all offsets obtained to satisfy the requirements of VCAPCD Rule 26.2, including all necessary documentation to show control or ownership of the required emissions offsets.

California Environmental Quality Act (CEQA) Mitigation

BACKGROUND

AFC Section 5.1.3.4 explains that any required offsets or additional mitigation pursuant to California Environmental Quality Act (CEQA), would be negotiated, acquired, and implemented per the VCAPCD regulations and Energy Commission guidance.

Staff's analysis under CEQA must determine the significance of impacts, which is based on whether all non-attainment emissions and precursor emissions (i.e., nitrogen oxides [NOx], volatile organic compounds [VOCs], particulate matter less than 10 microns in diameter [PM10], particulate matter less than 2.5 microns in diameter [PM2.5], and sulfur oxides [SOx]) would be mitigated. This could be demonstrated by securing and surrendering formal emission reduction credits (ERCs), or using non-traditional emission reduction programs to mitigate non-attainment emissions and precursor emissions. Non-traditional reductions for CEQA purposes may be from programs that reduce emissions in ways that may be ineligible for use in an air district's official ERC banking program, such as through mobile source control measures.

Information submitted in the AFC and Supplemental AFC does not provide sufficient detail regarding the specific CEQA mitigation plan. If ERCs would be used for the project, staff eventually needs to know the exact location, the amount, and the ratios of emissions to reductions, including inter-pollutant mitigation ratios and their bases, applicable to each ERC Mission Rock proposes to use. If non-traditional mitigation programs would be used, staff needs to know the proposed strategies to reduce emissions in the near vicinity of the project and the effectiveness of such strategies. This information may be submitted under confidential cover to staff, but staff expects to make this information available to the public when publishing the preliminary staff assessment. Staff requires a finalized mitigation package to complete our analysis.

DATA REQUEST

19. Please provide a detailed description of the proposed approach to mitigate all nonattainment and nonattainment precursor emissions as required by CEQA.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Greenhouse Gas Emissions**
Author: Joseph Hughes

Standards of Performance for Greenhouse Gas Emissions

BACKGROUND

As discussed in Section 5.1.7.1 of the Supplemental AFC, the Environmental Protection Agency (EPA) has adopted new source performance standards (NSPS) under Clean Air Act (CAA) section 111(b) that establishes standards for emissions of carbon dioxide (CO_2) for newly constructed fossil fuel fired electric utility generating units (EGUs).

Under this rule, non-base load natural gas-fired units are defined as units which burn over 90 percent natural gas and have net-electric sales of equal to or below their design efficiency (not to exceed 50 percent) multiplied by their potential electric output.

In order to confirm that Mission Rock would comply with this rule as a non-base load facility, staff needs to know the design efficiency and expected net-electric sales.

DATA REQUESTS

20. Please provide calculations deriving the design efficiency for the GE LM6000 PG Sprint turbines.

21. Please provide calculations showing how Mission Rock qualifies as a non-base load facility under NSPS, Part 60, Subpart TTTT.

Technical Area: Biological Resources

Authors: Andrea Martine

BACKGROUND: SOUTHWESTERN WILLOW FLYCATCHER

The Santa Clara River is designated critical habitat for the federal and state endangered southwestern willow flycatcher (*Empidonax traillii extimus*). The Santa Clara River is 0.45 mile (2,343 feet) from the project site. The Biological Resources section of the AFC (TN207151) states that riparian habitat within/or adjacent to generator tie-line (gen-tie) tower nos. 3, 16, and 18 may provide suitable habitat for least Bell's vireo, southwestern willow flycatcher, and other avian species. In a conversation (ROC TN210997) with Chris Dellith of U.S. Fish and Wildlife Service, it was recommended to have a habitat assessment completed for the southwester willow flycatcher.

DATA REQUEST

22. Provide a habitat assessment for the southwestern willow flycatcher.

BACKGROUND: RIPARIAN HABITAT

AFC Figure 5.2-6 (pages 1-24) contains maps showing the vegetation and land cover types for the project site and linear facilities. Riparian habitat is listed in the legend but is not shown on Figure 5.2-6. However, as reported in Table 5.2-3 (AFC page 5.2-14), the gen-tie, natural gas pipeline, and water supply line would have both temporary and permanent impacts to riparian habitat. AFC page 5.2-8 states that gen-tie tower nos. 3, 16, and 18 would be located within or immediately adjacent to riparian habitat. Table 5.2-3 shows 0.216 acre of temporary and permanent disturbance to riparian habitat attributed to the gen-tie. However, this conflicts with later statements on page 5.2-8 that tower nos. 3, 16, and 18 would be sited to avoid riparian areas. Staff visited several tower locations with a representative of CH2M (applicant's consultant) on June 8, 2016; based on the site visit, tower no. 16 would be sited in riparian habitat. There is no description in the AFC of the possible plant species to be impacted. Table 5.2-3 shows 0.280 and 0.111 acre of temporary impacts to riparian habitat attributed to the gas and water lines, respectively; however, the AFC does not discuss these impacts. Ventura County has a tree protection ordinance (Ventura County Non-Coastal Zoning Ordinance, Section 8107-25, Tree Protection Regulations) which protects several tree species including riparian species. In addition, work that would change the bank including vegetation associated with a stream or a river requires a Lake and Streambed Alteration Agreement (see California Department of Fish and Wildlife's (CDFW) comments on 3-22-2016; TN210809). While a certificate from the Energy Commission is in lieu of all other state permits, coordination with CDFW will be necessary to incorporate the terms that would normally be in an alteration agreement into the Energy Commission's certificate to ensure impacts to riparian habitat are avoided, minimized, and/or mitigated.

DATA REQUESTS

23. Please revise Figure 5.2-6 to show the areas of riparian habitat.

24. Please explain how it was calculated that the gen-tie would have 0.216 acre (Table 5.2-3) of temporary and permanent impacts to riparian habitat. Please clarify which towers would have temporary and permanent impacts to riparian habitat as listed in Table 5.2-3?

25. Please explain how it was calculated that the gen-tie would temporarily impact 0.357acre of sensitive and special-status species habitat.

26. Provide a discussion of impacts (temporary and permanent) to riparian habitat from the natural gas pipeline and the process water supply line and explain how the impact acreages reported in Table 5.2-3 for the linears were calculated.

27. Provide a list of plant species impacted (temporary and permanent) by the construction of the gen-tie towers and gas and water lines.

28. Please provide a completed Notification of a Lake and Streambed Alteration.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Cultural Resources**
Authors: Matthew Braun and Sean de Courcy

INTRODUCTION

Staff's review of the technical report and appendices provided with the Mission Rock Energy Center AFC and the Data Adequacy supplements leads to the conclusion that the historical research and fieldwork is insufficient to allow staff to complete an adequate cultural resources analysis. The following data requests (**DR29** – **DR34**) provide detailed requests for this information. The following summary is provided to assist the applicant with complying with the data request. These items should be submitted under separate covers for purpose of clarity. We understand that some of the requested technical reports required may contain duplicative information in the final submittal.

29. Provide a **Technical Memorandum** that clarifies the archeological fieldwork methods used to identify cultural resources in the Mission Rock survey area (**DR 29**).

30. Provide a **Technical Report** including additional research and fieldwork with the goal of completing the archeological and built environment survey and documentation of cultural resources in the Mission Rock survey area. This report should include all linear features in the Mission Rock survey area (**DR 30**, **DR 31**, **DR 32**).

31. Provide a **Technical Report** that includes additional research and fieldwork focused on documenting and evaluating all newly identified cultural resources within the Mission Rock survey area (**DR 33**).

32. Provide a **Technical Report** that includes additional research and fieldwork focused on the following significant historical themes associated with the Mission Rock survey area: oil industry, transportation systems, cultural institutions (education/social), and agribusiness (**DR 34**).

All responses to these data requests that contain specific archaeological site locations or information, or resources of concern to Native Americans, should be submitted under confidential cover.

BACKGROUND

Staff finds that the applicant's documentation of archaeological fieldwork is incomplete. The AFC (CALPINE 2016: 5.3-23) reports that the archaeological survey crew spot checked those portions of the generator tie-line corridor with slopes greater than 25 percent. Additionally, the AFC (CALPINE 2016: 5.3-24) reports that some "areas of the gas and water line remain unsurveyed as of October 2015 because it was not possible to conduct the surveys without damaging row crops." Finally, the AFC indicates that ground surface visibility varies widely from zero to 100% (CALPINE 2016: 5.3-24). The AFC does not identify the size in acres of spot checked areas, unsurveyed areas, or variation in ground surface visibility. In addition, maps illustrating the locations of these three types of areas were not provided. This missing information renders staff unable to assess whether appropriate field methods were used, and exactly how much of the archaeological resources study area remains to be surveyed.

DATA REQUESTS

33. Please provide a technical memorandum that indicates:

    a. The total area of the archaeological resources study area in acres,

    b. The number of acres in the archaeological resources study area with slopes greater than 25 percent that the survey crew spot checked,

    c. The number of acres in the archaeological resources study area that remain unsurveyed, and

    d. The ground surface visibility in acres (i.e., 0-25%, 26-50%, 51-75%, 76-100%).

34. Please provide figures that indicate areas with slope greater than 25 percent and areas that remain unsurveyed in the archaeological resources study area. The figures shall conform to the following requirements:

    e. The figures shall be based on 7.5-minute, U.S. Geological Survey (USGS) topographic quadrangles at a scale of 1:24,000.

    f. The figures shall show the project elements, archaeological resources study area boundary, areas with a slope greater than 25 percent, unsurveyed areas, and locations of surface visibility by percent (0-25%, 26-50%, 51-75%, 76-100%).

BACKGROUND

The Energy Commission's siting regulations require applicants to survey the project site and an area not less than 200 feet surrounding all components of the project site, including substations and staging areas, for the presence of cultural resources. Additionally, the siting regulations state that cultural resource surveys extend not less than 50 feet beyond the right-of-way of proposed linear facilities (Cal. Code Regs., tit. 20, App. B[g][2][C].) An unknown amount of the applicant's archaeological resources study area (see **DR 29**) has not been surveyed to these specifications because of access issues (CALPINE 2016: 5.3-24). These areas include portions of the water and gas lines (CALPINE 2016: 5.3-24).

Staff needs complete descriptions of archaeological survey methods and ensuing results for these areas to adequately assess the proposed project's impacts on historical and unique archaeological resources.

Additionally, during staff's site visit on June 8, 2016, staff noted the presence of an extensive historic farm site that was not recorded by the applicant. The site is located approximately 70 feet south of the southeastern corner of the Mission Rock property and extends along the southern border of the proposed project area. From staff's cursory examination, the site includes fencing, irrigation control mechanisms, several large standing structures, associated agricultural fields and associated debris. This missing information renders staff unable to evaluate and assess potential impacts to this cultural resource from the Mission Rock site.

DATA REQUESTS

35. Conduct pedestrian archaeological survey for the unsurveyed portions of the Mission Rock linear alignments and the historic farm site approximately 70 feet south of the proposed project area.

36. Submit to the Energy Commission a supplemental technical report meeting California Office of Historic Preservation Archaeological Resource Management (ARMR) requirements (OHP 1995) that describes:

    a. The methods used to identify cultural resources in the project linear alignments.

    b. The results of the pedestrian survey.

    c. Descriptions of newly recorded cultural resources in the proposed project linear alignments.

    d. A comprehensive California Register of Historical Resources (CRHR) evaluation of each cultural resource, considering all four criteria and all seven aspects of integrity individually, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

    e. A comprehensive review of each resource to determine if it is a contributor to the Santa Clara River Valley Rural Historic District (a rural historic landscape).

f. An assessment of impacts to all potential historical resources in the project linear alignments.

g. Proposed mitigation measures for identified impacts.

h. Complete Department of Parks and Recreation (DPR) 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance, including the historic farm 70 feet from the project area. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) should also be included.

i. Each 523J form should only depict one resource at a time; not multiple resources. A vicinity map, as previously provided, should not be present. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale format.

j. Figures depicting survey coverage and results. The figures should also depict ground surface visibility in the survey areas, expressed as a percentage, if not already depicted as part of **DR 30** Figures shall be on a 1:24,000-scale USGS topographic quadrangle map. Previously and newly recorded cultural resources shall be mapped on the figures. Each resource shall be clearly labeled with trinomials, or temporary numbers if trinomials have not been assigned.

BACKGROUND

The majority of the proposed project is located within the boundaries of the Santa Clara River Valley Rural Historic District. All properties that were found to be eligible for listing on the National Register of Historic Places (NRHP) in the surveys conducted for the Ventura County Cultural Heritage Board were also determined, by resolution of the Ventura County Board of Supervisors, to be Structures of Merit under the Ventura County Cultural Heritage Ordinance. This designation constitutes a “local register of historical resources” for the purposes of the California Environmental Quality Act (CEQA) (Cal. Code Regs., tit. 14, § 15064.5(a)(2)). Consequently, these resources should be regarded as historical resources pursuant to CEQA (Pub. Resources Code, § 21084.1) (SBRA, 1996).

The western Santa Clara River Valley Rural Historic District was found to be significant under NRHP Criterion A (events) for its reflection of the growth and development of citraculture in Ventura County and California; and Criterion C (design) as one of the best preserved examples of a mature Southern California citriculture landscape. The historic landscape analysis established a period of significance for the Santa Clara Valley Rural Historic District from 1860 to 1946 (SBRA, 1996).

The 1996 survey identified a number of resources associated with the Santa Clara River Valley Rural Historic District including:

- Buildings: residential buildings, ranch houses, labor housing, packing houses, barns, outbuildings (sheds and garages)
- Structures: irrigation, ditches, weirs, penstocks, reservoirs, pumphouses, water towers, cisterns, roads, railroads, fences, walls, corrals
- Sites: agricultural fields, orchards, windrows, gardens, ornamental landscaping, contemporary archaeological deposits.

The AFC mentions that the "1996 survey report is important, as the surveyors had access to private properties, and the report represents the most detailed recordation of buildings in the MREC APE and buffer" (CALPINE 2016:5.3-13). It is unclear if access to the resources was requested as part of the MREC *Cultural Resources Inventory Report*. The AFC notes that a "total of 34 buildings identified from this study [SBV, 1996] are located within the MREC study area" (CALPINE 2016: 5.3-17). Brief and inadequate DPR 523 update forms were prepared for 18 of the 34 previously recorded resources. However, many of these forms note that the "property is surrounded by mature landscaping and was difficult to view" suggesting that access was not acquired. It is unclear if other methods of evaluating the status of the previously recorded resources were used, such as Google Earth.

Staff needs more information about the current status of the previously recorded resources and any newly recorded resources that are part of the Santa Clara River Valley Rural Historic District in order to adequately assess the proposed project's impacts on historical and unique archaeological resources.

Staff finds that the historical research required in order to identify contributors to the Santa Clara River Valley Rural Historic District within the Mission Rock study area is incomplete and as such does not provide the requisite level of information needed by staff to evaluate project impacts.

DATA REQUESTS

37. Conduct supplementary historical research of all Santa Clara River Valley Rural Historic District parcels within the Mission Rock study area implementing the research questions proposed in the AFC (CALPINE 2016: 5.3-11). This research should emphasize aerial photography up to and including the most recent images available. The goal is to identify all structures and sites that may be contributors to the district, but that have not yet been identified.

38. Provide digital copies of all historic documents, maps and photographs used in the historical research.

39. Request permission to access all Santa Clara River Valley Rural Historic District parcels within the Mission Rock study area. Provide copies of all communication (letters, emails, phone logs) with landowners regarding access. Lack of access to a resource must be demonstrated.

40. Revisit all previously identified resources and resources identified during historical research to collect sufficient photographs and other information to complete a full set of DPR forms, as appropriate.

41. Submit to the Energy Commission a supplemental technical report meeting ARMR requirements (OHP 1995) that describes:

    a. Methods and research questions used in the supplemental research and additional field visits.

    b. Results of the research and field visits.

    c. Substantially expanded resource descriptions of newly recorded and updated cultural resources in order to provide sufficient evidence for making a CRHR eligibility recommendation.

    d. Resources that cannot be visited because of lack of access shall be examined in detail using Google Earth, maps, literature sources, information obtained from repositories, and other sources. Copies of the images and other online sources used for this analysis will be included as part of the technical report.

    e. A comprehensive CRHR evaluation of each resource, considering all four criteria and all seven aspects of integrity individually, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

    f. A comprehensive review of each resource to determine if it is a contributor to the Santa Clara River Valley Rural Historic District using the character defining features outlined in DPR site form for P-56-152506 (SBRA 1996).

    g. An assessment of impacts to each newly identified historical resource.

    h. Proposed mitigation measures for identified impacts.

    i. Complete or revised DPR 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) should also be included.

    j. Location Maps for newly recorded resources shall be generated on DPR 523J Location Map forms. Each 523J form should only depict one resource at a time; not multiple resources. A vicinity map, as previously provided, should not be present. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale format.

    k. Updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) showing the newly identified resources as well as all of the previously identified resources, if necessary. Each resource shall be clearly labeled with trinomials or temporary numbers if trinomials have not been assigned.

l. The updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) shall include the boundaries of all Santa Clara River Valley Rural Historic District contributors as shown on the seven-page map entitled "Santa Clara Valley of Ventura County, Historic Resources Survey" in the Appendices of SBRA1996. The key shall include: "Contributing Agricultural Parcels, with contributing building(s)"; "Contributing Agricultural Parcels, unimproved or with non-contributing buildings"; "Non-contributing Parcels"; and "Not in 1996 Survey Area".

BACKGROUND

Historic maps and photographs are a critical source of information for the identification of historic archaeological and historic built environment resources. The ages of building and structural remnants of historic archaeological resources can inform the likelihood of encountering refuse pits or artifact-filled privy pits (outhouse pits), features that may contain sufficient archaeological information to qualify as historical resources for listing on the CRHR. The number and range of historic archaeological and historic built environment resources is likely to be underrepresented in cultural resource studies that do not include a comprehensive review of available historic maps and photographs. In turn, the quality of cultural resource impact assessments may suffer.

Staff finds that the research required in order to identify historic built environment and historic archaeological resources within the Mission Rock study area is incomplete and as such does not provide the requisite level of information needed by staff to evaluate project impacts. There are three primary indications of this incompleteness:

First, the AFC (CALPINE 2016: 5.3-8) presents a well-supported argument that the historic period occupation of the study area began in earnest around 1848. In addition, as discussed in **DR 30** the majority of the Mission Rock study area is within the boundaries of the Santa Clara River Valley Rural Historic District, which has a period of significance between 1860 and 1945. In order to identify cultural resources, review of historic records associated with the period of significance is necessary. However, according to the AFC (CALPINE 2016: 5.3-13) only online copies of historic maps from the years 1903, 1951, 1967 and aerial photographs from the years 1947, 1967, 1969, and 1978 were examined. While these are excellent sources, they do not represent a complete review of relevant historical documents. For example, the following documents cited in the SBRA 1996 document *Ventura County Cultural Heritage Survey Phase V: Western Santa Clara Valley,* which was used to prepare the AFC, were not examined:

- Triem, Judith. The Limoneira Company. One Hundred Years of Growing, 1898-1993. Santa Paula: Limoneira Company, 1993.

- Map of Town of Santa Paula, Blanchard and Bradley, surveyed 1873, recorded 1875.

- Plat Map of the Rancho Santa Paula y Saticoy, 1860.

- Plat Map of the Rancho Santa Paula y Saticoy, 1867, W.H. Norway

Second, staff's initial desk top review of historical maps identified multiple historic period resources that were not identified or evaluated for project impacts in the AFC. The maps used by staff for this review include USGS: 1903 Santa Paula 30-minute (1:125,000 scale), 1941 Santa Paula 15-minute (1:62,500 scale), 1951 Santa Paula 7.5-minute (1:24,000 scale), 1951 Saticoy 7.5-minute (1:24000 scale), and 1967 Saticoy 7.5- minute (1:24000 scale). The resources identified include: El Camino Real, State Route 126, Foothill Road, Telegraph Road, Darling Road, Olive Road, Todd Road, Aliso Canyon Road, Pepper Tree Canyon Road, Long Canyon Road, Williams Canyon Road, Mission Rock Road, and Shell Oil Company Saticoy Oil Fields. However, other resources may be present.

Third, the AFC mentions that "CH2M contacted historical societies in the Santa Paula area, including the Santa Paula Historical Society, the Ventura County Museum of History and Art (and the Ventura County Historical Society), and the Research Library and Agriculture Museum, which are both part of the Ventura Museum" (CALPINE 2016: Appendix 5.3B,20). However it is unclear what sort of documents were made available at these locations, the format of any documents (hard copy or digital), how the contact was made and what sort of response was received. Another key source of historical information is San Buenaventura Research Associates, which is based in Santa Paula. Staff members have authored many local histories and lead the effort to identify and define the Santa Clara River Valley Rural Historic District (rural historic landscape). They undoubtedly have copies of most of the key historical documents or know where they can be found.

DATA REQUESTS

42. Conduct supplementary historical research of the project site and the project linear facility routes, extending no less than 0.5 mile from the proposed plant site and the routes of all above-ground linear facilities using documents, maps and aerial photographs dating from the 1860s to the present. In-person visits to document repositories such as the Ventura County Museum of History and Art or the Santa Clara River Valley Railroad Historical Society, may be necessary to do this work. Identify all resources present in the MREC study area.

43. The 1996 San Buena Ventura Research Associates Report was phase V in a multi-part study beginning as early as 1988. Please provide complete digital copies (including appendices) of all phases of this analysis.

44. Provide digital copies of all historic documents, maps and photographs used in the historical research.

45. Conduct a field visit to the newly identified resources in order to collect all the necessary information to record, evaluate and assess potential impacts upon them.

46. Provide copies of all communication (letters, emails, phone logs) with landowners regarding access. Lack of access to a resource must be demonstrated.

47. Submit to the Energy Commission a supplemental technical report meeting ARMR requirements (OHP 1995) that describes:

a. Methods used to identify cultural resources in the Mission Rock study area.

b. Results of the research and field visit.

c. Descriptions of newly recorded cultural resources (1/2 page minimum) including but not limited to: State Route 126, Foothill Road, Telegraph Road, Darling Road, Olive Road, Todd Road, Aliso Canyon Road, Pepper Tree Canyon Road, Long Canyon Road, Williams Canyon Road, Mission Rock Road, and Shell Oil Company Saticoy Oil Fields.

d. Resources that cannot be visited because of lack of access, shall be examined in detail using Google Earth and other online resources. Copies of the images and other online resources used for this analysis will be included as part of the technical report.

e. A comprehensive CRHR evaluation of each resource, considering all four Criteria and all seven aspects of integrity individually, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

f. A comprehensive review of each resource to determine if it is a contributor to the Santa Clara River Valley Rural Historic District (rural historic landscape) using the character defining features outlined in DPR site form for P-56-152506 (SBRA1996).

g. An assessment of impacts to historical resources in the MREC study area.

h. Proposed mitigation measures for identified impacts.

i. Complete DPR 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) should also be included.

j. Each 523J form should only depict one resource at a time; not multiple resources. A vicinity map, as previously provided, should not be present. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale format.

k. Updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) showing the newly identified resources as well as all of the previously identified resources. Each resource shall be clearly labeled with trinomials or temporary numbers if trinomials have not been assigned.

l. The updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) shall include the boundaries of all Santa Clara River Valley Rural Historic District contributors as shown on the seven-page map entitled "Santa Clara Valley of Ventura County, Historic Resources Survey" in the Appendices of SBRA 1996. The key shall include: "Contributing Agricultural Parcels, with contributing building(s)," "Contributing Agricultural Parcels, unimproved or with non-contributing buildings," "Non-contributing Parcels," and "Not in 1996 Survey Area."

BACKGROUND

The confidential cultural resources technical report, *Cultural Resources Inventory Report for the Mission Rock Energy Center Ventura County, California* (CALPINE 2016: Appendix 5.3B, Table 4.3), lists 28 newly recorded resources. DPR 523 A and site location forms are provided for nine of the 28 new resources. The remaining resources are described in one or two sentences in the technical report. According to the technical report "many of these resources were not viewable in the field and therefore, descriptions cannot be provided" (CALPINE 2016: Appendix 5.3B, 34). The brevity of the information and lack of DPR forms renders staff unable to assess whether adequate time was allotted to the field effort and whether appropriate field methods were used.

The technical report (CALPINE 2016: Appendix 5.3B, Table 4.3) also includes CRHR eligibility recommendations for each resource and whether each resource is a contributor to the Santa Clara River Valley Rural Historic District. However, neither the technical report nor the DPR forms provide sufficient data to support these recommendations. Occasionally, the text suggests that additional research will be required. For example, the DPR form for 890 Mission Rock notes that "CH2M recommends potential California Register eligibility under the industrial development of the project area (petroleum), pending further information" (CALPINE 2016: Appendix 5.3B, Attachment B). It is unclear why the research to gather the necessary additional information was not conducted.

Staff finds that the historical research required to determine whether all of the newly identified resources could be CRHR eligible is incomplete and as such does not provide the requisite level of information needed by staff to evaluate project impacts.

DATA REQUESTS

48. Conduct supplementary historical research focused on the newly identified resources in order to support CRHR eligibility recommendations. In-person visits to repositories of documents such as the Ventura County Museum of History and Art may be necessary to do this work.

49. Provide digital copies of all historic documents, maps and photographs used in the historical research.

50. Request permission to access all newly identified resources. Provide copies of all communication (letters, emails, phone logs) with landowners regarding access. Lack of access to a resource must be demonstrated.

51. Revisit all newly identified resources to collect sufficient photographs and other information to support CRHR eligibility recommendations, to determine if any resources are contributors to the Santa Clara River Valley Rural Historic District (rural historic landscape), and to determine if the resources could be considered Ventura County Landmarks.

52. Submit to the Energy Commission a supplemental technical report meeting ARMR requirements (OHP 1995) that includes:

    a. Methods used in the supplemental research and additional field visits.

    b. Results of the research and field visits.

    c. Substantially expanded descriptions (1/2 page minimum) of newly recorded cultural resources.

    d. Resources that cannot be visited because of lack of access shall be examined in detail using Google Earth and other online resources. Copies of the images and other online resources used for this analysis will be included as part of the technical report.

    e. A comprehensive CRHR evaluation of each resource, considering all four criteria and all seven aspects of integrity individually, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

    f. A comprehensive review of each resource to determine if it is a contributor to the Santa Clara River Valley Rural Historic District (rural historic landscape) using the character defining features outlined in DPR site form for P-56-152506 (SBRA1996).

    g. A comprehensive review to determine if each resource could be considered a Ventura County Landmark or other local register.

    h. An assessment of impacts to each newly identified historical resource.

    i. Proposed mitigation measures for identified impacts.

    j. Complete or revised DPR 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) should also be included.

    k. Updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) showing the newly identified resources as well as all of the previously identified

resources. Each resource shall be clearly labeled with trinomials or temporary numbers if trinomials have not been assigned.

l. The updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) shall include the boundaries of all Santa Clara River Valley Rural Historic District contributors as shown on the seven-page map entitled "Santa Clara Valley of Ventura County, Historic Resources Survey" in the Appendices of SBRA 1996. The key shall include: "Contributing Agricultural Parcels, with contributing building(s)," "Contributing Agricultural Parcels, unimproved or with non-contributing buildings," "Non-contributing Parcels," and "Not in 1996 Survey Area."

BACKGROUND

The AFC cites the 1996 San Buenaventura Associates report, which identified the western Santa Clara River Valley Rural Historic District as a historical resource. According to guidance prepared by the Secretary of the Interior, National Parks Service: "An understanding of historic contexts is essential for identifying the significant properties of a rural area [...] This information links a rural property with important historic trends or themes." (*Guidelines for Evaluating and Documenting Rural Historic Landscapes, 1999).* The AFC (CALPINE 2016: 5.3-7 thru 5.3-10) identifies several historical themes that make the historic landscape significant, including agriculture and architecture. However, the AFC does not discuss in any level of detail, the growth and development of the oil industry, transportation, or cultural institutions (education/social), or the growth of agribusiness in the Santa Clara River Valley.

The AFC consistently mentions the "buildings" that are part of the Santa Clara River Valley Rural Historic District. However, discussion of project impacts in the AFC were focused only on individual buildings. Specifically, the AFC concludes that "(i)mpacts to the historic buildings during construction of the generator tie-line are limited to visual impacts; none of the buildings will be directly (physically or materially) affected or altered" (CALPINE 2016: 5.3-32). However, the Santa Clara River Valley Rural Historic District is a rural area that includes many kinds of buildings but also structures, sites, and features. Key among these are agricultural fields, agricultural structures, irrigation features, and transportation systems. The Mission Rock built environment historical research and windshield survey focused on buildings alone, but does not identify associated sites or features that could be contributors to the Santa Clara River Valley Rural Historic District or evaluate project impacts to these resources or to the district as a whole.

Staff finds that the historical research is inadequate to fully understand and consider potential impacts to the Santa Clara Valley Rural Historic District. Historical context and identification of cultural resources within the MREC survey area does not provide the requisite level of information needed by staff to evaluate potential project impacts.

DATA REQUESTS

53. Conduct additional research focused on the historical themes associated with the Santa Clara River Valley Rural Historic District. Specifically, these include, but may not be limited to, the oil industry, transportation, cultural institutions, and agribusiness as it relates to cultural resources found in the Santa Clara River Valley Rural Historic District.

54. Conduct supplementary historical research focused on these historical themes in order to support CRHR eligibility recommendations. In-person visits to repositories such as the Ventura County Museum of History and Art may be necessary to do this work.

    a. Provide digital copies of all historic documents, maps and photographs used in the development of these historic themes.

    b. Provide a complete bibliography listing any secondary sources to support these historical themes found during this additional research.

55. Conduct field survey and historical research focused on Santa Clara River Valley Rural Historic District to identify any extant features associated with the important historical themes, and collect sufficient photographs and other information to support CRHR eligibility recommendations.

56. Provide digital copies of all historic documents, maps and photographs used in the historical research.

57. Revisit all landscape features to collect sufficient photographs and other information to support CRHR eligibility recommendations.

58. Submit to the Energy Commission a supplemental technical report meeting ARMR requirements (OHP 1995) that includes:

    a. Methods used in the supplemental research and additional field visits.

    b. Results of the research and field visits.

    c. Substantially expanded descriptions (1/2 page minimum) of newly recorded cultural resources.

    d. Resources that cannot be visited because of lack of access shall be examined in detail using Google Earth and other online resources. Copies of the images and other online resources used for this analysis will be included as part of the technical report.

    e. A comprehensive CRHR evaluation of each resource, considering all four criteria and all seven aspects of integrity individually, and using data from fieldwork, laboratory analysis, and historical research to support all recommendations.

f. A comprehensive review of each resource to determine if it is a contributor to the Santa Clara River Valley Rural Historic District (rural historic landscape) using the character defining features outlined in DPR site form for P-56-152506 (SBRA1996).

g. An assessment of impacts to historical resources in the Mission Rock study area.

h. Proposed mitigation measures for identified impacts.

i. Complete DPR 523 forms for all cultural resources identified during the survey as being 45 years or older or of exceptional importance. The appropriate DPR 523 detail forms 523 B (Building, Structure, and Object), E (Linear Feature), J (Location), and K (Sketch Map) should also be included.

j. Each 523J form should only depict one resource at a time; not multiple resources. A vicinity map, as previously provided, should not be present. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale format.

k. Updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) showing the newly identified resources as well as all of the previously identified resources. Each resource shall be clearly labeled with trinomials or temporary numbers if trinomials have not been assigned.

l. Previously provided Location Maps for newly recorded resources shall be generated or revised to be on DPR 523J Location Map forms. Each 523J form should only depict one resource at a time; not multiple resources. A vicinity map, as previously provided, should not be present. The USGS map name and publication date should be provided, along with a north arrow and scale, and the name of the resource being identified. The map should be provided in 7.5-minute, 1:24,000 scale.

m. The updated Mission Rock Survey Results Map (Appendix 5.3B, Figure 5.3 E-1) shall include the boundaries of all Santa Clara River Valley Rural Historic District contributors as shown on the seven-page map entitled “Santa Clara Valley of Ventura County, Historic Resources Survey” in the Appendices of SBRA 1996. The key shall include: “Contributing Agricultural Parcels, with contributing building(s),” “Contributing Agricultural Parcels, unimproved or with non-contributing buildings,” “Non-contributing Parcels,” and “Not in 1996 Survey Area.”

REFERENCES CITED

CALPINE 2016 – CALPINE. Application for Certification (TN # 207151). Mission Rock Energy Center. Submitted to California Energy Commission, Sacramento, CA. Docket No. 15-AFC-02.

OHP 1990 – Office of Historic Preservation.

Archaeological Resources Management Reports: Recommended Format and Contents. California Office of Historic Preservation.

San Buenaventura Research Associates 1996 – San Buenaventura Research Associates.

Ventura County Cultural Heritage Survey Phase V: Western Santa Clara Valley. Ventura County Cultural Heritage Board.

NPS 1999 – National Park Service. *Guidelines for Evaluating and Documenting Rural Historic Landscapes.*

Technical Area: **Geology and Paleontology**
Author: Garry Maurath

BACKGROUND

In AFC Section 5.8.2.2 the applicant discusses geologic units present at the site that contain sensitive paleontologic resources that could be impacted by project construction. The field survey results indicate sensitive paleontologic resources are at the surface in areas along the transmission line alignment and at proposed locations of pole foundations. Figure 3.2.1 in § 3.2.1 of the AFC shows a typical cross section for the proposed pole design to be used for transmission line construction. The figure shows the depth of the foundation would be about 20 feet for a pole of variable height. Table 3-1 in § 3.2.1 shows there would be 36 poles with heights varying from 79.9 to 200 feet high. There is no information showing the design and depth for the foundations of these varying sized poles and where they would be located. The AFC also does not discuss the method of construction of the poles and what area and volume of disturbance would be required for construction. Staff is concerned that depending on the method of construction and disturbance there could be permanent loss of valuable paleontologic resources that would not be mitigated by standard monitoring and preservation methods. Staff needs additional information to evaluate the potential scope of impacts.

In addition, in Figure 3.2.1 of the AFC there is a statement that the tip deflection will not exceed 1 percent of the pole height. Figure 5.4.1 in § 5.4.1.2 indicates the generator tie-in line, and therefore some transmission line pole foundations, would likely be constructed in alluvium of the Santa Clara river valley. The transmission poles and MREC site would also be subject to seismic shaking and variable wind loads. Where the depth of excavation is shallow with respect to the height of the pole, oscillation of the poles during a shaking event could create an unstable footing condition. Staff is concerned that the transmission pole design does not adequately address potential failure modes and could affect project reliability.

DATA REQUESTS

59. Please provide a map showing the location of poles, and a table showing the corresponding pole heights.

60. Please provide information discussing the method of construction for transmission pole foundations. Include a discussion of depths and volume of excavations for the various pole heights and estimate the potential loss of sensitive paleontologic resources given the proposed method of construction.

BACKGROUND

In §5.4.1.5 of the AFC a reference is made that "… the geologic units at the surface and in the subsurface are widespread alluvial deposits that occur throughout the Ventura Basin area…" and that "…these units are unique in terms of commercial value." Staff must evaluate whether there is potential for impacts to known mineralogical resources.

DATA REQUEST

61. Please provide clarification of the statement in §5.4.1.5 concerning the "uniqueness" of the alluvial deposits, and whether construction of the project impact this "uniqueness"?

BACKGROUND

§5.4.3.2 of the AFC states: "The probability of mass wasting or flooding at the MREC site is low to negligible." However, the Base Flood Elevation (BFE) is 9 feet above current grade at the southwest corner of the site, and six transmission towers appear to be located within the 100-year flood zone of Todd Barranca (Figure 5.15-3), where they would be subject to concentrated flows emanating from Wheeler Canyon.

A watershed model of the Santa Clara river (2011, Donigian, A.S, et. al.; http://www.aquaterra.com/resources/pubs/pdf/donigian-2011.pdf), calibrated against a February 2005 storm indicates that flow in the Santa Clara river can change from a base flow of <100 cfs to a flood flow of >60,000 cfs. While this is not a 100-year flood flow, the recorded 600% increase in stream flow would be sufficient, given local geologic conditions, to cause mass wasting, erode stream banks, and create unstable slope/foundation conditions. The applicant has not provided information showing how they would mitigate these potentially significant impacts.

DATA REQUEST

62. Please provide data on the elements of the transmission tower design and the design of the fill slopes used to raise Mission Rock above BFE that address the issue of mass wasting, and creation of unstable slope or foundation conditions, resulting from a 100-year flood event.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Noise & Vibration**
Author: Christopher Dennis and Shahab Khoshmashrab

BACKGROUND

In order to fully analyze the project's noise impacts, staff needs to know the project's expected operational noise levels at noise-sensitive receptors R1a, R1b, and R2, shown in AFC Figure 5.7-1, and other potentially affected noise receptors within the vicinity of the project site.

DATA REQUEST

63. Please provide a sound level contour map that shows the expected operational noise levels from the project alone. For this contour map, please use a 2,000-foot radius from the center of the project site to ensure that any receptors potentially affected by project operation, including R1a, R1b, and R2, are included.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: Socioeconomics
Author: Lisa Worrall

Linear Construction Activities

BACKGROUND

The Executive Summary section of the Mission Rock AFC) lists the following linear components among the project elements: a new 6.6-mile 230-kV transmission line, a 2.4-mile long 16-inch-diameter natural gas pipeline, and a new 1.7-mile-long pipeline for treated recycled water (pgs. ES-1 and ES-2).

While the Socioeconomics section (5.10) discusses the project construction and commission schedule and duration (23-months, Q4 2018 – Q4 2020), the workforce needed by trade and month (146 peak, 87 average), and the estimated fiscal benefits of project construction and operation (direct, indirect, and induced), it is unclear if the construction of the linear components has been included in the workforce, schedule, and fiscal estimates (pg. 5.10-11, 5.10-12, and 5.10-14).

DATA REQUEST

64. Please clarify if the construction of the linear components listed above (transmission line, natural gas pipeline, and recycled water pipeline) was included in the 23-month construction schedule, in the workforce estimates, and in the estimated fiscal benefits discussed in the Socioeconomics section of the AFC.

65. If some or all the linear components listed above were not included, please update the construction schedule and duration (noting any overlap in the schedule), workforce needed by trade and month for the linear components not included in the Socioeconomics section of the AFC, and if available, update the fiscal benefits.

Local Construction Workforce Assumptions

BACKGROUND

Staff has identified inconsistent estimates for the number of construction workers that are assumed to be local. On AFC page 5.10-13 the analysis indicates that 60 percent of the construction workforce needed for the project would be local. Whereas on the following page, the analysis states that an estimated 80 percent of the construction workforce would likely be local, residing in Ventura County. The IMPLAN input-output economic modeling program run for the project assumed 80 percent. If 60 percent is the correct estimate assumed for local workforce, the IMPLAN model would then need to be re-run with the corrected assumptions. For the purposes of consistency and clarity, please provide the following:

DATA REQUESTS

66. Please clarify which local construction workforce assumptions are correct: 60 percent or 80 percent.

67. If 60 percent is the correct assumption, please re-run the model with the corrected assumptions for the local workforce.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Soil and Water Resources**
Author: Marylou Taylor

BACKGROUND

The Mission Rock site is located within a special flood hazard area, as designated by the Federal Emergency Management Agency (FEMA). Updated FEMA studies show potential flood elevation at the site is approximately 9 feet higher than the flood elevation currently shown on FEMA's map. Their preliminary map shows the entire site within the 1-percent annual chance flood hazard zone, which would make Mission Rock subject to specific building requirements per local LORS.

Section 5.15.1.3 of the AFC proposes to elevate the Mission Rock site using import fill. Elevating the site would remove Mission Rock from floodplain development requirements, but doing so requires prior approval by FEMA and compliance with local LORS. Staff realizes that flood hazard maps are within the purview of FEMA and official updated maps are still pending, but staff must analyze compliance with LORS such as Ventura County's Flood Plain Management Ordinance and Watershed Protection Ordinance. Because construction of Mission Rock involves considerable earthwork within the Santa Clara floodplain, staff requests additional information to analyze impacts.

DATA REQUESTS

68. Please provide a projected schedule of when the official FEMA map update will be effective and the time anticipated to obtain FEMA approval to proceed with floodplain development.

69. Describe how the Base Flood Elevation at the site was determined for MREC preliminary design and state the elevation using Vertical Datum NAVD88. Explain how the earthwork design would not change if the official FEMA map update results in a different elevation.

70. Also using NAVD88, provide elevations for the following: final elevations of the site post-earthwork, elevation(s) at the top of slabs and/or foundations supporting structures and major equipment.

71. Provide engineering profiles of earthwork (presented at a legible scale) showing elevations of existing grades and proposed grades and foundations (elevations of bottom and top of slabs and/or foundations) using NAVD88. Also include. Cross-sections perpendicular to Shell Road at 100-foot intervals.

72. Provide preliminary drawings that show the existing drainage structure (including culvert outfall) and the proposed drainage design. Describe what would be done to the existing drainage structure.

73. Describe the proposed side slopes, their construction (including any temporary construction disturbance outside the property line), and how they would be protected from erosion and scour during flooding.

74. Discuss the expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters. Demonstrate that final construction would not exacerbate flooding of adjacent properties.

75. Demonstrate that the cumulative effect of Mission Rock when combined with other property uses (that must also comply with floodplain LORS when the updated FEMA maps become effective) do not increase the water surface elevation of the base flood more than one foot at any point.

BACKGROUND

Section 2.1.9 of the AFC states that Mission Rock would use treated recycled water supplied by the Limoneira Company via a new 1.7-mile water supply pipeline that taps into an existing Limoneira Company recycled water line. Recycled water would be used for non-potable activities during construction and operation of Mission Rock. Appendix 2C is a letter dated December 8, 2015 and signed by both parties acknowledging their water supply agreement for recycled water use at Mission Rock. Staff verified with the Los Angeles Regional Water Quality Control Board (LARWQCB) that Limoneira's wastewater treatment plant is allowed to use this recycled water to irrigate their alfalfa fields, but their permit would need to be revised to allow new end uses at Mission Rock.

Staff realizes that any revisions to Limoneira's permit are within the purview of LARWQCB and not within the Energy Commission's jurisdiction. Because no other source was identified for non-potable uses at Mission Rock, staff requests additional information to evaluate availability and reliability of the recycled water supply.

DATA REQUESTS

76. Please provide a projected schedule of the milestones listed.

Milestone	Duration (months)	Start Date (month/year)	End Date (month/year)
Limoneira approval for recycled water end use at Mission Rock	N/A		N/A
Construction of new 1.7-mile recycled water pipeline			
Recycled water available at Mission Rock via installed pipeline	N/A		N/A
Mission Rock site preparation, infill, and grading			
Mission Rock facility construction			
Mission Rock commissioning			
Mission Rock commercial operation	N/A		N/A

77. Provide information about which party would own and maintain the proposed 1.7-mile recycled water pipeline once installed.

78. Explain how recycled water would be delivered and stored at the site for construction activities.

79. Identify local and state LORS regarding recycled water use that are applicable to Mission Rock (e.g., separate pipe system, signage).

80. Discuss the status of consultation with the LARWQCB and whether they have indicated the current permit can be revised to allow use of recycled water for project operation.

81. Provide copies of any information submitted to the LARWQCB to comply with the permit revision process.

82. Discuss potential effects of the Groundwater Sustainability Act on Limoneira's use of groundwater, and any resulting impacts on recycled water supplies to Mission Rock.

BACKGROUND

Section 2.1.10 of the AFC states process wastewater would be discharged to an existing wastewater pipeline adjacent to the site for disposal to an existing treatment facility owned by Green Compass Environmental Solutions and Santa Clara Waste Water (collectively, "Green Compass"). The subsequent Data Adequacy Supplemental indicated that Green Compass was acquired by Patriot Environmental Services, and included a new will-serve letter dated February 5, 2016 from Patriot to service Mission Rock. However, according to a press release dated April 1, 2016 by Patriot WasteWater (http://www.businesswire.com/news/home/20160404005035/en), sale of the facility near Santa Paula remains "subject to certain regulatory approvals". Because no other facility was identified for industrial wastewater disposal at Mission Rock, staff needs additional information demonstrating the applicant would be able to properly dispose industrial wastewater.

DATA REQUESTS

83. Please explain the ability of Patriot WasteWater's to accept Mission Rock industrial wastewater at the treatment facility (815 Mission Rock Rd).

84. Please discuss any other alternative plans for wastewater disposal, and describe the schedule and approvals that would be required to utilize the alternative disposal methods.

BACKGROUND

Section 2.1.3 of the AFC states Mission Rock would include an energy storage system. Batteries made of lithium-ion and/or flow type batteries would be placed in enclosures designed to minimize fire protection requirements and provide secondary containment. In order to evaluate potential impacts due to flooding, staff needs additional information of features that could impact environmental resources or affect safety if damaged by flood.

DATA REQUESTS

85. Please provide information that describes the energy storage system including the battery type(s), casing, and enclosures that protect them from the effects of flooding, if any.

86. Discuss potential impacts due to flood damage to the batteries and battery enclosures, and the proposed measures to address these impacts.

Technical Area: **Traffic and Transportation**
Authors: Ashley Gutierrez and Scott Polaske

Existing Regional and Local Transportation Facilities

BACKGROUND

Section 5.12.1.1 of the AFC, "Existing Regional and Local Transportation Facilities," states that the Mission Rock site would be accessed via State Route (SR)-126/Briggs Road interchange, southeast to Pinkerton Road, west to Mission Rock Road, and then south to Shell Road. Table 5.12-9, "Construction Roadway Segment LOS Analysis Summary," provides level of service (LOS) data for SR-126 east and west of Briggs Road, and for Briggs Road south of Telegraph Road, but does not provide data for Pinkerton, Mission Rock, and Shell roads.

Mission Rock would be located in an industrial park and would share the local roadway with nine other businesses that generate deliveries, customer trips, and employee traffic.

DATA REQUEST

87. Please provide current traffic volumes, volume to capacity (V/C) ratios, and LOS data (without and with the proposed project) for Pinkerton, Mission Rock, and Shell roads.

Construction Traffic Carpooling

BACKGROUND

AFC Section 5.12.2.1, "Construction Traffic Generation," states that based on experience with similar projects, it is estimated that 16 percent of the workforce would carpool.

DATA REQUEST

88. Please provide further explanation for the conclusion that 16 percent of the workforce would carpool.

Construction Truck Traffic

BACKGROUND

AFC Section 5.12.2.1, "Construction Traffic Generation," states that there would be a total of 308 delivery/haul truck trips per day. However, the AFC does not specify the duration of the daily 308 delivery/haul truck trips.

DATA REQUEST

89. Please identify the timeframe for the 308 delivery/haul truck deliveries (beginning and end dates).

Borrow Site Truck Traffic

BACKGROUND

In the April 2016 Data Adequacy Supplement, Section 5.11 (19), a potential borrow site location was identified at 3500 Grimes Canyon Road in Fillmore, California. Staff is aware of potential limitations to the maximum number of daily truck trips allowed under the borrow site's conditional use permit.

DATA REQUESTS

90. Please verify the borrow site located at 3500 Grimes Canyon Road would be used for Mission Rock.

91. Please provide the full imported fill soil delivery route from source to site, including respective roadway segment/ intersection LOS analysis for any roadway segment or intersection not previously addressed in the AFC.

92. Would the aforementioned 308 daily delivery/haul truck trips include trips attributed to fill deliveries?

93. How many daily (please also include total) delivery/haul truck trips would be required to raise the base flood elevation of the project site 10-feet and out of the 100-year flood plain?

94. Approximately how many cubic yards of fill soil would be required to raise the base flood elevation of the project site 10-feet and out of the 100-year flood plain?

95. Please identify the haul capacity of the trucks that would be used to transport fill soil to the project site.

Linear Facility Construction Activities

BACKGROUND

AFC Section 5.12.2.2, "Linear Facility Construction Impacts," states the Southern Pacific Rail line, which intersects Todd Road, is currently inactive. In a conversation with Steve DeGeorge, Planning and Technology Director of the Ventura County Transportation Commission, staff was informed that the rail line in question is currently active.

DATA REQUEST

96. Please identify any large components or required materials for the project that would be transported via rail to the project site.

Linear Facility Construction Activities

BACKGROUND

AFC Section 5.12.2.2, “Linear Facility Construction Impacts,” states that work crews associated with gas pipeline construction and materials deliveries would result in a small number of trips and have already been accounted for in the peak construction workforce estimate. Staff has the responsibility to analyze the generator tie-line and recycled water pipeline peak construction workforce estimate in addition to the gas pipeline and project site peak construction workforce estimates.

DATA REQUEST

97. Please identify the number of peak construction workforce trips related to the construction of the recycled water pipeline and the generator tie-line linear facilities.

MISSION ROCK ENERGY CENTER (15-AFC-02)
DATA REQUESTS – SET 1

Technical Area: **Transmission System Engineering**
Author: Laiping Ng

BACKGROUND:

Staff needs to determine the transmission system impacts of the project and to identify the interconnection facilities, including downstream facilities, needed to support the reliable interconnection of the proposed Mission Rock Energy Center (Mission Rock) in the Southern California Edison (SCE) service area. The proposed interconnection facilities must comply with the utility (SCE) rules for new interconnection, California Public Utilities Commission (CPUC) General Order (GO) 95 and the CPUC GO 128. The interconnection must also comply with the Western Reliability and Planning Criteria, North American Electric Reliability Corporation (NERC) Reliability Standards, Western Electricity Coordinating Council (WECC) Regional System Performance Criteria, and the California Independent System Operator (California ISO) Planning Standards for impacts in the California ISO system. In addition, the California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment." For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, staff relies on the Phase I and Phase II Interconnection Study as well as review of these studies by the agencies responsible for insuring the interconnecting transmission grid meets reliability standards, in this case, SCE and the California ISO. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause the transmission system to violate reliability requirements, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures can include modification and construction of downstream transmission facilities. CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

DATA REQUESTS:

98. Provide a detailed description of the change in design, construction, and operation of any electric transmission facilities, such as generators, transformers, interconnection power lines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from Mission Rock to the SCE Santa Clara Substation.

99. Staff received an updated electrical one line diagram (DWG.NO. MR-GEN-DE-E1-0002) via e-mail on May 4, 2016 and understood that the one line diagram would be updated. Provide an updated of the above one line diagram. Show all equipment ratings on the diagram including generators output (both in MVA and MW), transformers, isolated phase bus duct, circuit breakers, disconnect switches, and etc. which are required for the project. Clarify the generator MW output if it is different from the Application for Certification.

100. Provide the Mission Rock switchyard one-line diagram. Show all equipment ratings including bay arrangement of the breakers, disconnect switches, buses, and etc.

101. Provide a one-line diagram of the existing Santa Clara Substation before the interconnection of Mission Rock.

102. Provide a one-line diagram of the Santa Clara Substation after the addition of Mission Rock. Show all equipment ratings including bay arrangement of the breakers, disconnect switches, buses, and etc. which are required for the addition of Mission Rock.

103. Clarify the generator tie-line conductor type, current carrying capacity, and conductor size.

104. Clarify the auxiliary load.

105. Provide a completed California ISO Phase I and/or Phase II Interconnection Study. The Study should analyze the system impacts with and without the project during peak and off-peak system conditions, and demonstrate conformance or non-conformance with the utility reliability and planning criteria with the following provisions:

a. Identify major assumptions in the base cases including imports to the system, major generation and load changes in the system and queue generation.

b. Analyze the system for N-0, important N-1 and critical N-2 contingency conditions and provide a list of criteria violations in a table showing the loadings before and after adding the new generation.

c. Analyze Short circuit duties.

d. Analyze system for Transient Stability and Post-transient voltage conditions under critical N-1 and N-2 contingencies, and provide related plots, switching data and a list for voltage violations in the studies.

e. Provide a list of contingencies evaluated for each study.

f. List mitigation measures considered and those selected for all criteria violations.

g. Provide power flow diagrams (**MW, % loading & P. U. voltage**) for base cases with and without the project. Power flow diagrams must also be provided for all N-0, N-1 and N-2 studies where overloads or voltage violations appear. Provide the pre and post project diagrams only for an element's largest overload.

Technical Area: **Waste Management**
Author: Ellie Townsend-Hough

BACKGROUND

Staff reviews the applicant's proposed solid and hazardous waste management methods and determines if the methods meet the state standards for waste reduction and recycling. Staff then reviews the available off-site treatment and disposal sites available and determines whether or not the proposed power plant's waste would have a significant impact on the disposal sites' allotted daily, yearly, or lifetime volume of waste it is allowed to receive.

DATA REQUEST

106. Please provide an estimate on the volume of demolition, construction, and operations nonhazardous and hazardous waste, separately, in cubic yards.

BACKGROUND

AFC Sections 5.14.2.4 and 5.14.3, Waste Disposal Summary and Cumulative Effects, respectively, state that the project will generate 9,070 tons per year of solid waste during operation. This is an unusually high number for solid waste generation associated with power plant operation. AFC Table 5.14-2 does not reflect how 9,070 tons per year of solid waste associated with operation would be generated and require disposal at a landfill. It appears most operation-oriented waste would be recycled including the 25MW of lithium ion batteries.

DATA REQUEST:

107. Please update Table 5.14-2 on page 5.14-4 of the AFC to reflect the origin and estimated quantities not in the table or provide updated numbers estimating the amount of waste associated with operation that the project would generate.