DOCKETED

Docket Number:	15-AFC-02
Project Title:	Mission Rock Energy Center
TN #:	215669
Document Title:	Mission Rock Energy Center's Data Request Response Set 2A-134-153
Description:	N/A
Filer:	M. Finn
Organization:	CH2M
Submitter Role:	Applicant Consultant
Submission Date:	1/30/2017 4:10:26 PM
Docketed Date:	1/30/2017

Site Planning and Permitting
Sacramento Area Office
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
916.920.0300
www.ch2m.com

January 30, 2017

Mike Monasmith, Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Mission Rock Energy Center (15-AFC-02) Data Request Response, Set 2A (134-153)

Dear Mike:

Mission Rock Energy Center, LLC (the Applicant) submits responses to California Energy Commission Staff Data Requests, Set 2A (134-153) for the Mission Rock Energy (15-AFC-02) Application for Certification.

Please contact me at 916-359-4805 if you have questions about matters.

Sincerely,

Douglas M. Davy, Ph.D.
Project Manager

Attachment

cc: Mitch Weinberg, Calpine Corporation
Barbara McBride, Calpine Corporation
Jill Van Dalen, Calpine Corporation
Samantha Neumyer, Ellison Schneider, Harris, and Donlan, LLP

DATA REQUEST RESPONSE

Responses to California Energy Commission Staff

Data Request Set 2A (134 to 153)

In support of the

Application for Certification

For the

Mission Rock Energy Center

15-AFC-02

Prepared for

Calpine Corporation

January 2017

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

Contents

Acronyms and Abbreviations

AFC	Application for Certification
BMP	Best Management Practice
CAISO	California Independent System Operator
CEC	California Energy Commission
CTG	combustion turbine generator
EPC	Engineer-Procure-Construct
LLC	Limited Liability Corporation
LORS	laws, ordinances, regulations, and standards
DR	Data Request
EPC	Engineer-Procure-Construct
gpm	gallons per minute
MREC	Mission Rock Energy Center
NPDES	National Pollution Discharge Elimination System
RUSLE	Revised Universal Soil Loss Equation
SWPPP	Stormwater Pollution Prevention Plan

Introduction

Attached are Mission Rock Energy Center, LLC's (Applicant's) responses to the California Energy Commission (CEC) Staff Data Requests (DRs) Set A (133 to 153) for the Mission Rock Energy Center (MREC) (15-AFC-02) Application for Certification (AFC). The CEC Staff served the Set 2A data requests on December 29, 2016, as part of the discovery process for the MREC project.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as presented by CEC Staff, and are keyed to the Data Request numbers (133, 134, etc.).

5.7 Noise (134-138)

CTG Nighttime Operation

134. Please explain how many CTGs (combustion turbine generators), if any, would be expected to operate between 10 p.m. and 7 a.m., and for what purpose(s) (i.e., energy production, voltage support, grid reliability, recharge of the battery storage system, load following, etc.).

Response: As one of the project's stated objectives, MREC is intended to combine dispatchable, operationally flexible, and efficient energy generation with state of the art energy storage technology to meet the need for new local capacity in the Big Creek/Ventura local reliability area. MREC's operations are also intended to help integrate intermittent renewable resources and to provide system reliability. To meet this objective, MREC must be available to operate at any hour of the day or night. As new, intermittent resources are being added to the grid, Applicant therefore cannot currently speculate when it might be called to operate to meet these reliability needs. Regardless of the time of operation, MREC's operation will be in compliance with all applicable laws, ordinances, regulations and standards ("LORS"), including local noise standards.

Battery Recharge

135. Please explain how many CTGs, if any, would be expected to operate between 10 p.m. and 7 a.m. in order to recharge the battery storage system.

Response: It is not anticipated that CTGs will be operated between 10 p.m. and 7 a.m. solely to recharge the battery storage system. This is because the battery energy storage system's objective is to store excess power from the grid during times of "over-generation," typically from intermittent renewable resources like PV. In the current market, these times of over-generation occur during daylight hours and not during the night. By contrast, the CTGs are anticipated to be operated under opposite conditions, i.e., when the grid experiences peaks in demand (not enough electricity generation to serve demand). Therefore, not only is it unlikely the CTGs will be operated to recharge the batteries, it is also unlikely that battery recharge will occur during night hours.

Noise Level with Battery Recharge

136. Under this scenario, please provide the project's expected noise level at noise receptors R1a, R1b, and R2, and explain how often this event is anticipated to occur between 10 p.m. and 7 a.m. on an annual basis.

Response: Because battery recharge is expected to occur in times of over-generation by pulling excess power off the grid, it is not currently expected to occur frequently during night hours. It is also expected take place when most noise-producing equipment, such as the CTGs, generators, and gas compressors are not in operation. In this mode, noise attributable to the project, as set forth in the Noise analyses in the AFC, would be 5 to 10 dBA lower at receptors R1a, R1b, and R2, than with the turbines in operation. MREC is not anticipated to contribute significantly to ambient noise in this mode of operation.

Synchronous Condenser Operation

137. Please explain how many CTGs, if any, would be expected to operate between 10 p.m. and 7 a.m. in order to spin Mission Rock generators into the synchronous condenser mode.

Response: In synchronous condenser operations, the generator is acting as a motor or "load" on the system, and not to generate electricity. Therefore, for synchronous condenser operation, the CTGs are started, synchronized the generator, and immediately shut down once the generator is spinning and synchronized to the grid. The generators thus operate on system power without the combustion turbine in operation. This non-generating operational mode may involve one to five generators operating in synchronous condenser mode. This mode is currently anticipated to most frequently occur during times of over-generation, as described in Responses to Data Requests 135 and 136.

Noise Level with Synchronous Condenser Operation

138. Under this scenario, please provide the project's expected noise level at R1a, R1b, and R2, and explain how often this event is anticipated to occur between 10 p.m. and 7 a.m. on an annual basis.

Response: Since the combustion turbines are shut down once the units are put into synchronous condenser mode and are operating on system power, noise attributable to the project with all five generators spinning in synchronous condenser mode at the nearest residential receptors would be 5 to 10 dBA less than the worst-case model noise impacts with the turbines operating as set forth in the Section 5.7, Noise, of the AFC.

2.0 Project Description (139-143)

Staging Area

139. *Does the 2.75-acre staging area include the area for the pull and tensioning sites, or is the area for the pull and tensioning sites an additional temporary disturbance to the 2.75-acres?*

Response: The 2.75-acre work area includes both the staging/laydown areas and the pull-and-tensioning sites.

Staging within Right-of-Way

140. *Is the 2.75-acre staging area included entirely within the transmission right-of-way?*

Response: Yes. The 2.75-acre staging area would be entirely within the transmission right-of-way.

Pull and Tensioning Sites

141. *Are the pull and tensioning sites completely within the transmission right-of-way, or do they extend beyond the right-of-way?*

Response: Some portions of pull and tensioning sites may extend beyond the right-of-way boundary. This would occur entirely in agricultural areas, not areas of natural habitat. In natural habitat areas, such as the chaparral-covered hills at the north end of the generator tie-line corridor, the conductor would be placed using helicopters and pull-and-tensioning sites would not be used.

Pull and Tension outside Right-of-Way

142. *If the pull and tensioning sites extend beyond the right-of-way, please describe how much of the sites are inside versus outside of the right-of-way.*

Response: Designation of final pull-and-tensioning site locations and dimensions will be determined post-Certification during detailed design.

Map of Staging Areas

143. *Please identify on an aerial map, the location(s) and size(s) of the staging areas and pull and tensioning sites, both inside and outside of the 75-foot wide transmission right-of-way.*

Response: Designation of final pull-and-tensioning site locations will be determined post-Certification during detailed design. Staging areas will be entirely within the right-of-way.

5.11 Soil and Water Resources (144-153)

Side Slope BMPs

144. *Describe how side slopes would be protected from erosion during placement of imported fill material. Provide a topographic site map that identifies the location of preliminary, site-specific best management practices (BMPs) that would protect side slopes from erosion during placement of imported fill material.*

Response:

As described in Sections 5.11.2.4, 5.11.4, and 5.15.4 of the AFC, it is anticipated that the project will implement BMPs designed to minimize soil erosion and sediment transport during the construction, including the placement of fill material, and operational phases of the project. Appropriate erosion and sediment controls for slopes, catch basins, culverts, stream channels, and other areas prone to erosion will be designed for the project post-certification during the detailed design phase. Measures may include mulching, physical stabilization, dust suppression, berms, ditches, surface protections, and sediment barriers. The final determination of the site-specific measures, including location and exact type of BMPs, will be determined post-Certification during detailed design of the project, consistent with the guidelines of the California Stormwater BMP Handbook, National Pollution Discharge Elimination System (NPDES), Clean Water Act, and Porter-Cologne Water Quality Act and all other applicable laws, ordinances, regulations and standards ("LORS"). Consistent with Commission precedent and LORS, these site-specific measures will be reviewed and approved by the Delegate Chief Building Official and Compliance Project Manager, and the Los Angeles Regional Water Quality Control Board for compliance with its program prior to implementation and start of construction of the project.

On January 17, 2017, the Applicant filed an objection to providing the topographic site map requested by DR 144, as such information is not readily available, and is not reasonably necessary for a Commission decision in this proceeding.

Staging within Right-of-Way

145. *Describe any temporary soil disturbance outside the property line prior to and during placement of imported fill material. Disturbance includes, but is not limited to: removal of existing drainage structures, installation of construction BMPs, demolition of existing pavement, and access of equipment or vehicles. Include on the topographic site map (from Data Request No. 144 above) the boundaries of these soil disturbance activities.*

Response: The site will have minimal soil disturbance at the property access points and beyond the property line. Any soil or pavement disturbance outside the property line will be repaired and put back to existing conditions after existing asphalt and concrete removal and grading operations are completed. The fill slopes of the site will be butted up to the edge of the property lines. Grading equipment will work up to the property line from within the site during the first few lifts of soil, then gradually work farther back into the site until the final grades are met. At the property line a board and silt fence of approximately 2'x6' will be installed to prevent any soil or grading equipment from going beyond the property line during placement of fill material.

On January 17, 2017, the Applicant filed an objection to providing the topographic site map requested by DR 145, as such information is not readily available, and is not reasonably necessary for a Commission decision in this proceeding.

Side-Slope Erosion Protection

146. Describe how side slopes would be protected from erosion and scour during Mission Rock construction (when imported fill material is placed and after it is compacted). Provide a topographic site map that identifies the location of preliminary site specific BMPs for soil stabilization that would be appropriate for the size of soil disturbance, slope steepness, slope length, and soil erodibility.

Response: See Response to Data Request #144 regarding the timing of preparation, and approval, of planned site-specific BMPs to protect side slopes from erosion and scour after imported fill material is compacted. In general, however, Applicant expects that the SWPPP for the construction phase will include a complementary suite of BMPs that reflect the specific conditions at the site. Measures may include mulching, physical stabilization, dust suppression, berms, ditches, surface protections, and sediment barriers. Sediment barriers, which slow runoff and trap sediment, include straw bales, sand bags, straw wattles, and silt fences. These features are generally placed below disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area.

As with DRs 144 and 145, the Applicant filed a notice of objection to providing the requested topographic site map. The location of site-specific BMPs will be determined post-Certification during detailed design of the project.

Drainage Outfall

147. Describe how onsite storm water would be managed prior to installation of the final grouted rip rap drainage outfall.

Response: See Response to Data Request #144 regarding the timing of preparation, and approval, of planned site-specific BMPs to manage on-site storm water prior to installation of the final grouted rip-rap drainage outfall. In general, Applicant expects that temporary earth dikes, drainage swales and gravel bags will be installed to channel storm water to a temporary detention pond in the south-west corner of the site. This will take advantage of the gradual slope of the site to the south-west corner. The detention pond will have a temporary pump installed to move the storm water to a slope-drain down the 2:1 slopes and to the existing drainage ditch which leads to the Santa Clara River. The slope-drain will be installed on top of the 2:1 slope to protect the fill slope and would discharge to a velocity dissipation device to prevent erosion and scour of the banks of the drainage ditch. Once the rip-rap drainage outfall is installed, the temporary earth dikes, swales, gravel bags, detention pond, slope-drain, and velocity dissipation device will be removed.

Slope Stabilization

148. Describe how side slopes would be protected from erosion after Mission Rock construction is complete. Indicate whether stabilization is vegetative or non-vegetative (or both) and approximate time needed for stabilization to be fully effective (e.g. curing time or mature growth).

Response: See Response to Data Request #144 regarding the timing of preparation, and approval, of planned site-specific BMPs to protect side slopes from erosion after construction is complete. It is currently anticipated that the stabilization of the side slopes will be vegetative. After the threat of winter storms has passed, hydroseeding and fiber rolls will be placed permanently on the 2:1 fill slopes. The hydroseed mix will require irrigation to ensure adequate vegetation establishment during summer months. The fiber rolls will be trenched and placed at a maximum of 10-foot contour intervals (intervals of approximately 5-feet will be proposed to make fiber rolls more effective) following the contour elevations of the slopes. The hydroseeding can be used in conjunction with mulching to provide

adequate erosion control in the span of time when the vegetation is becoming established. The approximate time needed for stabilization to be fully effective will vary depending on how protection of slope through hydroseeding and mulching has been implemented.

Soil Loss Estimates

149. Please update soil loss estimates during construction to include potential erosion of proposed 2:1 side slopes.

Response: The following is an update of the soil loss estimates provided in MREC AFC Section 5.11 (Soils). As shown in AFC Figure 5.11-1, the project site and project site laydown area are associated with three map units that include Metz loamy sand (MeA, MfA) and Pico sandy loam (PcA). These soils have sandy loam to loamy sand surface textures, and are formed in alluvium from the Santa Clara River. Because the site will receive up to 10 feet of imported fill, the soil loss estimates for all but the No Project alternative are based upon a Revised Universal Soil Loss Equation (RUSLE2) Generic Soil profile for gravelly sandy loam with 15 to 60 percent coarse fragments. The estimate of accelerated soil loss by water is very conservative (overestimate of soil loss). For example, the RUSLE2 calculation assumes only a single BMP (that is, silt fencing), whereas the site specific SWPPP will include multiple soil erosion and sediment control measures. This RUSLE2's soil profile is representative of the properties of a structural fill material.

Table DR149-1. Revised Estimated Soil Loss from Water Erosion During Construction

Feature (acreage)[b]	Activity	Duration (months)	Soil Loss (tons) without BMPs	Soil Loss (tons) with BMPs	Soil Loss (tons/year) No Project
Project Site – 9.79 acres	Grading	6	40.2	0.51	0.0017
	Construction	18	49.4	1.52	—
Project Site Laydown Area – 2.89 acres, 100% of which is covered	Grading	0	0.0	0.0	0.0000
	Construction	24	0.0	0.0	—
Transmission Line – 43.1 acre construction corridor; 0.03 acre for pole footprints	Grading	12	5.0	12.1	0.0001
	Construction	18	640.3	18.1	—
Natural Gas Pipeline – 1.2 acre trench; 21.8 acre construction corridor	Grading	6	6.5	0.8	0.0006
	Construction	12	56.4	1.6	—
Process Water Supply Line – 0.83 acre trench; 15.5 acre construction corridor	Grading	6	1.1	0.1	0.0002
	Construction	12	8.7	0.2	—
Project Soil Loss Estimates		**24**	**807.5**	**35.1**	**0.0027**

Notes:

1. Soil losses (tons/acre/year) are estimated using RUSLE2 software available online at http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm.

-Soil characteristics were estimated using RUSLE2 soil profiles corresponding to the mapped soil unit.

-Soil loss (R-factors) were estimated using 2-year, 6-hour point precipitation frequency amount for the MREC site [online at: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca].

-Estimates of actual soil losses use the RUSLE2 soil loss multiplied by the duration and the affected area. The No Project Alternative estimate does not have a specific duration so loss is given as tons/year.

With the implementation of appropriate BMPs that will be required under the NPDES permit, and as described in AFC Section 5.11.4.1, the total project soil loss of about 35 tons would not constitute a significant impact. It also should be recognized that the estimate of accelerated soil loss by water is very conservative (overestimate of soil loss).

Post-Construction Soil Loss

150. Also estimate the amount of soil erosion per year after construction is complete, comparing results with and without mitigation. If stabilization methods need time to be fully effective (as indicated above in Data Request No. 148), discuss maintenance required to reach full effectiveness.

Response: The majority of impacts on soil resources will occur during the construction phase, as described in Section 5.11.2.4 of the AFC. As described in Response to Data Request #148, the side slopes of the project site pad will be stabilized immediately after their construction in accordance with the design drawings and SWPPP. It is assumed this side stabilization through hydro-seeding would occur during the construction phase of the MREC; therefore, this potential erosion is captured under the construction erosion estimate in Table DR149-1.

Once construction is complete, the project site will be stabilized, and the entire site will be covered with buildings, pavement or landscape surfaces. It is currently anticipated that the side slopes would be fully stabilized by dense grass by the time the of the operation phase, with potential erosion being reflected by the "no project" scenario as given in Table DR149-1 (which models a "non-harvested, dense grass" surface). During the operation phase, inspections and maintenance of side slopes will occur in accordance with the SWPPP, as further described Response to Data Request No. 148. It is further anticipated that the SWPPP will require any erosion features that develop due to storm events to be timely repaired to prevent additional erosion. Wind erosion is also anticipated to be negligible, as the compacted soil surface would be protected by a cover of dense grass. Therefore, because conditions that could lead to soil erosion during operation are not anticipated to be present at the MREC project site, soil erosion is expected to be negligible during the operation period.

Water for Construction

151. Please clarify whether recycled water from Limoneira would be used for construction.

Response: Yes, recycled water from Limoneira is intended to be used for construction water supply needs. The construction water requirements for MREC are very modest, estimated at 50 gallons per minute (gpm) (average use over one hour) intermittently used as needed primarily for dust suppression (AFC Section 5.15.1.7). Recycled water supply from Limoneira is a feasible supply for these limited construction needs.

Alternative Supply for Construction

152. If recycled water from Limoneira is not available for construction, please identify an alternative supply and provide all information demonstrating there is an adequate supply available and the applicant has the necessary approvals to use the supply.

Response: See the response to Data Request #151.

Supply for Operation

153. Please provide information about any alternate or back-up source of recycled water and provide all information demonstrating there is an adequate and reliable supply available and the applicant has the necessary approvals to use the supply.

Response: MREC intends to use Limoneira recycled water supply for construction, and is not seeking alternative sources of construction water at this time.