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LOS ESTEROS CRITICAL ENERGY FACILITY, LLC

800 Thomas Foon Chew Way
San Jose, CA 95134

November 30, 2018

Mr. John Heiser
Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Los Esteros Critical Energy Facility License (03-AFC-02C): Cooling Tower Amendment Responses to Staff's Data Requests, Set 1, A1 through A8

Mr. Heiser,

The Los Esteros Critical Energy Facility (Facility) is in receipt of Staff's data request dated October 30, 2018 (TN #: 225546), regarding the *Application for Amendment No. 6* ("Amendment No. 6"), which requested modification of the Facility to increase the water circulation rate through the cooling tower. Below you will find a response to each item, as numbered in the data request.

Data Request:

A1. Please provide a more detailed explanation discussing why the potential emissions increase is already accounted for in past mitigation surrendered by numerically detailing and accounting for actual emissions and expected potential to emit emissions.

LECEF Response:

As indicated in Amendment No. 6, the increase in flow rate will result in a 1.14 tons per year (TPY) increase in PM10 emissions. The Facility has previously implemented two mitigation measures relating to PM10 emissions: (1) the provision of emission reduction credits (ERCs) as per Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 2 requirements and (2) the surrender of SOx credits. These mitigation measures were based on the Facility's potential to emit (PTE), rather than actual emissions. As demonstrated in the table below, actual emissions from the Facility have always been less than the PTE. The small increase in actual particulate matter emissions from the increased water circulation rate would result in an emission level below the Facility's PTE. Therefore, the small emissions increase from the proposed modification would not result in a greater or different emissions impact from the Facility, and will be more than covered by the existing mitigation.

Additionally, the BAAQMD does not require PM10 emission reduction credits for emissions of less than 100 TPY. For emission increases of less than 100 TPY from facilities, the BAAQMD accounts for these from the small facility emissions bank and reserves ERCs on behalf of permit holders. Since the BAAQMD essentially has already provided ERCs on behalf of Amendment No. 6, it is not necessary to surrender any additional ERCS.

Notwithstanding that LECEF will not result in emission increases requiring additional mitigation, the BAAQMD will be required to provide emission reduction credits from its Offset Accounts for

Nonattainment Air particulate matter as further described here. The BAAQMD is required to track all offset account debits for Federal New Source Review (NSR) equivalency which allows the BAAQMD to demonstrate that there is no net increase in non-attainment pollutants (BAAQMD Rule 2-2-231) which include PM10. At the same time, the use of Offset Accounts allows the BAAQMD to accommodate for regional economic growth. Therefore, BAAQMD has assumed the responsibility of providing the necessary offsets for exempt sources, i.e. minor NSR sources (see Rule 2-2-231.1).

BAAQMD's NSR Rules and Regulations are designed to comply with federal and state Clean Air Act requirements and to ensure that emission increases from new and modified sources do not interfere with efforts to attain and maintain the federal and state air quality standards, while not unnecessarily impeding economic growth in the Bay Area. One part of BAAQMD's NSR program is to offset emission increases in a manner at least equivalent to federal and state statutory NSR requirements. This is accomplished pursuant to Rule 2-2-412. To demonstrate equivalency, the BAAQMD's NSR program implements the federal and state statutory requirements for NSR and ensures that construction and operation of new, relocated, and modified stationary sources does not interfere with progress towards attainment of the National and State Ambient Air Quality Standards.

Therefore, notwithstanding that the LECEF will not result in emission increases within the District that would require mitigation, and based on the requirements of Rules 2-2-231 and 412, the use of the BAAQMD offset account for minor NSR projects would fully mitigate the proposed project PM10 emission increase.

Data Request:

A2. To assist in our consideration of this request, please provide your monthly sulfur testing data over the past 5 years and compare your test results to corresponding PG&E data.

LECEF Response:

In Appendix A, you will find a summary of the Facility's monthly sulfur analysis results from the past five years, including a comparison to PG&E's quarterly average results. The results obtained by the Facility are similar, if not exact, to the results PG&E has obtained. Both analyses meet the requirement of EPA's "pipeline quality natural gas" as defined in 40 CFR 72.2, which states "Pipeline natural gas contains 0.5 grains or less of total sulfur per 100 standard cubic feet".

Data Request:

A3. Please provide a more detailed explanation discussing why the modification is needed now rather than at the time Phase 2 of the project was implemented. Include a discussion of conditions or circumstances that may have affected the decision to wait until now, such as performance improvements or regulatory requirements.

LECEF Response:

In August 2014, the Facility submitted an application to the BAAQMD requesting approval of an increase in circulating water from 73,000 gpm to 90,000 gpm. Amendment No. 6 was subsequently submitted to the CEC on February 3, 2015. Both filings have been pending since submittal. In April 2018, Staff requested that the applicant resubmit the application. The

Facility amended the original application to add some conforming changes to various Air Quality conditions and re-submitted the petition on August 22, 2018 (TN#: 224569).

Data Request:

A4. Please provide estimates of how much the proposed modification would change water consumption and discharge rates.

LECEF Response:

The water supplied by the circulating water pumps flows though the steam turbine condenser where the heat from the exhaust steam of the turbine is condensed and cooled. This produces a vacuum at the turbine exhaust which results in a higher recovery of energy from the steam. The water from the condenser flows back through the cooling tower, where the heat is released and the water reused again in the closed loop system. The increase in flow rate would allow the system to operate more efficiently by increasing the cooling of the water in the cooling tower. Water use in cooling towers is based on many factors including incoming water quality, circulation rate, ambient temperature and cycles of concentration. Based on the other varying factors, this slight increase in circulation rate will not result in a significant increase in water use and will not result in any exceedances of the water discharge permit.

Data Request:

A5. Please provide estimates of how the proposed modification would change wastewater discharge quality.

LECEF Response:

The proposed modification will not affect the wastewater discharge quality. The proposed modification would allow for more efficiency in the circulating water system. Increasing the efficiency of the system does not affect the quality of the water currently discharged. The quality of the water in use at the Facility will continue as is; therefore, wastewater discharge quality is unaffected.

Data Request:

A6. Please discuss whether any change in quantity and quality of wastewater would require a change to the Industrial Wastewater Discharge Permit

LECEF Response:

As mentioned in the responses to Data Requests A4 and A5, the proposed modification would not change the water quality in use at the facility. The wastewater quality and quantity will remain the same, which will not require any modifications to the current Industrial Wastewater Discharge Permit.

Data Request:

A7. Please provide details about any necessary changes to the recycled water User Agreement.

LECEF Response:

There are no necessary changes to the recycled water User Agreement. As previously discussed in response to Data Request A4, the water consumption remains the same with this change. The change requested would provide a greater efficiency to the Facility's circulating water system.

Data Request:

A8. Please provide evidence that the project would continue to comply with VIS-6 with the increased water circulation rate through the cooling tower to a level of 90,000 gallons per minute.

LECEF Response:

VIS-6 requires the cooling tower be operated to abate visible plumes to the maximum extent possible. The tower will continue to be operated in such a manner, the overall quantity and quality of water circulating will not change, and the potential plume will continue to be abated to the maximum extent possible.

During the cooling tower drift, testing that was conducted during the commissioning of the project; the circulating water flow rate per cell was determined to be 13,938 gpm per cell or 83,628 gpm. The facility was able to demonstrate the 0.0005% drift rate at this increased flow. The final cooling tower drift was determined to be 0.00043%, as documented in the final cooling tower drift report submitted to Staff in October 2013. Therefore, the increased flow will not affect the ability of the facility to meet VIS-6.

If you have any questions or require additional information, please contact Rosemary Silva, EHS Specialist, at 408-361-4954.

Sincerely,

Terry Mahoney
General Manager
Los Esteros Critical Energy Center, LLC

CC: Katherine Piper Calpine
Barbara McBride Calpine

Appendix A - LECEF Monthly Gas Samples in Comparison with PG&E Quarterly Sample Results

Date	Result (gr/100scf)	PG&E Quarterly Sample Results Average
NA	NA	-
NA	NA	-
NA	NA	0.18
NA	NA	-
NA	NA	-
6/19/2013	0.20	0.19
7/17/2013	0.16	-
8/15/2013	0.16	-
9/17/2013	0.15	0.17
10/10/2013	0.09	-
11/20/2013	0.14	-
12/10/2013	0.20	0.16
1/9/2014	0.160	-
2/26/2014	0.140	-
3/4/2014	0.120	0.193
4/2/2014	0.097	-
5/8/2014	0.120	-
6/10/2014	0.130	0.164
7/2/2014	0.150	-
8/5/2014	0.130	-
9/3/2014	0.110	0.130
10/2/2014	0.130	-
11/12/2014	0.120	-
12/2/2014	0.110	0.160
1/6/2015	0.110	-
2/5/2015	0.140	-
3/3/2015	0.130	0.170
4/1/2015	0.090	-
5/21/2015	0.110	-
6/9/2015	0.200	0.150
7/1/2015	0.140	-
8/11/2015	0.140	-
9/9/2015	0.160	0.190
10/8/2015	0.130	-
11/20/2015	0.115	-
12/1/2015	0.180	0.200
1/12/2016	0.160	-
2/2/2016	0.150	-
3/8/2016	0.170	0.16
4/5/2016	0.150	-
5/5/2016	0.150	-
6/1/2016	0.210	0.21
7/21/2016	0.150	-
8/9/2016	0.130	-
9/27/2016	0.140	0.17
10/26/2016	0.012	-
11/23/2016	0.010	-
12/13/2016	0.010	0.2
1/19/2017	0.010	-
2/24/2017	0.010	-
3/2/2017	0.010	0.210
4/11/2017	0.010	-
5/4/2017	0.010	-
6/6/2017	ND	0.230
7/6/2017	0.080	-
8/1/2017	0.030	-
9/15/2017	0.020	0.210
10/3/2017	0.008	-
11/7/2017	0.010	-
12/5/2017	0.020	0.160
1/3/2018	0.020	-
2/1/2018	0.010	-
3/1/2018	0.010	0.150
4/10/2018	0.020	-
5/1/2018	0.030	-
6/1/2018	0.010	0.190
7/2/2018	0.010	-
8/16/2018	0.020	-
9/4/2018	0.030	0.210
10/24/2018	0.030	-
-	-	-
-	-	-

Appendix B - PG&E Quarterly Sample Results

Gas System Sulfur Survey Results

Date	Total Sulfur Maximum		Total Sulfur Average all sites	
	PPMv	gr/100 scf	PPMv	gr/100 scf
2018				
Third Quarter	5.3	0.33	3.4	0.21
Second Quarter	5.1	0.32	3.0	0.19
First Quarter	4.7	0.31	2.4	0.15
2017				
Fourth Quarter	4.9	0.31	2.5	0.16
Third Quarter	6.0	0.38	3.3	0.21
Second Quarter	9.03	0.60	3.66	0.23
First Quarter	5.9	0.37	3.4	0.21
2016				
Fourth Quarter	5.8	0.36	3.2	0.20
Third Quarter	4.0	0.25	2.79	0.17
Second Quarter	5.5	0.34	3.3	0.21
First Quarter	3.6	0.23	2.5	0.16
2015				
Fourth Quarter	3.8	0.24	3.2	0.20
Third Quarter	4.0	0.25	3.1	0.19
Second Quarter	6.7	0.42	2.4	0.15
First Quarter	3.8	0.24	2.7	0.17
2014				
Fourth Quarter	3.2	0.20	2.5	0.16
Third Quarter	3.4	0.21	2.1	0.13
Second Quarter	4.31	0.256	2.76	0.164
First Quarter	4.27	0.253	3.26	0.193
2013				
Fourth Quarter	4.99	0.296	2.62	0.156
Third Quarter	5.69	0.338	2.89	0.171
Second Quarter	7.33	0.435	3.17	0.188
First Quarter	6.71	0.398	2.97	0.176